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1. Journal of the International Society for the History of Islamic Medicine (Journal of ISHIM), published twice-a-year, accepts material for publication as folows:
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JOURNAL OF THE INTERNATIONAL SOCIEY FOR THE HISTORY OF ISLAMIC MEDICINE (JISHIM)

VoI.12-13 **No.23-24-25-26** **April / October 2013-2014**

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REVIEW

EDITORIAL

It is our pleasure to publish April/October 2013-2014 Issues of the Journal of International Society for the History of Islamic Medicine (Journal of ISHIM). We know that Journal of ISHIM is a scientific journal devoted to the History of Islamic Medicine and Ethics research and scholarship. Also, this issue like the earlier ones represents important studies in the History of Islamic Medicine and Medical Ethics which activate thinking and raise certain questions. So, it also tries to provide solutions to thorny and sensitive problems and the ensuing understanding helps in enlarging one's perception and intellectual horizon. The views of papers are always those of the authors, and it is important in a field like bioethics which encourages interaction and dialogue over scientific topics.

This issue contains some important scientific articles, in which, we can see and valuable original studies on History of Islamic Medicine and Medical Ethics. These articles are from famous scientists of many countries of the world. So, this journal helps to the development of researches on the History of Islamic Medicine and Medical Ethics. Papers of this issue are seen as two types: Research and Review. After 38 papers, ISHIM news and news of some scientific meetings are present.

Wishing April/October 2013-2014 Issues of the Journal of ISHIM, to be beneficial to all readers and colleagues.

Editors in Chief
Dr. Aysegul Demirhan Erdemir
Dr. Abdul Nasser Kaadan

The Vaginal Speculum Lawlabdescribed by Zahrawi and Sabuncuoghlu: A Development?

Nil SARI

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Summary

Some of the surgical instruments described and drawn by the known surgeons Zahrawi and Sabunjuoghlu are apparently different from the ancient Graeco-Roman models. One of these is a model of the vaginal speculum, called lawlab in Arabic (levleb in Turkish) meaning "speculum" or miftahu'l-ferc, meaning "that which opens the entrance of the womb". The model and usage of the lawlab is described in detail; and consequently, questions about whether lawlab was a developed model of the ancient vaginal speculum and its advantages and disadvantages are discussed comparatively.

Key Words: Vaginal Speculum, Medical History, Surgical Instruments

Introduction

Several surgical instruments described in Islamic and the following Seljuk and Ottoman medical manuscripts reflect several features of ancient Graeco-Roman medical practice. However, there are some surgical instruments described and drawn that are apparently different from the ancient models.One of them is a model of the vaginal speculum, called *lawlab* in Arabic (*levleb* in Turkish) meaning "speculum" or *miftahu'l-ferc*, meaning "that which opens the vagina / that which opens the entrance of the womb".(1,2,3) Medical technology develops by the introduction of new instruments, as well as modifications of the current ones by changing their shapes and functions. Was the *lawlab* a developed model of the vaginal speculum? We are going to contemplate on the question, relying on the two most outstanding surgical literary work of the Islamic world in history; the chapter of surgery in *Abu'l-Qasim az Zahrawi'sTasrif* and *Sharafaddin Sabunjuoghlu's Jarrahiyatu'lKhaniye*(1465).

According to Spink and Lewis, *Zahrawi* (d. 1010) did not follow any author in the description of some new pathological conditions and methods of treatment, neither the designs and ways of using various instruments, that is, he invented new surgical instruments and techniques as well as developing various surgical instruments used by his forerunners.(1) The illustrations of surgical instruments and the sketches of various incision and excision techniques in the chapter on surgery in *Zahrawi*'s encyclopedic book *at-Tasrif* are the earliest addition of these operative elements to a book.

Sharafaddin Sabunjuoghlu, a Moslem Turk, the head physician of the *Amasya* Hospital in Central Anatolia, utilized the surgical work of *Zahrawi*. He translated the chapter on surgery in *at-Tasrif* into Turkish and added his own experienceswith some additional phrases into the text under the title *Jarrahiyatu'l Khaniye*. *Sabunjuoghlu*, too, illustrated, named and described the surgical instruments used in the operations and modified some of the instruments. The most important of all, he water colored miniature pictures showing the patient's position and the physician's practice, that is, depicted the application of the operation described in the text. Owing to *Sabuncuoghlu*, we can conceive easily the application of the instruments described or illustrated in *Zahrawi*'s text.(2,3)

Description of *Lawlab*, the Vaginal Speculum

Description of the bivalve vaginal speculum *lawlab* is found on chapters seventy four and seventy seven of *Tasrif* and *Jarrahiyatu'lKhaniye*. The chapters are titled *"the treatment of perforation of eruptions (ulcers, pyometra, abscess etc.) in the uterus*" and "*the forms of instruments necessary for extracting the foetus*" respectively. The *lawlab* is drawn both in *Zahrawi's Tasrif* in Arabic and *Sharafaddin Sabunjuoghlu*'s *Jarrahiyatu'l Khaniye* in Turkish; whereas in *Jarrahiyatu'l Khaniye* there is also a miniature picture depicting the use of the instrument and a midwife is illustrated placing the speculum in position at the entrance to the vagina of the patient.(2,3,4)

The sketches of the *lawlab* drawn in the two Bodleian manuscripts, Marsh and Huntington copies of *Zahrawi,* are published in Spink's and Lewis's "*Albucasis on Surgery and Instruments*". These writers also describe in detail the form and use of the speculum, relying on the illustrations found in the above said copies of the book; and discuss the ancient's models as well.(1)

Both the description and the illustrations of this gynecological and obstetrical speculum suggest that the model was not mentioned by the ancients.We are going to discuss *Zahrawi*'s and *Sabuncuoghlu*'s *lawlab* which is materially and principally different from the ancient Graeco-Roman model.

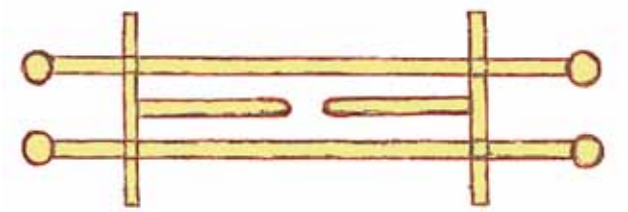

Figure 1: *Zahrawi*'s vaginal speculum drawing. (Istanbul, *Süleymaniye* Library.)

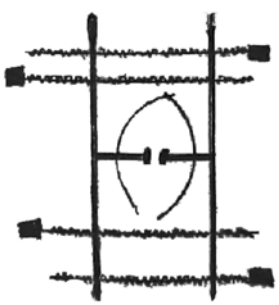

Figure 2: Sabuncuoghlu's vaginal speculum drawing. (Istanbul, Millet Library.)

The *lawlab* is described to be like a slender book press, made of ebony (*abanus*) or boxwood (*şimşad*) and is colored black in the sketches.The instrument constitutes of two parallel shanks called *pehlu,* linked by screws named *burgu* that pass through the shanks and two projections/ blades, the *zayid*s. Little handles for turning the screws are drawn at the end of the screws. Each shank is said to be two fingers in width (3-4cm.), one finger (2 cm.) thick and a span and a half (32-35 cm.) in length. The two pieces of projections, noted to be half a span or a little longer (11-13cm) and two fingers or a little more wider (3-4 cm), are firmly attached at the middle of the shanks. The screws link the two cross-pieces. The length of the screws, which is not mentioned, can be estimated to be 25 cm if two pieced or 41 cm if three pieced, when calculated according to the other pieces of the speculum with the given measures in hand. When the screws are rotated until the end, an empty space of 20 cm is reached.As the screws are revolved, the parallel shanks are drawn nearer or farther, that is, the speculum is opened or closed by turning the screws. At the beginning the screws are rotated so as to bring the shanks together and the two projections are introduced into the vagina. Then, the shanks are separated by rotating the screws and the way for inspection or operation is opened. The writers also noted that the shanks helped to keep the legs open. (1,2,3,5)

Though literally *Sabuncuoghlu* usually translated *Zahrawi*'s text promptly, he sometimes added new information or missed a phrase, while various instruments are drawn

Figure 3: Sabunjuoghlu's depiction of the midwife using the vaginal speculum.(Sarı, Turkish, 2002.; Istanbul, Millet Library.)

with small differences.(6) According to *Sabuncuoghlu*'s literal description of the *lawlab*, it is also of two pieces, but of four screws unlike the two screws of *Zahrawi*. Another difference can be derived from the drawings of *Sabuncuoghlu.* Zahrawi draws the speculum simply as H shaped. However, when Sabuncuoghlu's drawing is viewed, the projections attached to the shanks look shaped as the letter I, across to the shanks. That is, in Sabuncuoghlu's drawings there are additional small protrusions attached to the free ends of the projections.(2,3) This might point to the existence of a third symmetrical part. If we consider the instrument as composed of three pieces, this means that it would provide a greater space, thus opportunity for a better manipulation by the midwife. *Fuat Sezgin* evaluated and reconstructed *Sabuncuoghlu*'s vaginal speculum drawings as a three pieced instrument.(7) Then, can we conclude that, *Sabuncuoghlu* modified the vaginal speculum? This is a matter of discussion. Though *Sabuncuoghlu* sometimes compares an instrument to another instrument or object, the vaginal speculum is not compared to anything else. Hence only the schematized drawings of Sabuncuoghlu, who tried to reflect all parts of an instrument in his drawings, can guide the researcher when literal descriptions are missing.

Application of the Vaginal Speculum *Lawlab*:

The use of the *lawlab* is described in the seventy fourth and seventy seventh chapters.The patient is said to be "*got to seat in a chair having a double seat*." Her feet are to be put upon her abdomen, with thighs apart, arms joined under knees bound together. The midwife is to seat at the right side and introduce the speculum to open the entrance of the vagina. The following precaution is made: "*When you are going to use this instrument, you should measure with a probe the depth of the womb so that the instrument be not introduced beyond this measure lest the patient be harmed; if the instrument be longer, pads should be put over the rim of the cervix to prevent passage of its whole length*." (1,2,3) The instrument is said to be used by two persons, an assistant turning the screws of the vaginal speculum and the midwife inspecting the vagina and treating the patient. A miniature picture of *Sabuncuoghlu* depicts the speculum placed in position at the entrance to the vagina of a patient sitting high up on a two based chair and the midwife sitting below the patient by herself, ready to inspect the uterus. (4)

DISCUSSION:

Main Differences Between the *Lawlab* and the *Dioptra*

The *dioptra* is the Graeco-Roman vaginal dilator / speculum comprised of a lotos/priapiscus with two or sometimes three or four dovetailing blades. The valves are opened and closed by a handle with a screw mechanism. The speculum

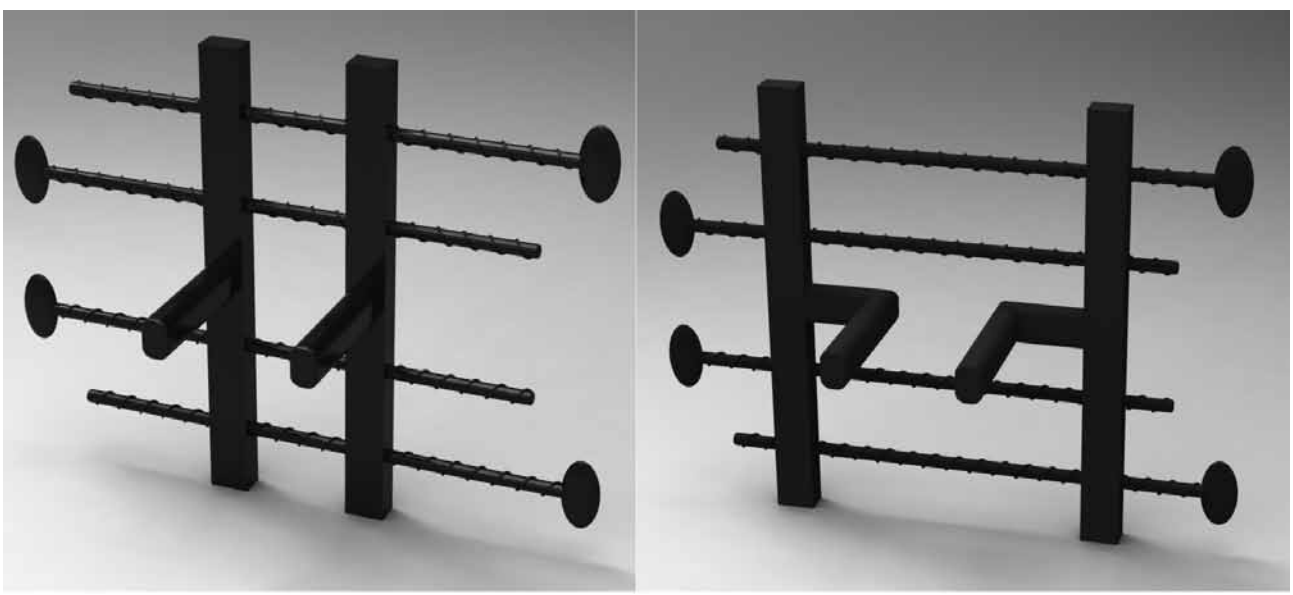

Figure 4: Reconstruction of Sabuncuoghlu's vaginal speculum model.

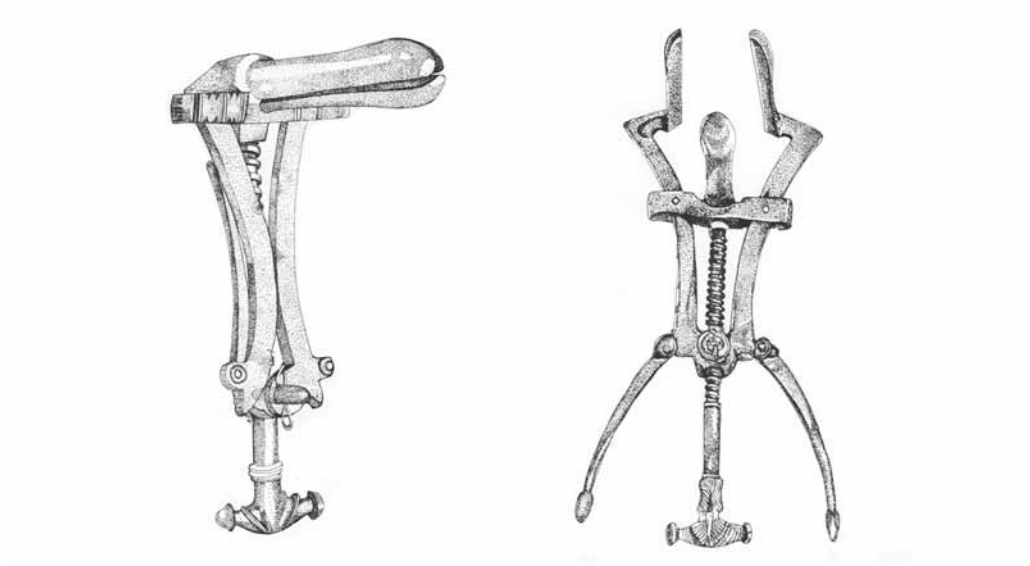

Figure 5: Greco-Roman vaginal speculum model. (Uzel, Anadolu'da, 274)

used to dilate the vagina for gynecological and obstetrical examination and treatment was first mentioned by Soranus. The metal dioptra was made of bronze. Although the three-bladed vaginal speculum is a rare artifact, there are actual vaginal speculums that have survived. The basic form of the *dioptra* was relatively unchanged through history and continued to be used until modern times. (8,9)

The *lawlab* and the *dioptra* have the same function, but their design and mechanical system is quite different. The actual *dioptra* is a complex instrument, designed sophistically and product of metal technology. It has a screw designed as vertical to the projections/blades, that is, the screw is parallel to the shanks used to expand the projections.(10)

The *lawlab* model being simple in form, works with a different principle. The screws which are rotated to open and close the projections are placed horizontally, forming a cross with the vertical shanks. Unlike the *dioptra*- the ancient authors described only one screw and the actual instruments have one screw- the *lawlab* of *Zahrawi* and *Sabuncuoghlu* have two or four screws, respectively.

When the shanks are closed the projections of the *dioptra* look like a tube. The *lawlab*'sprojections are not described and are not drawn as concave pieces, probably being flat in shape. (9,10)

The two speculum models were made of different materials. The actual vaginal speculums of the Graeco-Roman period, found in collections/museums are made of metal (bronze and brass). Though many of the surgical instruments introduced by *Zahrawi* and *Sabuncuoghlu* are noted to be produced from metal, the *lawlab* is described to be made of wood, either ebony (*Ebenaceae*) or boxwood (Buxaceae). (9) No actual model of a vaginal speculum made of ebony exists, therefore we don't have a chance to study a *lawlab*.

What might be the advantages and disadvantages of the *dioptra* and the *lawlab* in respect to their practical efficiency?

Practice of obstetrics and gynecology naturally requires assistance. The *dioptra* can be used by one person alone, without an assistance, but still someone might be needed to keep the legs open. The trivalve typed Graeco-Roman model would probably provide a greater facility for the health practitioner. (9) On the other hand, the *lawlab* is noted to be applied by two persons, an assistant turning the screws of the vaginal speculum and the midwife inspecting the vagina and treating the patient. However, besides being a vaginal dilator, *lawlab*'s long shanks placed on the upper legs would help keeping the legs open on both sides without an assistance, also providing more time for inspection, if needed. However, the screws might irritate the skin. On the other hand, if we assume that the speculum was a three pieced instrument as drawn by *Sabuncuoghlu*, it would provide a greater area, thus more ability for the midwife during inspection and manipulation. However, when the shanks are closed the projections of the *dioptra* look like a tube;

while *lawlab*'s projections are probably flat, which might be more discomforting for the patient.

Ancient Graeco-Roman models were made of metal (bronze and brass) and the measures of various models are about 19.5 cm in length, 7.5 cm in width, and weighs about 400 gr. A heavy metal instrument, a part of which is introduced into the vagina, will make a pressure that would be an extra burden for the patient. The *lawlab*, on the other hand, was made of wood. The lightness of wood, almost nine times lighter than metal / bronze, is an advantage.

Although metals do oxide, there is a much greater chance of their endurance and existence. However, ebony wood with its special features should be taken into consideration. Ebony has been highly valued all through history. Some species of ebony has properties that gives it a superior quality of wood. Ebony is an organic, but firm, hard, strong and a lasting endurable material easily cleaned. Its fine close grained texture and smoothness after worked on would provide cleanliness and an extra comfort for the patient. Ursolic asit that prevents the biofilm which is needed for the colonization and infection of bacteria are found in it. (14) A study put forth that ebonized zones are formed as a response to infection by fungi. (15) Extract of ebony boiled in water is traditionally used against eye infection (ophthalmia) and treatment of cut wounds. Such information calls attention to antibacterial activity. Ebony wood might have been a well chosen material to make a speculum. Ebony wood ought to be investigated in this respect.

There is a main question yet not to be answered clearly. Although *Zahrawi* notes of ¨another type of screw speculum mentioned by the ancients¨ probably the *dioptra*, and draws its figure on chapter seventy seven on "the forms of instruments necessary for extracting the fetus", we do not find any note about this in *Sabuncuoghlu*'s text. (1) The Mainz speculum being from Anatolia, the *dioptra* was probably used in Anatolia.(9)Why did not *Sabuncuoghlu* include this short information and its drawing to his book? Was it because he did not come across any actual vaginal speculum of the ancients, or did he prefer the four screwed model, which might have been derived from traditional ones used by midwifes? *Zahrawi* addresses to the midwife "*kabile*" and *Sabuncuoghlu* to the female physician "*tabibe*" on the chapters about obstetrics and gynecology and hence, the above mentioned information on the *lawlab*. Obstetrics and gynecological interventions were usually under the responsibility of the female practitioner. The *lawlab* of wood might have been a traditional instrument used by midwifes and developed in an empirical way. The *lawlab,* though simple in form, does offer some practical efficiencies to the practitioner.

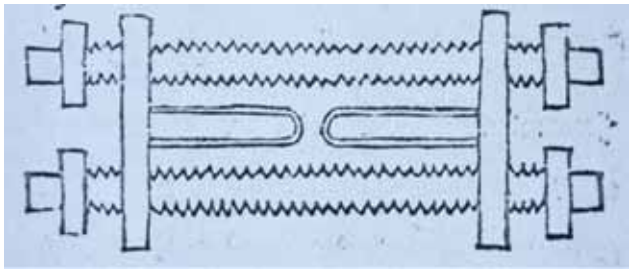

Figure 6: Vaginal dilator first described by Arabs reappears in 14th century. (Betmann, p. 82.)

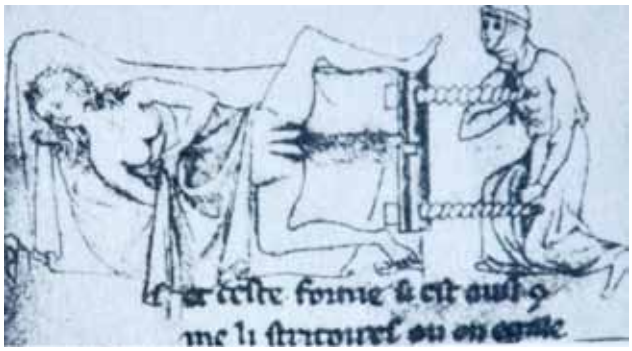

Figure 7: Wooden dilator of Zahrawi, pictured in a manuscript of Guy de Chauliac, 1500. (Harold Speert, p. 458)

The vaginal dilator resembling the lawlab first described by *Zahrawi* reappeared in Europe in the 14th century. However, the *dioptra* mechanism was also used in the following centuries and the contemporary vaginal speculum model is basically in the form of the *dioptra*. (11,12,13) It were the technical and material features of *dioptra* that carried it to modern medical usage by physicians.

Note: *The vaginal speculum *lawlab,* as well as various other surgical instruments, was mentioned by the author during the meeting "1001 Inventions Conference" at Manchester, on March 7th, 2006, as one of the Islamic and Turkish instruments that differed from the ancients'. The paper was titled "Surgical Instruments Innovated During the Islamic Era". The presentation was not submitted for publishing.

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Analysis of a Manuscript: Risāla-i Tibb bl't-Turkî: Treatment of Head Diseases in Ottoman Medicine

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Summary

This article analyses an Ottoman medical manuscript, the Risāla-i Tibb bi't-Turkî or "Medical Treatise in Turkish". The manuscript, which was catalogued in Suleymaniye Library in Istanbul, is missing its bibliography and has not been studied before. In this work, the manuscript was analysed by a transliteration from the Ottoman language to modern Turkish, and its credibility was assessed. In light of the information given in Chapter 1 and Chapter 49 of the manuscript and other contemporary literature, the treatment of head diseases and the prescribed remedies in Ottoman medicine between the 15th and 18th centuries are discussed. We particularly focus on the classification of head diseases, the type of prescribed drugs, and methods of preparation and administration.

Key Words: Risāla-i Tibb bi al-Turkî, Ottoman Medicine, head diseases, headache, brain, epilepsy, madness, melancholia, weakness in memory, blocked brain.

Introduction

Ottoman medicine advanced the medical experience and knowledge of various civilisations in Europe, Asia and the Middle East, drawing on expertise from Ancient Greek, Uyghur, and Chinese, Indian, Medieval Persian and Islamic civilisations.[1] Through its geographical and cultural relationships, it was also influenced by Byzantine and Balkan medical traditions.[2] The Ottomans collated this diverse medical knowledge and added to it with their own observations and experimentation. Designs of hospital architecture, treatment of psychological diseases with music, a gradual rise in the variety of herbal drugs and a large number of medical manuscripts written by Ottoman physicians are all evidence of this development.[3] Among the medical works of Ottoman physicians, those of *Adviya-i Mufrada* (1389-90), *Yâdigâr-i Ibn Shareef* (1425), *Jarrahiyyat Hâniyye*[4] (1465), and *Al-Mûzaj al-Tibb* (1625) were widely used until the eighteenth century, when modern medicine began to replace classical medicine.[5]

The Ottoman medical books written between the 15th and 18th centuries are considered classical medical texts by researchers of the history of Ottoman medicine, as they are based on the traditional philosophy of therapy. The classical books are available in the literature. Unfortunately, there are not many book analyses in the field of Ottoman medicine in comparison to other disciplines.

The objective of this study is to survey an unstudied manuscript which will make a contribution to Ottoman medical studies. The manuscript is named *Risāla-i Tibb bi al-Turkî* (Medical treatise in Turkish), of unknown date. It has been obtained from the Suleymaniye Library of Turkey. To the best of our knowledge, it has not been studied previously. This work will study the first chapter of the manuscript, which is about "therapy for head diseases", focusing on the "drug treatment". Due to its relationship with the headache chapter of the manuscript, Chapter 49 will also be

1 For a background on Ottoman Medical History see Osman Sevki Uludag, *Bes bucuk Asirlik Turk Tababeti Tarihi* ed. Ilter Uzel, (Ankara: Kultur Bakanligi, 1991): 20-28.; Suheyl Unver, *Uygurlarda Tababet,* (Istanbul: Yeni Laboratuar Yayimlari, 1936) 11-15; Ayten Altintas, "A Brief Summary of the Early History of Turkish Medicine", *Tip Tarihi Arastirmalari,* 1 (1986): 84-86; Emel Esin, "Otaci", *International Congress on the History of Turkish-Islamic Science and Technology, 2* (1981).

2 Rhoads Murphey, "Ottoman Medicine and Transculturalism from the Sixteenth to Eighteenth Century", Studies on Ottoman Society and Culture 16th -18th Centuries, *Bulletin of the History of Medicine,* 66:3 (1992), 378-9.

3 Ahmet Agirakca, "Osmanli Tibbinin Kaynaklari" in: *Osmanlilarda Saglik,* C. Yilmaz and N. Yilmaz (eds.), (Istanbul: Biofarma, 2006), I, 134.

4 Sabuncuoğlu, Osman-Aydüz, S., (2011), "The 15th century Turkish Physician Serefeddin Sabuncuoğlu author of Cerrahiyetu'l-Haniye", published at www.muslimheritage.com.

5 Agirakca, op.cit., pp. 138-140.

considered, as it gives the method for making therapeutic oils which the headache chapter lacks.

Background

A review of primarily medical literature written between the 15th and 18th centuries was essential before starting to survey the manuscript.[6] This included transliterations of *Jarrahiyyat Haniyya*[7] and *Tuhfa-i Muradî* (1430)[8]. In addition, some secondary sources written on the literature of the same period were reviewed. Among them, *Halwahâne Defteri ve Topkapi Sarayi'nda Eczacilik* by Arslan Terzioglu and *Fatih Sultan Mehmed Devrinde (Telif, Terceme ve istinsah edilen) Tip Eserleri ile ilaclar* by Nasid Baylav are worth mentioning as they include essays with full transliteration of the texts, and a comprehensive glossary. Two works by Nil Sari have also been enormously useful: first, 'The Classification of Mental Diseases in Ottoman Medical Manuscripts', a study which is based on a fifteenth century medical book called *Zâhire-i Murâdiye,* and second, *Klasik Donem llac Hazirlama Teknikleri,* which examines the original drug recipes of an eighteenth century medical book, *Gunya al-Muhassilîn.* These books provided us not only with knowledge of medicine and the pharmacy of the period, but also with a broad range of vocabulary including the terminology of anatomy and names of the drugs as they were called by the Ottomans. Finally, we benefited from *Taniklariyla Tarama Sozlugu, Kâmus-i Turkî* and other dictionaries. *Tarama Sozlugu,* particularly, provided us with vocabularies for such primary sources as *Yadigâr-i ibn Sharif*[9]*, Muntehâb-i Shifa*[10]*,* and *Hazâin al-Sa'adad.*[11]

The above mentioned works allowed us both a background to build on, and also a structure to follow for our thesis. We further benefited from this literature in order to establish the reliability of the *Risâla-i Tibb bi al-Turkî,* supporting our work with examples from these books and comparing them with those of the *Risâla.*

Structure of the work

The rest of the work is structured as follows: the second chapter will discuss the manuscript in terms of its writing style, author, and audience to assess its credibility and will then give an outline of the *Risāla.* The third chapter will provide a short background of the theory of the four humours on which Ottoman medicine is based. This part is essential to an understanding of how diseases were perceived and how remedies were developed. The fourth chapter will categorise and define different types of head diseases. The drugs used for the treatment of these diseases will be given in the next chapter, which will provide details of the drugs used, their methods of preparation and routes of their administration. Chapter six will conclude the thesis.

Appearance and Writing Style of the *Risāla-i Tibb bi't-Turkî*

The *Risāla-i Tibb bi't-Turkî* (hereafter cited as the *Risāla)* is stored in the Suleymaniye Library, in the "Ayasofya" collection marked 3624. This number refers to a two-part volume, each of which belongs to different works. *Risāla* consists of the first 51 folios of the first volume.

The *Risāla* comprises forty-nine chapters. The titles of each chapter are highlighted in red ink. There are also subsections at the end of each chapter called *mufradad* and *fasil* which are also in red. The *Mufradad* sections revise the therapeutic drugs and methods borrowed from other medical books. At the beginning of each *mufradad,* the author identifies this with the expression, *'mufredat'tir ki gayr-i kuttab'dan alinmistir'* (...some part of the *Risāla* are copied from other books); however he does not mention the names of cited sources. After *mufradad,* come brief sections called *fasl.* They focus on such specific topics as the best foods to avoid a headache or to boost memory.

The manuscript shows features which imply that the book might be a copy of the original manuscript. This assumption is based on grammatical mistakes we observed during transliteration of the text that probably occurred during copying. Furthermore, the writing style of the text

6 S. Aydüz, "On beşinci yüzyılın ilk yarısında Osmanlı Tıbbına Genel bir bakış (An overview to the Ottoman Medical Literature during the first half of the fifteenth Century)", 5th International Congress of the International Society for History of Islamic Medicine, Istanbul, 25-26-27-28 October 2010.

7 *Jarrahiyya* is a 15th century surcigal book written by the physician of Amasya Dar al-shifa. See. Sarafaddin Sabuncuoglu, *Cerrahiyyetu'l-Haniyye* ed. İlter Uzel, 2 vols. (Ankara: TTK, 1992).

8 A fifteenth century book which talks about therapeutic properties of oils and precious stones by Muhammad bin Mesud Shirwanî.

9 A fifteenth century book, written by physician Ibn Sharif. See Esin Kahya, "14. ve 15. Yuzyillarda Bursadaki Bilimsel Hayatın Kisaca Degerlendirilmesi ve Bilimsel Calismalardan Bazi Ornekler", *8th International Congress on the Economic and Social History of Turkey,* Bursa: 1998, 118-119.

10 See Mahmut Tokac, "Osmanli Donemi Turkce Tip Yazmalan" in: *Osmanlilarda Saglik*, C. Yilmaz and N. Yilmaz (eds.), Istanbul: Biofarma, 2006, 1:170.

11 Phyisician Hekim Pasha's work (15th century). See Cemil Akpinar, "Haci Pasa", *Diyanet Islam Ansiklopedisi,* 14: (1996). 492-496.

is *nash* and we know the Ottomans used this writing style only in books that were copied *(istinsah).*[12]

The Author

In the recently revised catalogue of Turkish Medical Manuscripts, the *Risāla-i Tibb bi't-Turkî* is attributed to Jarrâh Masud, an Ottoman physician who was thought to have lived in the 15th-16th centuries.[13] According to the catalogue, the original copy of the book is claimed to be a translation of the Arabic physician Abu Tahir al-Gaznavî's work, the *Rahât al-Insân.* It is also mentioned that there are a number of copies of the *Risāla* in Turkey's libraries.

The hypothesis we defend is that the *Risāla* is not one of Jarrâh Masud's works. There are several indications for this: first, there appears an inconsistency between the size and contents of the copies. In the catalogue, thirty-three copies of the manuscript are recorded. These copies, however, show a considerable difference in terms of size. While one of the books consists of 194 folios, another is only 37 folios. Furthermore, the introduction of Jarrâh Masud's section in the catalogue states that Jarrâh's book is organised into three chapters. Our copy, however, has 49 chapters. Secondly, the layout is dissimilar to that mentioned in the catalogue. The catalogue presents a brief outline as follows: the first part gives a theoretical background of medicine, the second part describes diseases and the last part is about remedies. As far as the copy we studied is concerned, we do not have the sections devoted to medical theory and diseases, but there are remedies prescribed for specific illnesses. Moreover, the beginnings of the copies that were provided in the catalogue do not match with that of the copy we studied.

Although there is no certainty about the author's identity, we think that he was a physician. In the *Risāla* he occasionally quotes from renowned Muslim physicians such as Ibn Sīnā[14], Ibn Baytar[15] and al-Tabarî[16] and gives remedies from their works. He also writes, *'mucerrebdir'* (has been tested) at the end of some recipes. The same expression is found in other medical books, for example, *Sharafaddin Sabuncuoglu*[17] frequently uses this word in his book *Jarrahiyya* to indicate that he was experienced. Furthermore, the author of the *Risāla* explains matters relating to health and medicine in a professional manner. In light of these findings, we suggest that the author of the *Risāla* was a physician.

Since we are uncertain about the author's identity, we will refer him as "the author" throughout the text.

The Purpose of the *Risāla,* and its Audience

Ottoman medical books typically start by introducing the theory of the humours (to be discussed below) and talk about preventative medicine and diet, then knowledge of anatomy, followed by diseases of the organs and their treatment, and finally hygiene and deontology (the ethical theory of duties and rights).[18] They are presented as if they were written for medical practitioners or medical students. The *Risāla,* however, does not follow this structure. Theoretical knowledge and anatomy are not covered; definitions of diseases are rarely addressed. The author focuses directly on the treatment of disease, occasionally emphasising regimen and diet. This implies that the book was written for the ordinary reader rather than the medical professional.

This assumption is based on several factors. First, the book does not recommend such methods of treatment as cauterisation and bloodletting, as they were considered surgical treatments which should be administered by professional physicians.[19] Second, he prescribes practical remedies for common illnesses. In the preface to the manuscript, he states:

"Hayru'n-nas man yanfau'n-nâs' dedim, tib ilminde bir muhtasar kitap tasnif ettim, sihhati hifz eyleme tarikasin ve şoI marazlar ki cok vaki' olur ânin sebeplerin ve alametlerin zikr eyleyelim, kacan ki bir yerde hekim-i hazik bulunmasa bu muhtasarla amel eyleyeler".

At the beginning of the paragraph above, he states his motive for writing the book when he refers to a saying from the Prophet Muhammad: "The best amongst mankind is he who is most beneficial for people at large". Then, he adds

12 Tayyib Gokbilgin, *Osmanli Paleografya ve Diplomatik ilmi,* (Istanbul: Enderun Kitabevi, 1992), 36-38.

13 Thanks to Dr. Halid Eren, Director General of IRCICA (Research Centre for Islamic History) for allowing us to use drafts of *Osmanli Tip Yazmalari Literaturu* before being published in IRCICA publications.

14 A celebrated physician of the 10th century Islamic world. See the article B. Musallam, "Avicenna-Biology and Medicine," in *Encyclopaedia Iranica* ed. E. Yarshater, (London: Routledge and Kegan Paul, 1989), 3:95.

15 Ibn Baytar was a famed physician, herbalist, pharmacist, and botanist His primary book is *Kitab Al-Jami' Al-Adviyya al-Mufradah.*

16 A 9th century Arabic physician, famous for his medical encyclopaedia, *Firdaws al-Hikmah.* See "Ali Ibn Sahl At-Tabari", *Health Sciences in Early Islam,* 353-58.

17 Author of *Cerrahiyyetu 'l-Haniyye.*

18 Mahmut Tokac, "Osmanli Donemi Turkce Tip Yazmalan" in: *Osmanlilarda Saglik,* I, C. Yilmaz and N. Yilmaz (eds.), (Istanbul: Biofarma, 2006), 165-168.

19 S. K. Hamarneh, "Al-Majusi"s Observations and Instructions on Medicine and Public Health", *Hamdart Medicus,* 1980, 23 (1-2), 3-36.

that he has organised a comprehensive book to explain how to keep healthy and to give remedies for common illnesses. He suggests that if there were no medical doctor available to help, this compendium could be used by ordinary people. Finally, the drugs he recommends are generally simple drugs which could be easily prepared at home. When giving instructions for the preparation of drugs, he mentions simple equipment such as a pot and a glass container which would be readily available in a domestic kitchen. Thus, the book is aimed at the general public.

These findings are presented here with caution, since each of the aspects mentioned requires further, detailed examination.

Structure of the *Risāla*

The *Risāla* consists of 49 chapters, preceded by a short preface. The organisation of the chapters - unlike that of modern medical books that categorise diseases within the body system, such as neurological and respiratory diseases - is based on grouping diseases according to the part of the body affected, starting from the head and moving down to the toes. This is a characteristic of almost all classical Islamic medical books.[20] Each chapter provides remedies for different types of diseases. Occasionally, definitions of diseases and advice on health are given. The arrangement of the *Risāla* is as follows: the first chapter studies the treatment of headaches caused by both physiological and psychological conditions. These are collectively considered under the title of 'diseases of the head'. Chapters 2 to 9 deal with the treatment of diseases of particular parts and organs of the head including the face, forehead, eye, ear, nose and nasal passage, mouth and tongue, tooth, chin, throat and palate, and neck and nape. The next 15 chapters cover treatment of the diseases of internal organs such as the chest, lung, liver, stomach, heart, spleen, colon, kidney, and bladder, in the order given. Treatment of some excretory and intestinal diseases such as colic *(kulunç),* constipation *(kabz),* urinary incontinence *(silisu'l-bevl),* blood in the urine and haemorrhoids were considered sufficiently important to be discussed in separate chapters. Chapter 25 is devoted to problems associated with female health. Chapters 26 to 31 comprise the treatment of joint inflammations and aches, particularly of the leg and foot such as sciatica *(irku'n-nesâ),* gout *(nikris),* and joint aches *(veca-i mefasil).* The following eight chapters, 32 to 39, deal with the treatment of feverish and infectious diseases such as measles, smallpox, and leprosy; and skin conditions such as acne, boils, nettle rash *(kurdeşen)* and barber's itch *(demren).* Chapter 40 is devoted to the treatment of rabies and poisonous *(agulu)* diseases which were caused by animal bites and food poisoning. The subsequent chapters from 41 to 48 provide treatments for various diseases in a seemingly random order: elephantiasis (abnormal enlargement of parts of the body) *(dau'l-fil);* contagious diseases such as the plague *(taun);* treatment of diseases caused by nerve dysfunction such as spasm *(teşennuc),* facial paralysis *(lakve)* and numbness of the body; and treatment of some cosmetic conditions such as loss of eyebrows, eyelashes, beard, and hair, and treatment of cracked hands, feet and lips. The book concludes with a chapter on the art of oil preparation *(yaglar san'ati).*

Theory of Ottoman Medicine

Theory of the Humours

In order to have a good understanding of Ottoman medical practice in terms of its definition of health and sickness, and criteria used by physicians to diagnose diseases and to prescribe suitable drugs, we need to know the philosophy on which Ottoman medicine is based. Although it is largely influenced by Islamic medicine, the theory underlying Ottoman medicine dates back to the Ancient Greek physicians Galen and Hippocrates. According to their theory, the universe and every being within the universe are formed of four basic elements: fire, water, earth and air. Hence, they all possess the nature of these elements, that is to say, heat (of fire), coldness (of water), moisture (of air), and dryness (of earth).[21]

Founded on the same theory, the human body, its organs and diseases also possess the property of the four elements. These elements shows themselves in the body as four humours *(ahlat-i erbaa)* or bodily fluids, namely *dem* (blood), *balgam* (phlegm), *safra* (yellow bile), and *sevda* (black bile) corresponding to fire, water, air and earth, respectively.[22]

The human body is considered to be a combination of the four humours (*ahlat-i erbaa).* Variations in the quality and quantity of the humours in the body form the individual "character" (*mizaj)* of a person. For instance, if the blood humour — the heat element — becomes dominant in the body, a person is said to possess a hot *mizaj* that is associated with a sanguine personality whereas if the black

20 Mahmut Tokaç, "Osmanli Donemi Turkçe Tip Yazmaları" in: *Osmanlilarda Saglık* 1, C. Yilmaz and N. Yilmaz (eds.), (Istanbul: Biofarma, 2006), 164.

21 Osman Şevki Uludağ, *Bes bucuk Asirlik Turk Tababeti Tarihi,* ed. İlter Uzel, (Ankara: Kultür Bakanligi, 1991) 33-35.

22 Nil Sari, "Hindiba: A Drug for Cancer Treatment in Muslim Heritage", published at www.muslimheritage.com, (2007), 11.

bile - the element of earth - is dominant, a dry *mizaj* is observed which is associated with depressiveness.[23] Likewise, if the volume of heat and earth elements increases in the body, the resultant compound *mizaj* would have hot and dry properties and would be called *safravi* (choleric).[24] There are four main temperaments as shown in the table below — to which Ottoman medical manuscripts refer in order to explain the *mizaj* of organs and diseases.

The intensity of various humours in the body and other factors such as the age, sex, or psychological state of the person, or external factors such as the weather, seasons and geographical area can cause a variant of these four types of *mizaj* for different people.[25]

Definition of health and sickness in Ottoman Medicine

An understanding of how health is defined in Ottoman medicine is necessary before defining disease; people are considered healthy as long as their humours are in balance. A healthy person with a balanced temperament should generally have following indications:

"... the complexion of an individual is pleasing with shades and colour that are normal to their respective biological environment; body build is medium; heat, cold, moisture and dryness is balanced in the body; signs of sleep and wakefulness are moderate, physical movements are easy and memory is well-functioning."

Since a state of health means a balanced distribution of the four humours in the body, disruption in the distribution of one or more of them results in disease.

In Islamic medicine, diseases are classified into four main groups which are identified as spiritual, functional, structural and superficial. Temperamental imbalance leads to functional disease, one of the four in the above classification. The factor which causes imbalance among the humours is explained by the concept of humoral pathology, which was developed by Ibn Sīnā and followed by Ottoman physicians[26]. According to Ibn Sīnā, foreign heat from outside the body interferes with the body's innate heat, which is responsible for the protection of the humours. As Nil Sari stated:[27]

The innate heat is the pathogenic agent which protects the natural humours from being overruled by foreign heat. If the innate heat is feeble, the natural faculties of the body will be unable to regulate the humours; the process of digestion will be spoiled; the humours will not move in accordance with their function; foreign heat will interfere with their activity and the humours will become enfeebled; stagnation will occur and the channel will be obscured; foreign heat will overcome the humours and will utilise them in its own way; will impart a different activity to them and they will undergo putrefactive decomposition.

The humour theory of health was the primary criterion by which Ottoman physicians identified illnesses and established a treatment plan. It was not sufficient to know only the patient's temperament to carry out the treatment, however; the physicians also needed to know the temperaments of the organs, the disease and the medicine. Being aware of all these was crucial to the diagnosis and treatment of a disease.

Knowing the patient's temperament would tell us about the diseases that the patient is prone to, while the temperaments of the organs and diseases would inform the physician about the medicine to be used and the treatment methods. In Islam, according to Imam Suyuti, individuals with a 'fire' temperament were prone to diseases of the stomach, lung, and gallbladder[28]. Other Ottoman physicians treated diseases of the heart by applying medicines which were cold and dry in their nature and which would neutralise the inner heat in light of the knowledge that the heart had a humid and hot temperament. As patients' temperaments differed, the medicine used was applied individually according to their personality. Therefore, an Ottoman physician first needed to identify the temperament of the patient and then the temperament of the illness and the medicine. According to the diagnosis, he could then draw up a treatment which created an opposite effect in order to balance the humours that were causing the illness.

The Nature of Drugs Ottoman physicians used medicaments which were derived from animals, herbs and minerals. Based on the theory of the four elements, each medicinal ingredient was believed to possess qualities called 'nature' which was related to its humour. The nature of the herbs and other medications used was considered to be the crucial key to the treatment.

Drugs with heating properties made the body hot, because their nature was hot, and drugs with cooling properties similarly made it cold. When we speak of the influence

23 Muhammed Salim Khan, *Islamic Medicine,* (London: Routledge and Kegan Paul pic, 1986), 42.

24 Muhammed Salim Khan, *Islamic Medicine,* 43-48.

25 Ibid, 49.

26 Fahrettin Kerim Gokay, Turk ve Islam Rub. Hekimligi Tarihinde Ibni Sina, *l. Uluslararasi Turk-Islam Bilim ve Teknoloji Kongresi,* 2 (1981) 191.

27 Nil Sari, "Hindiba: A Drag for Cancer Treatment in Muslim Heritage", op.cit., 14.

28 Muhammad Salim Khan, *Islamic Medicine,* (London: Routledge and Kegan Paul pic, 1986), 56.

of a drug with regard to its nature, such as cold and hot, it does not mean absolutely cold or absolutely hot in itself, but by comparison with the body. For instance, the temperament of lettuce is colder than that of the human body. A substance which is taken into the body is not only actually cold or hot, but is also virtually hotter or colder than the body. So when we say that a drug is potentially hot or cold, we mean in terms of its potential benefit to the body.[29]

The effect of the medicament varied with intensity of its nature. When a physician prescribed a drug for a particular malady he considered both the nature of the drug and its degree of intensity. As an example, the primary temperament of 'rose' is cold and it is dry in its nature, indicating that it has a cooling effect. Thus, 'rose' and its derivatives are indicated in the treatment of hot and inflammatory diseases.[30] The example cited earlier of an ailing heart could be suitably treated by 'rose'. Another example would be lung disease. The lungs are defined as a cold organ, and many diseases originating from the lungs would be treated by a drug which has hot characteristics.

The use of drugs is, therefore, related to the nature of the drug as well as the temperament of the patient. This view based on Galen's medical theory continued to be current until the nineteenth century.

Head Diseases in The *Risâla*

Headaches

In Islamic medical texts, headaches are mainly classified according to their aetiology which depends generally on the humour and temperament of the patient.

As well as alterations in the humours, Muslim medical practitioners also considered other conditions as the causes of a headache. They recognised that head injury could induce different types of headache, from mild to severe. Likewise, headaches could have resulted from the vapour (*buhar*) in the body. Ibn Sīnā explains that the vapour reaches the brain through the vessels and causes the expansion and contraction of the brain, and eventually the patient feels the headache.[31] According to Al-Rāzī, a medieval Persian physician, an obstruction of the passages or cavities in the brain could result in a pulsating headache and also, confusion.[32] Changes in the weather, lack of sleep, gastrointestinal disorders such as constipation, dehydration, and changes in the body temperature, were also known to cause headaches, as were disorders of the ears, eyes, and nose.[33] Some actions such as walking too long in the sun, sitting before a fire, taking a long bath, sitting too long without movement, shouting too much, thinking too much, sleeping too long, and exhaustive reading, were also considered conditions that could spark off a headache.[34]

Ottoman physicians used diverse terms to denote different types of headache. The term *suda* generally referred to mild headache, and *shakika* defined collectively different types of migraine.

Shakika was mentioned almost in every Islamic medical manuscript. This disease is a type of cephalalgia which affects half the head and appears for a couple of days and then passes away.[35] Al-Rāzī writes that *"shakika* originates within the skull and as the brain has two hemispheres, it arises from the higher intensity of material flow in one hemisphere; the headache appears on the same side".[36] In *Risāla* a brief definition *of shakika* was given as "...a partial headache as they call *shakika" (....yarim baş ağrısı ki shakika ağrısı derler).* Both hunger and gluttony were recognised as causes of headaches especially the *shakika* type.

Excluding migraine, the *Risāla* does not define headaches. It does, however, imply that the definition could vary depending on the cause of headache. The terminology and expressions used in *Risāla* distinguish several types of headache: *Shakika* (migraine), *gayet ağrıyan baş* (severe headache), *yeni baş ağrısı* (acute headache), *eski baş ağrısı* (chronic headache), *ıssı baş ağrısı* (headache caused by heat), *soğuktan olan* (that caused by cold temperature), *balgamdan olan* (that caused by excess phlegm), *humardan olan* (hangover headache), *sersem baş ağrısı* (due to inflammation of the brain) and *mâlihulyavi baş ağrıları* (due to depression and other psychological disorders).

The *Risāla* prescribes saffron and lily that are hot in nature, to alleviate the headache which is caused by cold. Likewise, it advises drugs such as lotus and violet that are hot in nature and therefore cold inducing, to treat headaches caused by heat. As for *shakika* it prescribed the topi-

29 Nil Sari, "Hindiba: A Drug for Cancer Treatment in Muslim Heritage", *op.cit.,* 27.

30 Ayten Altintas, "Osmanli Tibinnda Gul" in *Osmanlilarda Saglik,* 1, C. Yilmaz and N. Yilmaz (eds.), Istanbul: Bioferma, 2006,77-83.

31 B. Musallam, "Avicenna-Biology and Medicine," in *Encyclopaedia Iranica* ed. E. Yarshater, (London: Routledge and Kegan Paul, 1989), 3:98.

32 A. Gorji and M. Khaleghi Ghadiri, "History of headacbe in medieval Persian medicine", *Lancet Neurol.* 1 (2002), 510.

33 A. Gorji and M. Khaleghi Ghadiri, "History of headache in medieval Persian medicine", *Lancet Neurol.* 1 (2002), 513.

34 Nil Sari, *"The Classification of Mental Diseases in the Ottoman Medical Manuscripts", Tip Tarihi Arastirmalari,* 1(1986), 110.

35 Ibid, p. 108.

36 A. Gorji,. aod M. Khaleghi Ghadiri, "History of headache in medieval Persian medicine". *Lancet Neurol.* 1 (2002), 515.

cal application of *defne* (laurel) oil and *anber* (amber) to which are attributed sedative and analgesic properties.

In the *Risāla,* the author states that headache is not always a disease itself, but could be a sign of other diseases. He also mentions such factors as tension, nasal congestion, catarrh, vapour, and sunstroke as the cause of headaches.

Dimag aches (Mental Infirmities)

Psychological disorders were also thought to cause a headache, which it was thought could be sparked off by emotions such as depression, fear, anger, and sorrow.[37]

Some mental and neurological diseases that originated from the *dimag* (brain) were also considered head diseases, due to their physical relationship with the head. This common approach was seen in Islamic-Ottoman medical books before the 18th century.[38] The *Risāla* lists several types of maladies of the brain: *sersem, sara* (epilepsy), *divanelik* (madness), *malihulya* (melancholia), memory loss and blocked brain *(dimağın suddeleri).*

Sersem

Sersem is originally a Persian term, and is composed of two words, 'ser' meaning 'head' and 'sam' meaning 'swell'.[39] Thus, literally it means swelling in the head. In a 16th century medical book, *Muntehab- Shifa* the cause of this disease is indicated as ".... exposure to heat which took place in the brain" *(ısısı vurmadır ki dimağda olur),* probably a reference to inflammation.[40] There are four different types of sersem: *sersem-i sevdavi* is inflammation of the membrane, which as Nil Sari stated, corresponds to meningitis in contemporary medicine; *demevi verem* is the inflammation of the brain itself, which corresponds to encephalitis; *sersem-i sevdavi* is the worst type of this particular affliction, and which is characterised by madness, agitation and high fever; and finally *sersem-i balgami* or cold *sersem* without fever of which the main symptom is forgetfulness. However, the main symptoms of *sersem,* in general, are mental confusion, talking nonsense and trembling.[41]

Sersem, by name, was mentioned only once in the book, but it is referred to through some of its symptoms such as headache *(ısısı baş ağrısı),* fearfulness, waking up in fear or screaming on waking up *(uykuda belk olma),* ache in the brain *(dimag ağrısı)* and madness *(cununluk).*

Sar'a

In modern medicine, *Sar'a* (epilepsy) is defined as a neurological disorder that is characterised by recurrent seizures. In Ottoman medicine, however, the disease was treated together with maladies of the head due to its relationship with the brain where the seizures originate.[42] *Muntehab-i Shifa* gives another term which is synonymous to *sar'a*: "*... sar'a* that is also called *uçuk*" (*...sar'a ki ana uçuk derler).*[43] In our study, the author uses both terms.

The author pays great attention to *sar'a* and devotes almost a third of the chapter to it, and lists remedies for *sar'a* i those made from plants such as jasmine and lotus. These plants were thought to have sedative effects that would prevent epilepsy and convulsions.

Cununluk

Ottoman physicians discussed madness from several perspectives. First they assumed that madness was a mental disorder which was caused by being possessed by spirits *(cin carpmasi).* In addition, madness was approached as a kind of love disease, which was also a symptom of melancholia. Madness was also classified as a physical disorder which was caused by bodily dysfunction. Treatments to be given, therefore, differed according to the physician's opinion of the type of madness. Madness was diagnosed as a physical disorder but was treated as a mental affliction.[44]

To define madness the *Risāla* uses various terms such as *delu* (insane), *divane* (lunatic), *mecnun* (crazy, madly in love) and *cununluk* (madness).

Although the definitions used do not give a clear idea of which aspect of mental health was being considered, the treatment recipes indicate that madness was approached as a physical disease. The book advises particular food for this disease rather than prescribing herbal treatments. It sug-

37 Ali Gorji, "Pharmacological treatment of headache using traditional Persian medicine", *Trends Pharmacol Sci.,* 24 (2003), 337.

38 Ramazan Sesen, "Ortacag islam Tibbının Kaynakları ve XV. Yüzyilda Türkceye Tercüme Edilen Kitaplar", *Tip Tarihi Arastirmalari,* 5 (1993) 11-16.

39 *Osmanlica-Turkce Ansiklopedik Lugat,* Ankara: Aydin Kitabevi Yayınları, 2000, 225.

40 XIII. *Asirdan Gunumuze Kadar Kitaplardan Toplanmis, Taniklariyla Tarama Sozlugu,* 2, i, (Istanbul: Cumhuriyet Matbaasi 1945). 413.

41 Nil Sari, "The Classification of Mental Diseases in the Ottoman Medical Manuscripts", *Tip Tarihi Arastirmalari,* 1 (1986), 107.

42 Ali Gorji, "Pharmacological treatment of headache using traditional Persian medicine", *Trends Pharmacol Sci.,* 24 (2003), 331.

43 XIII. *Asırdan Gunumuze Kadar Kitaplardan Toplanmis, Taniklariyla Tarama Sodugu* 2, i, (Istanbul: Cumhuriyet Matbaasi, 1945) 302.

44 Hayrettin Kara, "Osmanlının Mahalle Sakinleri: Mecnunler, Deliler ve Oluler" in *Osmanlilarda Saglik,* 1, C. Yilmaz and N. Yilmaz (eds.), (Istanbul: Biofarma, 2006), 197.

gests foods such as chicken brain and crest of hope which could strengthen the body and mind.

Malihulya

Malihulya is the name for a group of mental disorders which are mainly characterised by extreme depression. Ibn Sīnā describes *malihulya* as a depressive type of mood disorder in which the person may become suspicious and develop certain types of phobias.[45] Likewise, Ibn al-An Zarbi, a twelfth century Arabic physician, defines melancholy as insanity marked by a depressed and painful emotional state.[46] Among other symptoms were fear, obsession, sadness, delirium, and talking nonsense.[47] Being passionately in love could also give rise to disease, and was associated with *malihulya* which brought about both anxiety and depression.[48]

The *Risāla* defines *malihulya* as a kind of madness. It considers *malihulya* to be associated with an excess of black bile *(kara sevda)*. The term *'malihulyavi'* (a patient who suffers from melancholia) is synonymously used with the term *'sevdavi'* (a patient whose *sevda* humour becomes dominant).

Treatment of Head Diseases: Drugs, Administration and Methods of Preparation

Single and compound drugs mentioned in the text

The *Risāla* covers in total eighty-nine remedies for head treatments. Approximately two-thirds of the remedies are simple *(mufred)* drugs. Twenty seven of them are compound *(murekkeb)* drugs. The remaining ten drugs were essentially simple, but were also employed as constituent elements of compound drugs.

The author describes many simple drugs of vegetable origin: herbs, spices and parts of plants such as seeds, leaves, flowers, fruits, juices, oils, gums, barks and roots. Herbal substances constituted the majority of the drugs. They appeared to be mostly utilized for their oils such as rose oil, and also for their distilled aromatic waters such as rose water and mint water. The properties of some herbal drugs including water lily, jasmine, myrtle, olive, and cinnamon are described. The 'natures' of the drugs are not particularly mentioned in the manuscript with the exception of water lily, which was stated to be cold and wet in nature. As for the nature of plant-based drugs, their nature can easily be deduced from their use.

The author generally advises drugs in their simple form and prescribes compound ones when necessary. Hence, he remains true to the medical principle of the time which was "the fewer ingredients a remedy contains, the better, as long as they provide the desired effect".[49] Accordingly, simple drugs were prescribed when a recommended diet, which was considered the safest and best medical treatment,[50] did not bring about the necessary improvement in health.

Use of compound drugs was allowed as a last resort, when diet and single drug treatments were deemed insufficient and had failed to give adequate relief.[51] The author of the *Risala* applied this principle, though not as systematically as mentioned above. He recommended food for the treatment of particular diseases, so that lettuce was recommended to reduce a high temperature of the body, emphasising its cold-inducing and blood-cleaning qualities. Drugs were principally advised to be taken in their simple form as juice, oil and seeds, all of which required different methods of application.

While prescribing compound drugs, the author prefers to use as few ingredients as possible. The majority of compound drugs are composed of only two ingredients, and there are three times as many of them as there are drugs containing three or more ingredients.

Preference was given to compound remedies over simple drugs on several occasions and for various reasons, such as the need to mask bitter tasting ingredients; to eliminate the unpleasant odour of some plants; to dilute the dose of potent substances; to slow down the effect of the drugs; to adjust the drugs for specific diseases and specific parts of the body; to remove the hazard or harm of a poisonous substance; to maintain a remedy's effectiveness for longer, and to use substitute drugs when certain simple ones were not available.[52] The following examples that were transliterated from the *Risāla,* exemplify this:

45 Fahrettin Kerim Gokay, Turk ve Islam Ruh Hekimligi Tarihinde ibni Sina. I. *Uluslararasi Turk- Islam Bilim ve Teknoloji Kongresi,* 2 (1981) 191.

46 S. K. Hamarneh, "Al-Majusi's Observations and Instructions on Medicine and Publich Health", *Health Sciences in Early Islam*, 2 (1984), 322.

47 Nil Sari, "The Classification of Mental Diseases in the Ottoman Medical Manuscripts", *Tip Tarihi Arastirmalari,* 1 (1986), 110.

48 Nil Sari and Burhan Akgün, "Türk Tarihinde Psikiyatriye Bakis", *Turkiyede Sik Karsilasilan Psikiyatrik Hastalıklar Sempozyumu Dizisi,* 62 (2008) 14.

49 S. K. Hamarneh, "Al-Majusi"s Observations and Instructions on Medicine and Public Health", *Hamdart Medicus,* 1980, 23 (1-2), 3-36.

50 "Al-Majusi, 327.

51 Arif Bilgin, "Osmanli Doneminde llaç Yapiminda Kullanilan Tibbi Bitkiler" in *Osmanlilarda Saglik,* 1, C. Yilmaz and N. Yilmaz (eds.), (Istanbul: Biofarma, 2006), 249.

52 Nil Sarı, *Klasik Donem ilac Hazirlama Yöntemleri ve Terkipleri,* (Istanbul: Novartis ilaç Sektoru, 2003) 65.

Sweet almond oil alleviates headache. When mixed with syrup, it treats the 'sersem' headache (which is associated with fever and inflammation). By the same token, chewing *akirikarha* (pellitory or *anacyclus pyrethrum*) loosens the phlegm (in the respiratory track). However, if it is chewed together with *zift* (pitch) or *sakiz* (mastic), it becomes more effective and the phlegm is decongested.

Black-seed soothes headache if plastered and administered externally on the forehead. Its effect increases when it is pounded with honey, and it can even prevent paralysis of the forehead. If it is pounded with rose water and administered either through external application or via inhalation, it treats headache caused by the heat.

The first paragraph demonstrates that compound drugs were used for the purpose of fortification in the case that more effective medicine was needed. Referring to the soothing and cooling properties of the chosen drugs, the second paragraph shows that the remedies were adjusted according to the desired property.

The methods of mixing, grinding and preparation of drugs in Ottoman medicine varied depending on its form; whether refresher drinks *(muferrih),* tablets, pills *(hab),* theriacs *(tiryak),* laxatives *(eyaric),* ointments *(merhem),* electuaries *(macun),* and syrups *(serab).*[53] The *Risāla* considered pills *(hab),* ointments *(merhem),* electuaries *(macun),* oily extracts *(adhan)* and syrups *(serab).* To obtain the medicines, drugs were mixed with a subsidiary foodstuff such as flour, egg white, or milk, barley meal, honey, sugar, or vinegar. They were employed in the making of medications to bring about the desired efficiency and consistency for different types of drug.[54] In the *Risāla,* substances mentioned for consistency are mainly honey, vinegar, and *sirkengubin* (oxymel), and also flour, sugar, barley meal, and egg white.

Sirkengubin is a mixture of honey, water, and vinegar, boiled to syrup[55]. This was used for making liquid remedies. It is known for its quality of relieving diarrhoea, and was advised in some medical books to be drunk alone as a drink. [56] However, the usual method of administration was to take it mixed with drugs.[57] The author of the *Risāla* considers it as a subsidiary drug and prescribes it accordingly. The same consideration also applies to the regular syrups *(serbets)* which were made simply of water and honey or sugar. Syrups were traditionally used as a refreshing and energising drink, but were also a favourite ingredient in drug making.[58] They were prepared mainly by boiling herbal ingredients.

The *Risāla* also mentions olive and sesame oils, in which the drugs were macerated, whereas egg white was used as an adhesive to stick the ingredients together. Barley meal was used in the remedies together with honey, particularly in the making of pills. There is, however, only one remedy which appears in the chapter headed pills: "*Take the blood of a tortoise, knead with barley meal and honey, roll the dough into pills the size of a peppercorn, and take twice a day, mornings and evenings* ". This remedy was said to treat *sar'a* (epilepsy).

Aromatic waters were also employed in drug making. The leaves of herbs were ground with sandalwood *(sandal)* and rose *(gül)* water to give consistency to the ointments. As for the preparation of pastes *(macun),* the subsidiary drug was honey. It was instructed that these remedies should be applied by topical application. To sum up, remedies given were prepared by various methods, including boiling, pounding, pill making, and also heating, kneading, macerating, filtering, distilling, and drying. The following chapter will elaborate the methods used during drug preparation.

Methods of drug preparation

The *Risāla* does not give precise information about the methods of drug preparation, and tends to give only the brief outline of a formula. A typical example of a formula for the use of syrups is as follows: "*Take the myrtle leaves, boil them in the (prepared) syrup and apply it to the head.*" It gives neither the details of the method used during preparation, nor the required dosage for the drugs. This approach is consistent throughout the chapter.

Sufficient information is, however, given about the method of preparation of herbal oils, which appear to be the most important drugs used, thanks to the last chapter of the book (chapter 49). This is a chapter which was devoted to *adhan* (oily extracts) prescribed in the other parts of the book. There are twenty-two kinds of *duhn* explained, fourteen of which were mentioned in the first chapter. The oil making procedure is explained in detail and the precise dosages of ingredients are given. As an example, for the preparation of a recipe called *duhnu'l-gaysum,* the author writes:

53 *ibidem.*

54 A. Gorji, and M. Khaleghi Ghadiri, "History of headache in medieval Persian medicine", *Lancet Neural,* 1 (2002) 515.

55 It is also called 'sirkencebin'. See Ferit Develioglu, *Osmanlica-Turkce Ansiklopedik Lugat,* (Ankara: Aydin Kitabevi Yayinlari, 2000) 1147.

56 Hasan Ali Yucel, *Bir Turk Hekimi ve Tibba Dair Manzum Bir Eseri,* (Istanbul: Devlet Başimevi, 1937). 3.

57 Arslan Terzioglu, *Helvahane Defteri ve Topkapi Sarayinda Eczacılik,* (Istanbul: Arkeoloji ve Sanat Yaymlan, 1992) 46.

58 Arslan Terzioglu, *Helvahane Defteri ve Topkapi Sarayinda Eczacılık,* 13.

Take nine *ratls,* which equals to nine hundred *dirham,* and five *vukiyye*[59]*,* which equals to fifty *dirham,* of fine olive oil *(zayt),* and eight *rail* which equals to eight *dirham* leaves of *ayvadane* and mix them together, leave it to be macerated for one day and one night, then strain.

This example not only gives a clear description of the method of making the oil, but also informs the reader of the weight units of the time, converting them into a more commonly used form, that is to say, *dirham.* The same recipe is subsequently given by Ibn Baytar, who gives instructions as follows:

Steep the *ayvadane* leaves in olive oil and mix thoroughly. Leave to stand. Strain off the flowers (leaves) and replace them with fresh flowers, then leave to macerate for one day and one night.

Another recipe called *duhnu'l-kar'a* explains the method of extracting the oil from a gourd:

Take four hundred *dirham* of gourds from which the water was strained, and a hundred *dirham* of sesame oil *(sirlagun)* which was filtered; mix them together, and cook gently until the water (completely) evaporates and only oil remains. To test whether the *duhn* is ready, wrap some cotton around the end of a stick, dip it into the prepared mixture and then set the cotton on the fire. If it catches fire then the oil is ready to be used.

Routes of drug administration

Ottoman physicians administered various modes of treatment such as diet, bloodletting *(hacamat),* cauterisation *(daglama),* leeches and drugs treatments.[60] The chapter of the *Risāla* that we have reviewed does not make mention of such applications as bloodletting, leeches or cauterisation; however, it attributes great importance to drug treatments. It describes prescribing drugs in the form of syrups, pastes *(macun),* plasters, pills, and *adhan* (oily extract).

The chapter gives the route of administration for these medicines according to the purpose of their use. For head treatments, the favoured route of administration was through the skin on the head. Expressions such as *'başa durtme*' and *'başa vurma*', both meaning applying to the head, *'yaku etme*", treating an area with a plaster, and *'baglama*', bandaging, all refer to the external application of the medicine on the skin. Before administration, the head was shaved, and the skin washed with water and salt to increase the penetration of the medicine.

Taking drugs via oral and nasal routes is the other means of administration mentioned in the book. Liquid medicines such as plant oils and aromatic waters were applied by instillation into the nose and ears.

A method worthy of note mentioned in the *Risāla* is the administration of drugs in a hot and humid environment. It is possible that this was intended to obtain the maximum effect from the drug. For instance, it was instructed that the oil of *sezab* (rue) was to be applied in the *hammam* (Turkish bath) to treat a headache resulting from constipation. It possesses sudorific (sweat-inducing) properties; it also relaxes cramps and soothes aches. The hot and humid air of the hammam complements the treatment by creating heat in the body and warming the blood,[61] therefore stimulating evacuation of the bowels, which would eventually eliminate the cause of the headache. *Akırıkarha* is another drug which it was advised should be administered in the same way. Its action, which is promoting the discharge of phlegm, was probably thought to be accelerated by the hot and humid nature of the hammam.

Some of the drugs were administered by chewing, licking, and through inhalation. *Akırıkarha,* once again, was to be chewed as a decongestant for the build-up of phlegm. Likewise, the bottom of the poppy flower *(gelincik çiçegi dibi)* was chewed as a decongestant for catarrh. Flowers that have a pleasant fragrance such as the water lily, jasmine, rose and lotus were used for their healing power through the sense of smell, particularly for the treatment of headaches caused by phlegm and black bile, migraine and epilepsy. They were administered through inhalation. Their oils were also applied into the nostrils.

Other applications that can be mentioned include a remedy for headaches that involved washing the head with herbal water before immersing it in oil, and use of precious stones. Finally, the book emphasises the importance, when necessary, of taking the drugs on an empty stomach.

Conclusion

In this thesis, we surveyed an Ottoman medical manuscript, the *Risāla-i Tibb bi't-Turkî.* Due to the fact that the author and date of the manuscript are unknown, our first aim was to determine its credibility by analysing several features of the manuscript in comparison with other Ottoman medical literature. After this analysis, we studied the

59 Şemseddin Sami, *Kamus-i Turkî,* (Istanbul: Enderun Kitabevi, 1989) 34, 84, 173.

60 Serafeddin Sabuncuoglu, *Cerrahiyyetu'l-Haniyye* ed. İlter Uzel, 1 (Ankara: TTK, 1992) 271.

61 See Hasan Ali Yucel, *Bir Turk Hekimi ve Tibba Dair Manzum Bir Eseri,* (Istanbul: Devlet Başımevi, 1937).

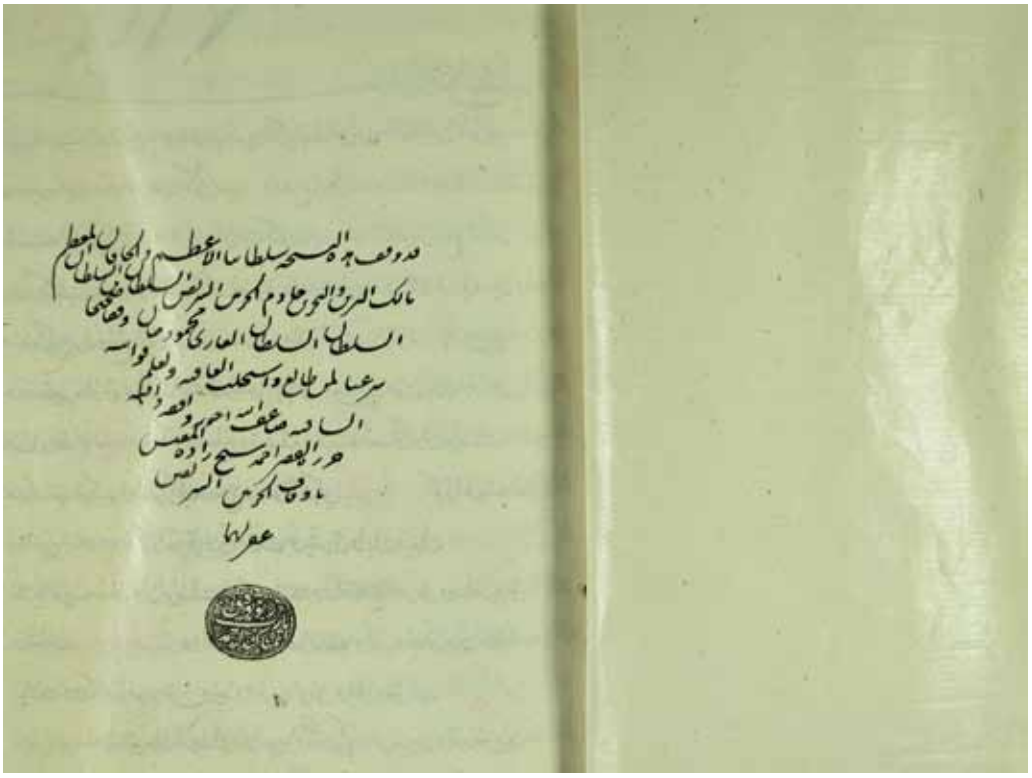
text focusing on head diseases and the prescribed remedies given in the first chapter of the manuscript.

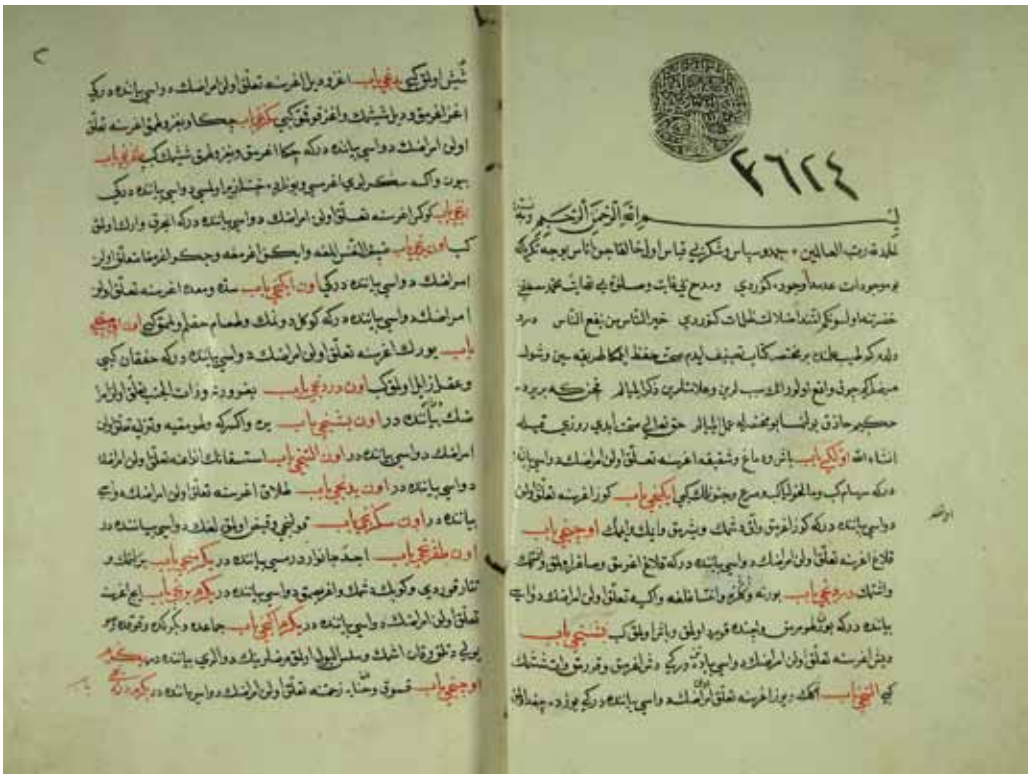
To carry out this study we first examined the theoretical grounds on which diseases and remedies were considered in Ottoman medicine. We then classified headaches and mental infirmities, which were considered together under the title of "diseases of the head" by referring to contemporary manuscripts and modern sources in medicine where the manuscript did not contain clear definitions of these illnesses.

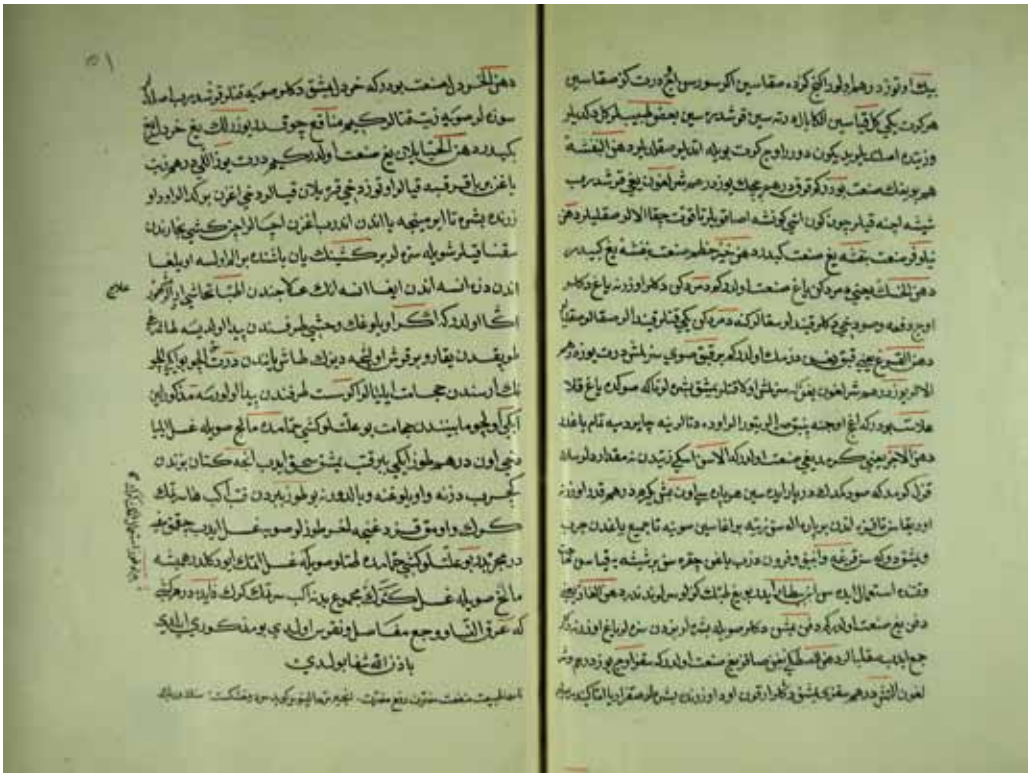
The drugs used in the treatment of these illnesses were then categorised. We formed an up- to-date list of herbs and other remedies mentioned in the manuscript together with their English names, and discussed their methods of preparation and administration by referring to other resources.

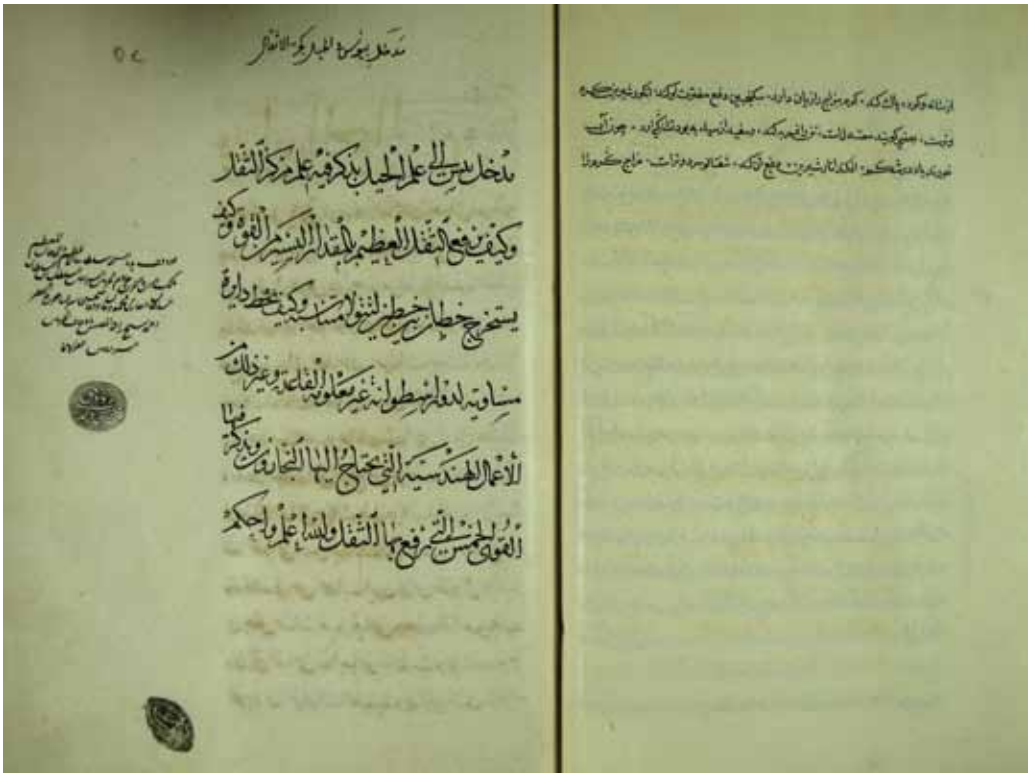
Our analysis shows that the remedies given in the manuscript, in which the author deals with diseases and drugs, and the style and content of the book do not contradict other classical medical sources (15^{th}-18^{th} centuries). This convinces us that this is a reliable source of Ottoman medicine.

We have experienced two limitations during the preparation of this thesis. The first was the limited number of sources. Due to the fact that the history of Ottoman medicine has not been widely studied, we could not easily find the literature that we needed. Consequently, we were occasionally obliged to refer to the secondary sources on Islamic medicine in order to complete our work. Secondly, the manuscript that we surveyed required extensive research. Because the text was in the Ottoman language, it first needed fully to be transliterated into modern Turkish, and then the relevant parts needed to be translated into English. Finding the exact equivalents of the Ottoman medical terminology in English - particularly that of the drug names - proved to be quite time consuming. A comparative palaeographical and linguistic examination of the copies given in the catalogue could reveal the author and could determine an approximate, if not precise, date.









Organ Donation – Why Do Some Muslims in the UK Still Resist It ?

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Introduction

Organ transplantation is truly one of the miracles of modern medical science. In the situation of kidney transplant it quite simply offers patients with end-stage renal failure, who would otherwise die or have to endure daily lifelong dialysis treatment, the opportunity to live a normal life. Much has been achieved over the past 10 years since the establishment of the Organ Donor Register to raise awareness of the importance of organ donation and to encourage people to register as donors in the UK. As a result, there are now 12 million people on the register. However, in applauding the Government's efforts to boost organ donation, we must not lose sight of the fact that there remains an acute shortage of available organs for transplants. Some 6,204 patients are currently on the waiting list in the UK. The average waiting time for a kidney transplant is 792 days for an adult and 168 days for a child[1]. Around 400 patients died during 2002 while waiting for an organ [2].

Attitudes of British Asian Muslims Towards Organ Donation

A new piece of research published a few weeks ago has highlighted current attitudes amongst black and South Asian people towards organ donation and transplantation[3]. During January, February and March 2006, 1,295 Indian, Pakistani, Bangladeshi and Black Caribbean people aged between 18 and 80 years of age were interviewed. The interviews took place in London, Oldham, Bradford, Leicester, Birmingham, Slough and Bristol. Although Asian people are three to four times more likely to need a kidney transplant than the general population, there is still a long way to go in terms of raising awareness in these communities.

Informing South Asian people about how organ donation and transplantation affects them and their community has been a key part of UK Transplant's campaign work for several years.

Current statistics indicate that this work is vitally important. South Asians make up 4% of the national population, but over 13% of those registered for a kidney transplant are Asian. In Bradford in West Yorkshire, where the vast majority of Asian are Muslims, the situation is even worse as although 18.9% of the population are Asian, there are 48.4% of the dialysis patients under 65 are Asian[4].

However, where ethnic origin is known, only 1.4% of those on the NHS Organ Donor Register are of Asian ethnic origin[5].

Cultural and religious barriers

To better understand any lack of awareness or resistance to organ donation, the research investigated cultural or religious issues that might act as barriers for black and South Asian people. While 32% said they had never thought about joining the Organ Donation Registary (ODR), 21% of people stated that their religion did not allow it. This was particularly important to Pakistani (22%) and Bangladeshi (43%) people. 10% of people cited burial and funeral customs as a barrier to joining the register. For Indians there was the need for close family members to wash the body of the dead relative and cremate the body and Muslims needed to bury their loved ones quickly after their death[6]. 25% of the Pakistani and 29% of the Bangladeshi were against living kidney donation. When they were asked about the

reason behind their refusal for that, 13% of the Pakistani and 8% of the Bangladeshi (all were Muslims) said : " *it is against my religion*". This is comparing to only 7% of the Indian and 2% of the Black Caribbean who gave the same answer. One of the question was : " *What, if anything, would encourage you to register as a donor ?"* ; 21% of the Pakistani and 20% of the Bangladeshi said "*Knowing that my religion approves of donation*" [7].

Despite these barriers, the Asian people stated that they agreed that it was important to help their community and "put something back". Also many Asians felt that "doing good", helping others and serving their community was a fundamental part of their religious faith. In fact "doing something for your community" was a means of fulfilling aspects of Islam, which dictated "doing wider good". Given that many respondents had initial misconceptions that their faith prohibited organ donation, this is an attractive counter argument for donation which deserves to be explored in details to show the actual views of the Islamic Law.

Also last year a debate was carried out in The House of Lords on organ donation[8]. The importance of organ donation within the Asian community was discussed as the level of awareness within the British Muslims in relation to this sensitive subject has been very low, despite the fact that the need for organ donors is becoming ever more acute as the proportion of Asian people on organ transplant waiting lists is growing rapidly[9]. The average wait for a donor organ is 722 days or two years and ten days, but Asian patients face a 1,496 day wait - or four years and two months[10].

Another published survey[11] showed that the main focus of the Asians in Luton was that they did not know if their religion forbid organs donation or not.

In West London the picture was similar, as a recent study last year[12] showed the attitudes of 141 British Asian Muslims in that region. The cultural issues arguing against donation included a sense of sacredness of the body, a fatalistic approach to illness, a belief that organs took an independent role as "witnesses" to an individual's life on Judgment Day.

The following answers have been quoted in that survey:

- *"I read the Quran and I have never found mention that organ donation is allowed "*
- *"I am a practising Muslim. I do not know anything myself , but I would ask the scholars. If they tell me it is alright, then it is alright "*
- *"In Islam, the deceased must not be harmed and the body should be dealt with very gently"*
- *"Our organs are not mere spare parts. They are a gift from Allah"*
- *"I am not worried about death. Being a Muslim you believe if death has to come. We do not want to extend life …"*
- *"The organ will be witness to your actions on Judgement Day. If there is no organ, who is going to witness my action ?"*
- *"I want to make sure that the person is good before I give him my organ "*

The minority of people who expressed positive attitudes were the young who are more willing to learn about organ donation. Some people expressed negative feelings against the health service:

- *"Who knows what the doctors are doing? They are doing many experiments on patients "*
- *"If I sign the donor card I might not receive the right treatment. They may cut me before I had died "*
- *"The BBC reported that doctors stole organs from patients ! "*

Obviously there was a lack of information and health support as some people quoted :

- *"I go to my GP regularly. If it is important, why does he not inform us about it ?"*
- *" I did not see any posters or leaflets discussing organ donation in my local hospital "*

The majority of Muslim groups were not willing to consider organ donation or even to discuss it with their families[13]. The views of Islamic Law will be explored to see if there are any religious grounds to justify this attitude of British Muslims towards organ donation and transplantation.

Views of Islamic Law on Organ Donation

The Muslim Council of Britain, consisting of scholars from the main schools of jurisprudence, met in 1996 to consider organ transplantation[14], and issued a *fatwa*. This has been summarised as follows:

Islam holds that Man consists of two essential elements, one material which is the body, the other spiritual which is the soul. Life exists in the human body as long as the soul is joined to it, and it ceases when the soul departs from the body.

"Who made all things good, which He created, and He began the creation of man from clay then He made his seed from a draught of despised fluid. Then He fashioned him and breathed into him of His Spirit, and He appointed for you hear-

ing and sight and hearts. Yet small thanks do you give for it!"[15]. Thus the cessation of life means the departure of the soul from the body: *"Allah recalls souls at the time of their death, and those who have not died, during their sleep. He holds on to anyone whom death has been decided for, and sends the others back for a specific period."* [16]

The soul is a mysterious thing and nobody has been able to discover its nature. Its presence in the body results in life which is observed by the movement and the other conventional signs of life. The departure of the soul from the body results in death, which is associated with certain physical signs arrived at as a result of medical observations and knowledge. The signs of death which the ancient medical doctors have listed are: lack of consciousness, loss of body temperature, cessation of pulse and breathing, glazing of the eyes, parting of the lips, sagging of the nose, and slackening in the muscles of the hands and feet. The heart used to be considered as the centre of life in the body. When it stopped completely it was assumed that death occurred. But if it regained its functions through first aid practices life is assumed to have returned. The last five decades have witnessed a big leap in medical science bringing great benefits and skills which were unthinkable before. It is now possible to transplant organs from one body into another, which would help the recipient to continue to live. The significance of the heart has also changed as it is no longer considered the most important organ with regard to life and death. Medical opinion now considers the brain to be the central and crucial part which controls the entire body and its functions.

When it is damaged partially or totally the body will suffer either partial or total deterioration. As a consequence of the present development in medical knowledge and skills a number of questions have arisen. These are:

- Is it allowed to remove an organ like the kidney from the body of a living person and transplant it into the body of a sick person whose life depends on it?
- Is it permissible to remove an organ from the body of a dead person to be used to save the life of a living person?
- Is a person allowed to donate his body or part of it to be used after his death in saving the life of other people?
- Does Islam recognise the new definition of death that is brain stem death?
- If it does, is it permissible to remove from brain stem dead persons organs for transplant while there are signs of body functions like heart beat temperature and breathing?

Before answering these questions it is important to note the following principles of Islamic Jurisprudence :

- A person has the legal authority over his own body, attested by the fact that he can hire himself for work which might be difficult or exhausting. He may also volunteer for war which may expose him to death.
- A person is forbidden from harming himself or others. The Prophet Mohammad said: *"It is not legitimate in Islam to inflict harm on others or to suffer harm from them"*.
- In case of Necessity certain prohibitions are waived as when the life of a person is threatened the prohibition on eating carrion or drinking wine is suspended.

"He has only forbidden you what has died by itself, blood and pork, and anything that has been consecrated to something besides God. Yet anyone who may be forced to do so, without craving or going too far, will have no offence held against him; for Allah is Forgiving, Merciful." [17]

- o Confronted with two evils a person is permitted to choose the lesser of the two.
- o Islam made it an obligation upon the sick to seek treatment.

In the light of the above principles the Council is of the opinion that:

1. It is permissible for a living person to donate part of the body such as the kidney to save the life of another, provided that the organ donated would not endanger the donor's life and that it might help the recipient.

   The Prophet Mohammad said :

   "Whoever helps a brother in difficulty, God will help him through his difficulties on the Day of Judgement."
2. It is permissible to remove the organ of a dead person to be used to save the life of a sick person.
3. It is permissible for a person to donate his body or parts of it to be used after death to treat those who need transplants. So it is permissible for Muslims to carry a donor card.
4. In the absence of a donor card carried by the dead person it is sufficient to obtain the consent of the next of kin.
5. The proper authorities will act in lieu of relations if they are not known.

Regarding brain stem death, the Council, having discussed the matter over a number of meetings with Doctors and specialists, and having studied the safeguards instituted by the Ministry of Health in Great Britain, went further and examined the research done by trustworthy Muslim Doctors and noted the following:

If the heart stops beating then lack of consciousness and the cessation of breathing will follow immediately. If however the person is helped by massage of the heart (CPR) or through the use of electric shock (defibrillation) within four or five minutes the heart may restart. If the flow of the blood to the brain ceased for more than a few seconds damage may occur, although some of the cells will remain alive for four or five minutes. On the other hand if the brain stem ceases to function it cannot be made to restart. After the brain stem is dead it is possible to preserve some organs functioning for a period from six hours to two weeks. The presence of pulse or movement after the death of the brain stem is not a sign of life.

Based on the above the medical profession concludes that life ceases as a result of brain stem death.

The Council is of the opinion that trustworthy Doctors are the proper and authentic authority when it comes to defining the signs of death.

After a thorough consideration regarding medical opinion and several edicts issued by different religious bodies, the Council arrived at the following conclusions:

After trustworthy Doctors certify that the brain stem has died organs needed to save others' lives might be taken from the body, and then the life support machine may be switched off.

While the Council recognises the need for benefiting from the advances of medical science in alleviating the suffering of the sick and saving lives, it wishes to remind everyone especially Doctors of the following points:

Human beings are the most honoured creature on earth. Their dignity in life and death must be maintained.

"*We have dignified the Children of Adam and transported them around on land and at sea. We have provided them with wholesome things and favoured them especially over many of those whom We have created.*" [18]

Human life is sacred. To terminate the life of one person is equivalent to the termination of the life of all humanity. Conversely the saving of one life is regarded as the saving of all humanity.

"*Whosoever kills any person without another soul being involved or for causing corruption in the earth, it shall be as if he had killed all mankind and whosoever saves the life of one it shall be as if he had saved the life of all mankind.*"[19]

The Council is of the opinion that human organs should be donated, and not sold. It is prohibited to receive a price for an organ.

At a conference held in Bradford [20] (West Yorkshire) on 20.3.2000 to discuss organ transplantation, a renal transplant liaison nurse asked the Principal of the London Muslim College, Dr. Zaki Badawi, about the consensus of Muslim scholars with regard to this *fatwā*. His response was one of reassurance:

"The Committee that issued the *Fatwa* consisted of a majority of Sunis and a minority of Shi'ites – so they were all there. I mentioned in my address that countries like Egypt, Saudi Arabia, Malaysia, Libya and Morocco (all of these are Sunis) have actually sponsored and approved the *Fatwa*. The Shi'ites of Iran have approved it as well. The views I have mentioned are the views of the majority of Muslim scholars of all colour, all the schools of law, because they were represented when we had the conference under the auspices of the Muslim Law Council to bring all views in the country. We brought in people who were opposed to the *Fatwa*, and we wanted to debate it with them. In the end we unanimously agreed on the *Fatwa*." [21]

Prophet Muhammed (pbuh) said : "*Whosoever helps another will be granted help from Allah.*"

So, Muslim scholars of the most prestigious academies outside the UK are unanimous in declaring that organ donation is an act of merit [22] and in certain circumstances can be an obligation.

These institutes all call upon Muslims to donate organs for transplantation:

- the Shariah Academy of the Organisation of Islamic Conference (representing all Muslim countries)
- the Grand Ulema Council of Saudi Arabia.
- the Iranian Religious Authority
- the Al-Azhar Academy of Egypt

There is, of course, a further related question: in the event of a request for organs from someone who has died, to whom does a human body belong? As a person's body belongs to God, some argue that it is neither for the individual, their relatives nor the State to donate body parts. The fact that it is a cadaver donation does not alter the situation. The principle of hardship (*mashaqqa*) would apply, in that an action is deemed illegal even if committed through an agent. However, at the conference, held in Bradford in 2000, a representative of the Chairman of the Health and Medical Committee of the Muslim Council of Britain stated:

Once the person has died, unless there is a clear written card to say that the person wants organs donated, the Islamic perspective is that the body belongs to the relatives.[23]

But would this be the consensus of Islamic scholars based in the UK?

In reality, the UK Human Tissue Act 1961, entitles someone who is in lawful possession of the body to authorize the removal of any parts[24], either for therapeutic purposes or any patient's benefit, or for the purposes of medical education or research, provided either the deceased person has said they wished to donate their organs or the deceased hasn't raised any objections to giving organs and relatives also do not object[25].

Guidance accompanying the Human Tissue Act, 1961, states that where a person dies in hospital, it is the Senior Hospital Manager who is in lawful possession of the body; a responsibility usually delegated to the patient's hospital consultant.

What, then, of the moment of death? Can it be categorically determined? Islam has usually identified the point of death as the cessation of the respiratory or circulatory systems, an absence of any response to stimuli, and finally the early indications of *rigor mortis*. With transplantation medicine comes the need to remove organs within two hours of the circulatory system shutting down, otherwise they are not viable. Organ perfusion needs to begin as soon as possible, and for non-heart beating cadavers, current guidelines suggest within five to ten minutes of death being pronounced. However, where a patient has experienced brain stem death,[26] enabling a formal pronouncement of death, modern medical technology can maintain respiratory and circulatory functions until after the removal of organs. Generally, Islamic legal scholarship has accepted this revised notion of brain stem death[27], although it has not been without its critics. Whole brain death involves the cessation of all spontaneous brain activity, not merely brain stem activity. What then of higher brain function and its conceptual and philosophical relevance to any debate about continued treatment despite indications of brain stem death? For that matter, to determine what constitutes death without reference to what constitutes life seems like an attempt to mint one side of a coin without the other. It can't be done! There is a debate to be had, but meanwhile the definition of death now generally accepted by Islamic scholars seems non-negotiable if only because it enables organ retrieval and decisions to withdraw medical treatment to go ahead. In the UK, one might ask if Zaki Badawi is right when he suggests that 'it is unanimous throughout the Muslim world that organ donation is legitimate under Muslim law and that people who hold out against it are people who are subject to cultural prejudices rather than to Islamic law'[28]. I will discuss later on in this work some of the practical steps suggested to address this issue which is affecting many of Muslim patients in the **GENERAL DISCUSSION.**

One of the main problems existing in some Muslim communities is the misunderstanding of the principles of Islamic teaching and lots of social or cultural customs are seen as part of Islamic beliefs. Organ donation is just an example of this. It should be said that although some barriers and obstacles have been mentioned to be influencing organ donation like lack of trust in health care providers, fears about surgery and disfigurement, insufficient knowledge about organ donation and fears that donated organ would not work[29], in the case of a child's death the grief may be inconsolable and when organ donation is first mentioned it may feel like a second trauma is about to be inflicted on the body[30], it is still in some communities the religious beliefs which appear to influence the people to decide to donate[31], and there is no doubt that in many Muslim communities such beliefs form the major source for ethical values that shape the attitudes of many Muslims[32]. Having said that, it should be admitted that many people refuse permission for organ donation because they have never discussed it with their families or close ones[33]. Some others do not want to discuss it as they feel very strongly against it claiming that Islamic literature did not mention organ donation or discuss it at all [34] !

The issue of organ transplant has been a matter of great debate and dispute among the great contemporary Muslim scholars from around the globe. It has been discussed in various seminars and many short and detailed works have been compiled on this subject. The majority of the scholars are of the view that organ transplant is permissible as shown in previous chapter. Some Muslims have preservation towards organ donation[35]. It is true that a human body, whether dead or alive, is honoured and respected[36], but does the modern procedure of transplantation violate this sanctity? Islam ordered us to honour a human body but did not prescribe any fixed methods for it. Disgracing a human body may change from one time to another and from one place to another. Thus, it could be said that the current procedure of organ transplantation is not considered dishonouring a human body. The surgery is performed in the most respectable way and it is not considered to be disrespectful. This is the reason why many highly respected people of the community regard donating of organs as a mark of merit, and they are not looked down upon.

Also, there are cases where Islamic law overlooks the sanctity that is attributed to the body, such as in the case of saving another human. It is stated in *Tuhfat al-Fuqaha*: "If a pregnant woman died and the child in her stomach is still alive, her stomach will be cut open in order to take the

child out, for in there is saving the live of a human, thus the sanctity of a human body will be overlooked" [37].

This is also based on the juristic principle: "If one is confronted with two evils, one should choose the lesser of the two"[38].

As some Muslim Asian stated in a published survey[39] that we are not owning our body. It is a gift from *Allah*. It is similar to the wealth which *Allah* has given a human, and he is permitted to utilize it in a correct manner and give it as a gift also. Others raised the question about the need for the complete body with all organs in order to witness on the day of judgment. Arguing an alternative position, and taking in account that someone might lose his limb or organ in an accident or through surgical operation!. Obviously this is similar to lose the organ after donation. Muslims hold that God's concern is with how the heart, hearing and sight have been used rather than seeking their return. For that matter, God is able to gather the organs of the dead wherever they may be. Quran said : "*Does man think that We shall not assemble his bones? Ye, verily, We are able to restore his very fingers*" [40]. Also the Quran said: *"Does not man see that it is We who created him from sperm. Yet behold! He stands as an open adversary! And he makes comparisons for Us, and forgets his own creation. He says who can give life (on the day of judgment) to (dry) bones and decomposed ones? Say "He will give them life who created them for the first time, for he is versed in every kind of creation"*[41].

We have shown that organ donation and transplantation is permissible in Islamic Law in order to save another person's life[42]. Many believe that reasons behind refusal of organ donation among some Muslims in the UK are dictated by cultural beliefs rather than religious ones [43].

Suggestions to promote organ donation

Cultural and social attitudes form sometimes the window through which religious beliefs are interpreted and often create a specific barrier to organ donation when religious rulings themselves do not prohibit organ donation as we have demonstrated before.[44] Well organized and targeted campaigns towards Muslim Asians are urgently needed. Some suggested practical steps to help promoting organ donation within the Asian and Muslim communities in the UK are recommended :

1. Religious leaders need to participate to understand the issues relating to organ donation in order to play more positive rules to convince and encourage the Muslim community through social and religious gatherings.[45]
2. Promoting health awareness events among the Asian Muslims through their social networks. GP's need to be involved to encourage debating the organ donation issues in details[46] and this can be done through the Health Promotion Program is held by the MDDA (Muslim Doctors & Dentists Association in the UK)[47].
3. Ethnically targeted mass media campaigns are quite important. There will be a need to generate discussion at grass roots level if cultural attitudes are to be changed. Young and older people need separate approaches (e.g via universities and schools for young people and via community centres and places of worship for older ones) backed up by targeted distribution of leaflets. Using local ethnic television and radio stations will also help reach greater numbers of people.
4. Producing material publications in Asian languages (Urdu, Punjabi and Bengali) to encourage and promote organ donation and donor cards among the Muslim Asian communities in the UK.
5. Religious messages would be very helpful to encourage Muslims for organ donation[48]. Religious celebrities in mosques and community centres and role models would play an important role to endorse organ donation[49].
6. Establishing of donor promotion offices in major hospitals where high Asian population exist [50].
7. Improving good co-ordination between intensive care units (ICU) and donor teams would help to improve organ donation[51]. It has been reported in this context that transplant surgeons are to be given the legal right to keep patients' organs artificially alive after their death without consent, as this will give doctors time to win permission from relatives to remove the organs for transplantation.[52]

It is obvious, however, that there is no 'quick win' to increasing the number of South Asian people willing to be organ donors. To be effective we need to take a long-term view and find ways of encouraging debate within families and within communities.[53] Finally, it is important to keep in mind that there is considerable diversity within cultural and religious groups and that is important to avoid making assumption about the belief of any individual based only on his/her membership of that group.[54]

Conclusion

The religion of Islam strongly believes in the principle of saving human lives. The majority of the Muslim scholars

belonging to various schools of Islamic law have invoked the principle of priority of saving human life and have permitted the organ transplant as a necessity to procure that noble end.[55] Cultural attitude forms sometimes the window through which religious beliefs are interpreted and often create a specific barrier to organ donation. People who hold out against organ donation are people who are subject to cultural prejudices rather than to Islamic law[56]. More studies might be needed to focus in more details on the social and cultural barriers to organ donation and transplantation in the Asian Muslim community. Physicians, religious figures, local community leaders and health authorities need to co-ordinate in order to convey the right message to Muslim communities in the UK to promote and encourage organ donation. Schools and local media must play an educational roles in this issue as well. Muslims who have friends or family members on the waiting list for organ transplantation need to act more positively by joining the organ registry themselves and helping in promoting organ donation among their communities. Moreover, consenting to donate one's kidney to either a member of one's family or a friend who is in dire need of it ought to be viewed as an act of sharing motivation by the spirit of love, compassion and sympathy for a fellow human being.

Finally, I hope that this paper which has shown a clear and positive position of the Islamic Law towards organ donation and transplantation will help the health policy makers and providers in the UK to have better understanding about one of the sensitive religious issues in order to improve the health care strategies in areas where Muslim population is quite high in the UK.

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[17]Quran (2:173)

[18]Quran (17:70)

[19]Quran (5:32)

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[23]Dr Qureshi, a consultant psychiatrist, at the conference, Organ Transplantation: the Multifaith Perspective.

[24]Richard Alandale, a solicitor, addressing the conference, Organ Transplantation: the Multifaith Perspective.

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Genetic and Religious Points of View on Homosexuality

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Summary

The objective of this paper is to study homosexuality from genetic, social, ethical and religious points of view. Homosexuality is analyzed based on scientific and religious literature (The Glorious Qur'an and Honorable Sayings of the Prophet of Islam, Hadith). The impacts of homosexuality are discussed on genetic, religious as well as social and ethical levels. A consensus ethical, Islamic and scientific attitude is reached. This consensus demonstrates the divine source of this religion revealed by the All Knower, Allah. Findings concerning relevant links between science and religion are appealing for further investigations attempting to link Glorious Texts with the scientific discoveries; an important approach to strengthen both scientific research and religious faith as well.

Say: "Behold all that is in the heavens and on earth"; but neither Signs nor Warners profit those who believe not.[1]

قُلِ انْظُرُوا مَاذَا فِي السَّمَاوَاتِ وَالْأَرْضِ وَمَا تُغْنِي الْآيَاتُ وَالنُّذُرُ عَنْ قَوْمٍ لَا يُؤْمِنُونَ[1a]

Key Words: The Glorious Qur'an, Honorable Hadith (Mohammad's Sayings), Ijaz (Scientific Miracles in The Glorious Qur'an and Hadith), Genetics, Homosexuality.

ملخص باللغة العربية: يُناقش هذا البحثُ موضوعَ المثلية الجنسية بآثارها الإجتماعية والطبية والأخلاقية من وجهتي نظر وراثية و دينية وعلمية. أُخذت بعين الإعتبار النصوص الدينية من القرآن الكريم والسنة النبوية المطهرة جنباً إلى جَنب مع البحوث العلمية. تم التوصل إلى إجماعٍ إسلامي علمي أخلاقي في هذا الموضوع يُثبت إلهوية المرجعية في النصوص الإسلامية الصحيحة. إن هذه النتائج تدعو إلى إجراء المزيد من البحوث عن قرائن مابين الدين والعلم وهذا من شأنه أن يقوي الإيمان المبني على العلم ومن شأنه أيضا أن يفتح آفاقا للبحث العلمي.

1a قُلِ انْظُرُوا مَاذَا فِي السَّمَاوَاتِ وَالْأَرْضِ وَمَا تُغْنِي الْآيَاتُ وَالنُّذُرُ عَنْ قَوْمٍ لَا يُؤْمِنُونَ

الكلمات الدالة: القرآن الكريم، السنة النبوية الشريفة، الإعجاز العلمي، وراثة، الجنسية المِثلية الجنسية.

Introduction:

Homosexuality is an affection and sexual attraction by individuals of the same gender. Currently the most common adjectives in use are lesbian for women and gay for men, though gay can refer to either men or women. The number of people who identify themselves as gay or lesbian and the proportion of people who have same-sex sexual experiences are difficult for researchers to estimate reliably for a variety of reasons.[2] In the modern West, major studies indicate a prevalence of 2% to 13% of the population.[2,3,4,5,6,7,8,9,10] A 2006 study suggested that 20% of the population anonymously reported some homosexual feelings, although relatively few participants in the study identified

themselves as homosexual (2006).[11] Homosexual behavior in animals is also widely encountered.[12,13]

Human diversity, for example in the temper, is confirmed in Islam by the following Glorious Script:

بضغلا ءيطب مهنم نإ الأ يتشتاقبطنم وقلخ مدآ يبنب نإ
مهرشو ءيفلا عيرس بضغلا ءيطب مهريخو الأ ءيفلا عيرس
ءيفلا ءيطب بضغلا عيرس[2a]

Diversity is even reported for plants:

Seest thou not that Allah sends down rain from the sky, and leads it through springs in the earth? Then He causes to grow, therewith, produce of various colours: then it withers; thou wilt see it grow yellow; then He makes it dry up and crumble away. Truly, in this, is a Message of remembrance to men of understanding.[14]

هُكَلَسَفً ءاَمِءاَمَّسلا َنِم َلَزْنَأ َهَّللا َّنَأ َرَتَ ْمَلَأ
افِلَتْخُم اًعْرَز ِهِب ُجِرْخُي َّمُث ِضْرَألا يِف َعيِبا َنَي
اًماَطُح ُهُلَعْجَي َّمُث اًّرَفْصُم ُهاَرَتَفُجيِهَي َّمُث ُهُناَوْلَأ
ِبابَلْألا يِلوُأل ىَرْكِذَل َكِلَذ يِف َّنِإ [3a]

Homosexuality is considered by its proponents as diversity in human behavior. Actually it is an aberrant behavior as it is detrimental for its subjects and their environment. What is aberrant and what is not are determined by the Almighty, The All and Super Knower, Allah! However, such behaviors should be corrected and through this paper, the points of view in Islam and science vis-à-vis of homosexuality are discussed.

Methodology:

Scientific literature on homosexuality notably its etiology is screened and links with The Glorious Qur'an and Hadith are made. On an important occasion concerning the ultimate punishment of homosexuals, a similar citation form the Old Testament is reported. The entire English translations of the Verses of The Glorious Qur'an are cited just above the Arabic version of Verses. Nevertheless, only the appropriate English meanings of Hadiths are mentioned in the text also above the Arabic text.

Etiology of Homosexuality:

According to an anonymous review of the American Academy of Pediatrics stated in Pediatrics in 2004[15]: "Sexual orientation probably is not determined by any one factor but by a combination of genetic, hormonal, and environmental influences. Prenatal hormone exposure can play a role in determining sexual orientation as it does with sex differentiation[16,17] and prenatal stress on the mother.[18,19,20]

In recent decades, biologically based theories attempting to understand homosexuality have been favored by experts. However, credible evidence is lacking for a biological model of homosexuality.[21] Homosexuality seems, to have a genetic component.[22] The main reasons that an individual develops a heterosexual, bisexual, gay, or lesbian orientation include genetic and environmental factors, likely in combination.[23] Nevertheless, it is still far from answering the question of the existence of homosexuality gene(s). A scattered evidence for a possible gene influencing sexual orientation is available, however. During the past several decades, scientists have discovered some interesting patterns that may point toward genetic causes of homosexuality.[24,25] Among the findings is that male homosexuality appears to be inherited more often from the mother than the father.[26] Another interesting result is that a male's chance of homosexuality increases with the number of biological older brothers he has—even when he grows up away from his older male siblings.[27] Homosexuality (gay or lesbian) can be caused by simple genetic changes in fruit flies. The team led by University of Illinois at Chicago researcher David Featherstone has discovered that sexual orientation in fruit flies is controlled by a previously unknown regulator of synapse strength.[28] Homosexuality in the fruit flies seems to be regulated by how they interpret the scent of another.[29] Armed with this knowledge, the researchers found they were able to use either genetic manipulation or drugs to turn the flies' homosexual behavior on and off within hours. Since flies and humans share so many reproductive and neurological genes, it seems highly likely that there are major genes influencing homosexuality in humans. However, there is a firm evidence for a birth-order effect on male homosexuality, and discordance in the expression of homosexuality of identical twins, so clearly there is also an environmental influence on the trait. The same data that show the effects of genes also point to the enormous influence of non-genetic factors.[30,31] From twin studies, it is known that half or more of the variability in sexual orientation is not inherited. Studies try to pinpoint the genetic factors do not negate the psychosocial factors.[32]

Current knowledge suggests that sexual orientation is usually established during early childhood.[33,34] Professor Michael King states: "The conclusion reached by scientists who have investigated the origins and stability of sexual orientation is that it is a human characteristic that is formed early in life, and is resistant to change. Scientific evidence on the origins of homosexuality is considered relevant to theological and social debate because it undermines suggestions that sexual orientation is a choice"[35] The argument of genetic inheritance of homosexuality is used by some

people to justify the homosexuality as homosexuals are born this manner! Whether it is genetic or environmental or both, Islam considers homosexuality as a horrible sin (aberrant behavior) and should be prevented and treated through a positive interfering in the environmental factors including social, psychological and medical factors.

Attitude of Homosexuality in Religion:

In the light of the previous literature, homosexuality can be perpetuated from generation to generation and so will be all its social and medical detrimental consequences. These are good reasons to treat the problem. Homosexuality is judged as a sin and abnormal behavior to be treated conveniently. The Islamic judgment for homosexuals is reviewed by Sayyed Sabeq.[36] Punishment varies from blames (Ta'azeer) to lapidating publicly (Jald) for the non-married and ultimately lapidating to death (Rajm) or execution for the married people.

عن عبدالله بن عباس قال رسول الله من وجدتموه يعمل عمل قوم لوط فاقتلوا الفاعل والمفعول به[4a, 5a, 6a].

عن عبدالله بن عباس قال رسول الله من وجدتموه يعمل عمل قوم لوط فاقتلوا الفاعل والمفعول به، ومن وجدتموه وقع على بهيمة فاقتلوه واقتلوا البهيمة[7a]

In The Glorious Qur'an, homosexuality is considered an abominable sin meriting the ultimate punishment (This attitude is similar to that depicted from Christian and Judaic texts, see the end of this section):

What is your affair then, O messengers! * They said: Surely we are sent to a guilty people * That we may send down upon them stone of clay * Sent forth from your Lord for the extravagant.[37]

قَالَ فَمَا خَطْبُكُمْ أَيُّهَا الْمُرْسَلُونَ * قَالُوا إِنَّا أُرْسِلْنَا إِلَى قَوْمٍ مُّجْرِمِينَ * لِنُرْسِلَ عَلَيْهِمْ حِجَارَةً مِّنْ طِينٍ * مُّسَوَّمَةً عِنْدَ رَبِّكَ لِلْمُسْرِفِينَ[8a]

So when Our decree came to pass, We turned them upside down and rained down upon them stones, of what had been decreed, one after another * Marked (for punishment) with your Lord and it is not far off from the unjust.[38]

فَلَمَّا جَاءَ أَمْرُنَا جَعَلْنَا عَالِيَهَا سَافِلَهَا وَأَمْطَرْنَا عَلَيْهَا حِجَارَةً مِّنْ سِجِّيلٍ مَّنْضُودٍ * مُّسَوَّمَةً عِنْدَ رَبِّكَ وَمَا هِيَ مِنَ الظَّالِمِينَ بِبَعِيدٍ[9a]

He said: Surely you are an unknown people * They said: Nay, we have come to you with that about which they disputed * And we have come to you with the truth, and we are most surely truthful * Therefore go forth with your followers in a part of the night and yourself follow their rear, and let not any one of you turn round, and go forth whither you are commanded * And We revealed to him this decree, that the roots of these shall be cut off in the morning.[39]

قَالَ إِنَّكُمْ قَوْمٌ مُّنْكَرُونَ * قَالُوا بَلْ جِئْنَاكَ بِمَا كَانُوا فِيهِ يَمْتَرُونَ * وَأَتَيْنَاكَ بِالْحَقِّ وَإِنَّا لَصَادِقُونَ * فَأَسْرِ بِأَهْلِكَ بِقِطْعٍ مِّنَ اللَّيْلِ وَاتَّبِعْ أَدْبَارَهُمْ وَلَا يَلْتَفِتْ مِنْكُمْ أَحَدٌ وَامْضُوا حَيْثُ تُؤْمَرُونَ * وَقَضَيْنَا إِلَيْهِ ذَلِكَ الْأَمْرَ أَنَّ دَابِرَ هَؤُلَاءِ مَقْطُوعٌ مُّصْبِحِينَ [10a]

The homosexuality disorder is terrible but it is not a fate. The ultimate punishment might have been prescribed for dissuasion and to encourage looking for solutions. Homosexuality is treatable and orientable toward the correct sexual behavior even though some people believe that sexual orientation is innate and fixed. In fact, sexual orientation develops through a person's lifetime".[40] Sexual orientation may be fluid and change over time"[41] A considerable fluidity was suggested in bisexual, unlabeled, and lesbian women's attractions, behaviors, and identities.[42,43]

In Christianity, some teach that homosexual orientation itself is sinful,[44] while others assert that only the sexual act is a sin. Some claim that homosexuality can be overcome through religious faith and practice.

The ultimate punishment is depicted in Christianity and Judaism Genesis texts as well:

GENESIS CHAPTERS 18 AND 19 ARE CONCERNED WITH THE DESTRUCTION OF THE CITIES OF SODOM AND GOMORRAH BY GOD. IN THE NEW AMERICAN STANDARD BIBLE (NASB), THE HEBREW OF GENESIS 19:4-8 IS RENDERED AS: BEFORE THEY LAY DOWN, THE MEN OF THE CITY, THE MEN OF SODOM, SURROUNDED THE HOUSE, BOTH YOUNG AND OLD, ALL THE PEOPLE FROM EVERY QUARTER; AND THEY CALLED TO LOT AND SAID TO HIM, "WHERE ARE THE MEN WHO CAME TO YOU TONIGHT? BRING THEM OUT TO US THAT WE MAY MEET THEM." BUT LOT WENT OUT TO THEM AT THE DOORWAY, AND SHUT THE DOOR BEHIND HIM, AND SAID, "PLEASE, MY BROTHERS, DO NOT ACT WICKEDLY. "NOW BEHOLD, I HAVE TWO DAUGHTERS WHO HAVE NOT MET MEN; PLEASE LET ME BRING THEM OUT TO YOU, AND DO TO THEM WHATEVER YOU LIKE; ONLY DO NOTHING TO THESE MEN, INASMUCH AS THEY HAVE COME UNDER THE SHELTER OF MY ROOF.[45]

Interestingly the previous text from Genesis looks similar to the following Verses of The Glorious Qur'an. This implies a similar attitude common between Judaism, Christianity and Islam vis-à-vis of homosexuality:

And when Our messengers came to Lut, he was grieved for them, and he lacked strength to protect them, and said: This is a hard day * And his people came to him, (as if) rushed on towards him, and already they did evil deeds. He said: O my people! these are my daughters-- they are purer for you, so guard against (the punishment of) Allah and do not disgrace me with regard to my guests; is there not among you one right-minded man? * They said: Certainly you know that we have no claim on your daughters, and most surely you know what we desire * He said: Ah! that I had power to suppress you, rather I shall have recourse to a strong support * They said: O Lut! we are the messengers of your Lord; they shall by no means reach you; so remove your followers in a part of the night-- and let none of you turn back-- except your wife, for surely whatsoever befalls them shall befall her; surely their appointed time is the morning; is not the morning nigh? * So when Our decree came to pass, We turned them upside down and rained down upon them stones, of what had been decreed, one after another * Marked (for punishment) with your Lord and it is not far off from the unjust.[46]

ُهَلْهَأَو ُهاَنْيَجْنَأَف * َنوُرَّهَطَتَي ٌسِاَنُأ ْمُهَّنِإ ْمُكِتَيْرَق
ِمِهْيَلَع اَنْرَطْمَأَو * َنْيِرِباَغْلا َنِم ْتَنَاك ُهَتَأَرْما َّالِإ
َنْيِمِرْجُمْلا ُةَبِقاَع َناَك َفْيَك ْرُظْناف ًارَطَمَّ [12a]

Homosexuality sin yields a deformed image of society (i.e. homosexual couple) especially for children (especially the homosexuals' own children) who should see healthy families based on a normal biological, affectional and reproductive couple. In fact, the homosexual "couples" are just based on deformed and disfigured desires and a non-reproductive sex. The sexuality in Islam has ultimately a reproductive purpose.

And Allah has made for you mates (and companions) of your own nature, and made for you, out of them, sons and daughters and grandchildren, and provided for you sustenance of the best: will they then believe in vain things, and be ungrateful for Allah's favors?[48]

ْمُكَل َلَعَجَو اًجاَوْزَأ ْمُكِسُفْنَأ ْنِم ْمُكَل َلَعَج ُهَّللاَو
ِتاَبِّيَّطلا َنِم ْمُكَقَزَرَو ًةَدَفَحَو َنيِنَب ْمُكِجاَوْزَأ ْنِم
.َنوُرُفْكَي ْمُه ِهَّللا ِةَمْعِنِبَو َنوُنِمْؤُي ِلِطاَبْلاِبَفَأ [13a]

In addition to the above-mentioned psychological problems, homosexuality entails health problems. According to the US regulations, it is currently prohibited for men who have sex with men to donate blood "because they are, as a group, at increased risk for HIV, hepatitis B and certain other infections that can be transmitted by transfusion" [49]. The same regulations of prohibition are valid in the UK[50] and many other European countries.[51]

Lesbians, gay men, and bisexuals are more exposed to a high prevalence of mental health disorders compared to their heterosexual peers. However, the reasons are claimed to be stigma, prejudice, and discrimination stemming from negative societal attitudes toward homosexuality.[52] It is reported, nevertheless, that the liberalization of these attitudes over the past few decades is associated with a decrease in such mental health risks among younger lesbian gay bisexual and transgender people[53]. Another study claims also that gay and lesbian youth bear an increased risk of suicide, substance abuse, school problems, and isolation because of a "hostile and condemning environment, verbal and physical abuse, rejection and isolation from family and peers"[54]

Conclusions and Perspectives:

Different reasons might underline homosexuality including genetics and environment. This consensually refuted behavior would be fatal for the existence of the species if adopted by all individuals, as it is a non-reproductive sex entailing many social, medical and psychological detri-

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mental consequences. The etiological reasons notably the biological ones are ironically used to justify that behavior, which cannot be admitted in religion and common ethics. Diseases, which are biologically-based, are fought against and this fight takes an important ratio of the humanity budgets and efforts! It is the duty of scientists to look for remedies for the homosexuality (environmental factors). Policy makers should dissuade against this behavior considered to be aberrant by the All Knower, Allah in Islam as well as in the scripts of other religions. An important perspective is to invest the flexibility of sexuality[40,41,42,43] in order to reorient homosexuals to the correct heterosexuality and consequently resolve the problems entailed by the aberrant sin of homosexuality…

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And say: «Praise be to Allah, Who will soon show you His Signs, so that ye shall know them»; and thy Lord is not unmindful of all that ye do[55]

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Fasd (Venesection) - A Classical Unani Regimen

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Summary

Unani medicine has its own historical background. According to a great Unani scholar, Hippocrates (father of medicine), the healthy and diseased status of a person depends on the kafiayat and kammeyat (quality and quantity) of the akhlate arba (four humours) of the body. When there is a balance of akhlat, the person remains in a healthy condition and whenever there is imbalance due to various factors, disease appears. Then the disease is treated by remaintaining this balance by the evacuation of akhlate radiya (morbid fluids) through various regimes of the regimental therapy. Regimental therapy (ilaj bil tadabeer) is the hallmark of Unani medicine, in which suitable modifications or alterations are made in the asbabe sitta zarooria (six essentials) of life which are responsible for health and disease. The various regimes of this therapy are Dalk (massage), Riyazat (exercise), Hammam (bathing), Hajamat (cupping), Tareeque (diaphoresis), Irsale Alq (leeching), Fasd (veinesection) etc. Fasd is one of the oldest medical practices, having been practiced among the diverse ancient people, including the Mesopotamians, the Egyptians, the Greeks, the Mayans, the and the Aztecs. It has been utilized for preventive as well as therapeutic measures for thousands of years by ancient Unani physicians. Fasd is a method of Istefraghe damwi (blood letting) which involves the withdrawal of blood in a considerable quantity from the vessels, by giving incision with the help of knife. It is a general eliminant for humors and excess of humors in the same proportions as is in blood vessels.

Key Words: Fasd, Venesection, Bloodletting, Regimental Therapy and Unani Medicine.

Introduction:

'Unani' means medicine which is a symbol of life. The name is derived from the word 'Ionian' which originated in Greece. 'Tibb' means the knowledge of the states of the human body in health and decline of health, or in other words, medicine. 'Tibbe Unani', is hence an age old, time tested system of medicine dating back 5000 years to Greece. Unani System of Medicine is based on the Hippocrates (400 BC) "*Nazriya Akhlaat*" (Theory of Humours), which supposes the presence of four bodily fluids known as *Akhlaat* (Humours), accordingly the temperament of the persons is also expressed like Sanguine, Phlegmatic, Choleric and Melancholic, as every person is supposed to have a unique humoral constitution, which represents his health state. As long as these humours exist in normal balance, normal quantities and in the normal region of the body, the humour system will work in the normal way. Any imbalance to the humour constitutions or changes in their quantity and quality result in diseases.In Unani System of Medicine the principles of treatment is in contrast to the nature and temperament of the disease and adopted in two ways i.e. one empirical or observational and second rational through medicine, diet, manipulation techniques and operations. Broadly speaking, there are four different types of therapies used in Unani system of medicine namely, *Ilaj bit Tadbeer* (Regimental therapy), *Ilaj bil Ghiza* (Dietotherapy), *Ilaj bil Dawa* (Pharmacotherapy) and *Ilaj bil Yad / Jarahat* (Surgery).

Ilaj bit Tadbeer is a method of treatment used specially and only to bring certain changes (modifications) in *Asbaabe Sitta Zarooriya* (six essentials) of life. Theses *tadabeer* (regimes) are very important for normal restoration of health; some of the regimes include some sort of drugs. These regimes are specific manual procedures through which the diseases are eliminated and health can be restored. *Ilaj bit Tadbeer* (Regimental therapy) constitutes various forms of therapies including *Hijamat* (Cupping), *Dalak* (Massage), *Riyazat* (Exercise), *Hammam* (Bathing), *Tareeq* (Diaphoresis), *Irsale Alaq* (Leeching), *Amle Kai* (Cauterization), Fasd (Venesection), *Ishal* (Purgation),

Qai (Emesis), *Idrar* (Diuresis), *Huqna* (Enema), *Nutool* (Irrigation / Douches), *Inkebaab* (Inhalations), *Tanafis* (Expectoration), *Takmeed* (Fomentation), *Imala* (Diversion), *Ilam* (Counter Irritation), *Aabzan* (Hydration Therapy) etc. These regimes are actually meant for the *Istefragh* (evacuation) of *akhlate radiya* (morbid fluids), responsible for the disease, from the body. As soon as these morbid humours are removed from the body, normal health gets restored. Blood letting in the form of venesection, leech therapy and cupping with scarification is an essential part of regimental therapy. It has been utilized for preventive as well as therapeutic measures for thousands of years by ancient Unani physicians.

Fasd (Venesection) is a method of *Istefraje damwi* (blood letting) which involves the withdrawal of blood in a considerable quantity from the vessels, by giving incision with the help of knife (scalpel & lancet).It is a general eliminant for humors and excess of humors in the same proportions as is in blood vessels. It is mostly used in *amraze damwia* (diseases due to blood *impairment)* where there occurs plethora in the body.

Historical background:

Venesection is one of the oldest medical practices, having been practiced among the diverse ancient people, including the Mesopotamians, the Egyptians, the Greeks, the Mayans, the and the Aztecs. In Greece, Venesection was in use around the time of Hippocrates. Erasistratus, however, theorized that many diseases were caused by plethora, or overabundance, in the blood, and advised that these plethoras be treated, initially, by exercise, sweating, reduced food intake and vomiting. Herophilus advocated venesection. Archagathus, one of the first Greek physicians to practice in Rome, practiced venesection extensively and gained a most sanguinary reputation. The popularity of venesection in Greece was reinforced by the ideas of Galen, after he discovered the veins and arteries were filled with blood, not air as was commonly believed at that time. Galen believed that blood was the dominant humour and the one in most need of control. In order to balance the humour, a physician would either remove 'excess' blood (plethora) from the patient or give them any other treatment for evacuation *(Istefragh)*. When Islamic theories became known in the Latin speaking countries of Europe, venesection became more widespread. Together with cautery it was central to Arabic surgery; the key text "*Kitab al Qanoon*" and especially "*Al Tasreef liman Ajeza an Altalif"* both recommended it. It was also known in Ayurvedic medicine, described in Susrata samhita. The practice continued throughout the middle Ages but began to be questioned in the 16th century, particularly in northern Europe. Today the term "Phlebotomy" refers to the drawing of blood for laboratory analysis or blood transfusion. Therapeutic phlebotomy refers to the drawing of a unit of blood in specific cases like hemochromatosis, polycythemia vera, porphyria cutanea tarda, pulmonary edema, hypertensive encephalopathy etc., to reduce the amount of blood cells.

Procedure of venesection:

The most renowned Unani physician, *Ibne Sina* in his famous book *Alqanoon Fil Tib* described the procedure of veinesection in a very systematic and comprehensive manner and stated the following steps of the whole procedure:

1. Identification of the vessels with anatomical position which is to be used for venesection.
2. The position of patient should be in lying down position but it can be changed according to the vessels to be incised and type of incision.
3. Cleansing of the site of venesection by betadine solution and savlon or by any anti septic agent.
4. Use of tourniquet or bandage to make the vessel prominent at 4 cm distance proximal to the site of incision.
5. Application of any *Mulayyin* (laxative) oil like *Roghan Banafsha* or local anesthetic agent e.g. xylocane jelly.
6. Sterilization of instruments like gloves, blade, scalpel etc
7. Give incision according to the need.
8. Monitor the vitals of patient.
9. If any spasm, syncope, nausea, vomiting, yawning and stretching occurs. then stop the bleeding and treat the condition.
10. Stop the procedure when, colour of blood becomes light, consistency of blood becomes thin and speed of blood flow becomes slow.

Précautions after venesection;

The following precautions should be taken as soon as the procedure will be over. As soon as procedure is completed, apply any styptic and antiseptic agents over the site of incision, restrict the patient to the bed for 6-8 hours and advise him not to sleep during this period, use moderate and easily digestible food in small amount, avoid strenuous work, avoid hot food and medicines, avoid exercise, *Hammam* and excessive food.

Mechanism:

According to the classical literature, venesection works on the principles of *Tanqiyae Mawad* (Evacuation of matter) and *Imalae Mavad* (Diversion of matter). *Tanqiyae Mawad* means the excretion of morbid humors and excess fluids from the body through blood, thereby maintaining the homeostasis in the quality and quantity of four bodily humors, which is actually responsible for normal health. It also leads to the diversion of the morbid fluids from the site of affected area to the site where from it is easily expelled from the body tissues. On the basis of these two fundamental principles, Unani physicians have been widely using this therapeutic regimen for a number of diseases.

Indications:

Venesection has been used by the Unani physicians to treat almost every disease. The classical Unani literature, according to one British medical text, has recommended blood letting through venesection for heaviness of head, migraine, headache, piles, acne, asthma, cancer, cholera, coma, convulsions, diabetes, epilepsy, melancholia, gangrene, sciatica, gout, arthritis, palpitation, herpes, indigestion, insanity, jaundice, leprosy, plague, pneumonia, scurvy, fevers, small pox, stroke, tetanus, tuberculosis, and for some one hundred other diseases. Venesection is even used to treat most form of hemorrhaging conditions such as epistaxis, excessive menstruation or haemorrhoidal bleeding etc.

Term and conditions: Venesection is employed in those people who are susceptible for *Amraze Damwi*, patients suffering from any type of *Amraze Damwi* like sciatica, gout, arthritis, epilepsy etc, patients complaining of haemoptysis due to rupture of lung vessels, patient with *Sooe Mizaj Haar Maddi* (derangement of normal temperament due to excess heat) and patient suffering from amenorrhea, trauma, sanguineous fevers.

Age: Between the ages of 14 to 60 years.

Season: The most suitable season for venesection is spring.

Time: Middle days of lunar month (12, 15, and 21) are supposed to be suitable for venesection at noon but at an emergency condition there is no any fixed time and day for venesection.

Contraindications:

Children and geriatric people, very lean and thin patient, fatty people, patients with disease of *Azae Raeesa* (vital organs), patients with *Amraze Barida (cold diseases)* and having cold temperament, patient with hemiplagia, epilepsy, apoplexy, tuberculosis, extreme cold and hot seasons, during pregnancy and menstruation, just after taking meals, after coitus, indigestion, diarrhea, colitis and chronic fevers, during the days *days of Buhraan*, severe pain, anemia etc.

Sites of venesection:

The blood vessels in the body which are more commonly incised for venesection are thirty six in numbers including veins and arteries. More of them are found in the head. In old Greek literature it is mentioned that total number of vessels for venesection are sixty six but there is no such description for all of them. Unani physicians have different opinions regarding the number of vessels used for veinesection. According to *Ibne Sina*, the number of veins is 36, *Ali Ibne Abbas Majoosi* mentioned *33* vessels, *Abul Qasim Zahrawi* mentioned the number as 32, while *Abu Sahal Maseehi and Daud Antaki* mentioned 34 and 20 vessels respectively.

Vessels of upper limb with incision used and indications: According to the classical Unani literature, there are six veins and two arteries in each arm commonly used for veinesection.These are as follows;

1. ***Vareede Qeefal* (cephalic vein) ;**
   - Incision: Transverse
   - Indications: All diseases of upper part of the body e.g. diphtheria, headache, earache, meningitis etc.
2. ***Vareede Basaleeq Aala* (basilic vein);**
   - Incision: Longitudinal
   - Indications: Pleurisy, gastritis, inflammatory condition of spleen and uterus, piles etc.
3. ***Vareede Akhal* (median cubital vein);**
   - Incision: Longitudinal
   - Indications: All diseases of upper and lower part of body, indications of both cephalic and basilic veins.
4. ***Vareede Ibti or Basaleeqe Asfal* (axillary vein);**
   - Incision: Longitudinal
   - Indications: same as basilic vein.
5. ***Vareede Habl uz Zara* (acessory cephalic vein);**
   - Incision: Longitudinal.
   - Indications: same as cephalic vein.
6. ***Vareede Usailum* (salvettella / third dorsal metacarpal vein) ;**
   - Incision: Oblique

- Indications:
- Right hand: liver diseases, bronchial asthma
- Left hand: spleen related diseases, piles etc.

7. ***Shiryaan Bain AlIibhaam Wasabbaba*** **(artery between thumb and index finger**);
   - Incision: Narrow and short
   - Indications: liver diseases
8. ***ShiryanE ZandE Asfal*** **(a branch of radial artery);**
   - Incision: Narrow and short
   - Indications: liver diseases.

Vessels of head and neck: There are 12 veins and 2 arteries in skull as given below;

1. ***Irqe Yafookh or Vareede Haama*** **(a branch of parietal vein);**
   - Incision: Oblique
   - Indications: migraine, head ulcers, conjunctivitis, pterygium, trachiasis and other eye diseases.
2. ***Irqus Sadghain*** **(temporal vein);**
   - Incision: Oblique
   - Indications: migraine, chronic headache, diseases of eye.
3. ***Irq ul Amaqain*** **(vein of lacrimal angle);**
   - Incision: Longitudinal
   - Indications: eye diseases like nigt blindness, conjunctivitis, pterygium etc
4. ***Irqe Khal ful Uzn*** **(posterior auricular vein)**
   - Incision: Oblique
   - Indications: cataract, baldness, head ulcers and head rashes.
5. ***Irqe Arnaba*** **(nasal vein);**
   - Incision: Longitudinal
   - Indications: nasal polyps, nasal rashes, skin diseases of face.
6. ***Irqe Taht ul Lisaan / vareede zafda*** **(sublingual vein);**
   - Incision: Longitudinal
   - Indications: diphtheria, diseases of uvula, diseases of oral cavity, cataract and disartheria.
7. ***Irqe Unfaqa*** **(inferior labial vein);**
   - Incision: oblique
   - Indications: bad breath, inflammation of lips and gums.
8. ***Irq ul Jabha*** **(frontal vein) ;**
   - Incision: Longitudinal
   - Indications: migraine, syphilis, giddiness, chronic headache and conjunctivitis.
9. ***Irqe Shafatain / Chahaar Rag*** **(infra labial vein);**
   - Incision: Transverse
   - Indications: diseases of oral cavity
10. ***Irqe Widajain*** **(jugular vein);**
    - Incision: Longitudinal)
    - Indications: leprosy. diphtheria, asthma, pneumonia, diseases of spleen etc.
11. ***Irqe Thatal Khasha*** **(inferior mastoid vein);**
    - Incision: oblique
    - Indications: chronic headache, giddiness.
12. ***Irqe Lubba*** **(anterior jugular vein)**
    - Incision: Oblique
    - Indications: skin diseases, leprosy, ring worm, asthma and diseases of oral cavity.
13. ***Shiryane Sadgh*** **(temporal artery)**
    - Incision: Narrow and short
    - Indications: migraine
14. ***Shiryane Khlaful Uzn*** **(posterior auricular artery)**
    - Incision: Narrow and short
    - Indications: cataract, conjunctivitis, night blindness and chronic headache.

Vessels of lower limb : There are 4 veins and two arteries in each leg commonly used for veinesection. These are as follows;

1. ***Irqun Nisa*** **(external saphenous vein)**
   - Incision: oblique / longitudinal)
   - Indications: sciatica, gout, varicose vein and elephantiasis.
2. ***Irqe Saafin*** **(great saphenous vein)**
   - Incision: longitudinal
   - Indications: diseases of uterus, piles, nephritis, orchitis etc
3. ***Irqe Mabaz Rakeba*** **(poplitial vein)**
   - Incision: longitudinal
   - Indications: nephritis, cystitis, amenorrhoea, hysteria, sciatica etc.
4. ***Irqe Khlaful Arqoob*** **(a branch of internal saphenous vein)**
   - Incision: longitudinal
   - Indications: same as poplitial vein

Vessels of abdomen:

1. **Vein passing over the liver**
   - Incision: Transverse
   - Indications: liver diseases and ascitis.

2. Vein passing over the spleen
   - Incision: Transverse
   - Indications: spleen related diésasses.

Types of *Fasd* according to incision:

1. ***Fasde Moarrab* (oblique incision):** This type of incision is used for quick healing and especially at the joint and near the joints.
2. ***Fasde Moarraz* (transverse incision):** When there is doubt of presence of any artery beneath the vein which can get injured with the incision, at that time *Fasde Moarraz* is to be used.
3. ***Fasde Motawwall (longitudinal incision):*** It is used when there is doubt of presence of any nerve under the vein, this type of incision is also used with frequent need of venesection
4. ***Fasde Wasee* (Broad incision):** This type of incision is applied in case of melancholic plethora. It can also be used in healthy person for prophylactic purposes.
5. ***Fade Zayyiq* (Narrow incision):** This type is applied in weak patients as blood loss occurs in this type. It is also used at the time of frequent need of venesection especially in hot seasons.

Complications:

In spite of all the precautions taken there is always scope of mistakes and subsequent complications like excessive bleeding, syncope: due to excessive bleeding or it may occur due to fear, fever, nausea, vomiting , gangrene , infections, constipation, and sometimes death.

Conclusion:

It may be concluded that veinesection, as indicated by the Unani physicians, is a general eliminants for abnormal humours and can be safely and effectively used to evacuate the blood and morbid humours from deeper tissues. It can be used for diagnostic purposes as well as for the restoration of normal heath through its prophylactic and palliative action. It can produce better results either singly or as an adjuvant with drug therapy in diseases like hypertension, thrombosis, atherosclerosis, arthritis, varicose veins, frostbite, skin diseases like dermatophytosis, psoriasis, bleeding disorders etc. Thus it is the need of present scenario to conduct clinical research trials of venesection in various chronic diseases likes hypertension, varicosity, rheumatism etc which are almost incurable by modern methods of treatment.

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Holistic Concept of Bahaq wa Bars and their Management in Unani (Greeko-Arabic) System of Medicine

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Summary

There is a comprehensive description of Amraze jild (skin diseases) in classical Unani literature. Ancient Greco-Arabic scholars have described Bahaq wa Bars (Pityriasis and Vitiligo) in detail along with etiopathogenesis, clinical features, complications and management in their treatises. According to Razi, Ibn Sina and Majoosi, Bahaq was Bars are chronic skin ailments which are characterized by white discolouration (hypopigmentation) of skin but with a precise difference. While in case of Bahaq, these patches are located superficially on skin, in Bars these are located deep into the skin. These are humoural diseases occurring because of accumulation of excess or morbid Balgham (phlegm) beneath the skin leading to the weakness of quwate mughaiyarah (augmentative faculty) of skin. Ancient Unani scholars have been treating these ailments successfully since antiquity. They have mentioned and practised a compendium of single as well as compound herbo-mineral formulations for the treatment of Bahaq wa Bars. In this paper, authors have tried to elucidate the holistic concept of these skin aliments along with the treatment as mentioned in classics of Unani medicine.

Key Words: Bahaq; Bars; Hypopigmentation; Herbo-mineral Formulations; Unani Medicine.

INTRODUCTION

Dermatological disorders are well known since Greco-Arabic period. Unani physicians not only described the normal structure and functions of skin but also elucidated the aetiology, clinical presentation, and management of various skin diseases. These scholars have mentioned the detailed and systematic description of two skin ailments, *Bahaq wa Bars* together in their treatises. Both the diseases are characterized by depigmented patches on skin, in case of *Bahaq*, these patches are located superficially on skin whilst in *Bars,* these are located deep into the skin. [1] Ibn Sina (980-1037 A.D.) and Ismail Jurjani (12th century A.D.), two eminent Unani physicians have comprehensively defined *Bahaq wa Bars* as the hypopigmentation of skin occurring superficially and deeply respectively on the skin, as a result of weakness of *quwate mughaiyarah* (augmentative faculty) of skin. [2, 3]

Bahaq

According to a renowned Unani Physician, Zakaria Razi (850-923 A.D.), *Bahaq* is a common skin disease characterized by hypopigmentation and hyperpigmentation with formation of scales on skin.[1] Akbar Arzani (17th century A.D.) has classified *Bahaq* into two types viz; *Bahaq Abyaz* also referred to as *Cheep*, is a light hypopigmentation occurring superficially on skin in the form of small round patches that appear suddenly and disappear quickly after the local application of *Mujalli Advia* (detergent drugs).[4, 5] *Bahaq Aswad* is a black discolouration of skin characterized by the formation of scales like scales of wheat shell. [5] Similarly, Hakeem Ajmal Khan and Ghulam Jilani (19th century A.D.), two renowned Unani Scholars of India, described *Bahaq Abyaz* as an infectious or contagious disease characterized by white yellow patches on trunk and neck along with scaling of skin. It may or may not be associated with pruritus. [6-9]

Bars

It has been defined as a skin disease in which white spots appear on different parts of the body. Zakaria Razi has stated that due to excessive accumulation of *Balghame ghaleez* (thick phlegm), the affected parts become phlegmatic and soft like that of mollusk. Further, the circulat-

ing blood is altered on reaching the affected part and become phlegmatic and the area getting such blood cannot be nourished properly. Moreover If *Bars* spreads over a large portion of the body or when it becomes highly chronic or when whitish fluid comes out on pricking the patches, it is not curable. [1]

AETIOPATHOGENESIS

The concept of four humours, founded by Hippocrates (460-377 BC), forms the basis of health and disease in Unani system of medicine. The basic aetiology of *Bahaq Abyaz wa Bars* is derangement in quality or quantity *Balgham* inside the body.

Zakaria Razi, the author of "*Al Havi Al Kabeer*", has narrated that the white patches of *Bahaq wa Bars* occurs due to the accumulation of morbid phlegm and the black patches of *Bahaq Aswad* occur due to accumulation of *Sauda* (black bile) beneath the skin. He quoted Al Rabats Min Tijamoos, that *Bahaq* is a skin disease characterized by *Jamood* (stagnation) in skin associated with intense skin alterations that lead to the depletion of blood beneath the skin and hence causes hypopigmentation. Unlike Bars, it does not penetrate deep into the skin, remains superficial and the growing hairs of the affected site are of normal colour. It frequently occurs in those people who are obese with prominent vessels and profuse fatty hairs. *Bahaq Aswad* is produced due to *Zoafe Tihal* (functional weakness of spleen) and malabsorption of *Sauda* in the body. [1, 7, 10]

Raban Tabri (810-895 A.D.), a legendary Unani Physician and author of his famous book "*Firdausul Hikmat*" says that the actual pathogenesis of *Bahaq wa Bars* is attributed to *Fasade dam* (blood impairment) and *Buroodat dam* (coldness of blood). If the blood impairment occurs due to *Sauda*, then *Bahaq Aswad* is produced and if blood impairment is due to *Balgham*, *Bahaq Abyaz* or *Bars* is produced. He further says that if blood impairment is due to *Ghaleez Ratoobat* (thick humours) and *Hiddate dam* (abnormal heat in blood), then *Kharish* (pruritus) develops and if the cause of blood impairment is *Buroodat wa Ghilzate dam* (coldness and thickness of blood), then *Qooba* (dermatophytosis) results. [11] Some authors suggested that *Bahaq* may also occur due to personal unhygienic conditions, use of dirty and untidy garments and intake of heavy and flatulent food items. [6, 8]

However, Ibn Sina and Ismail Jurjani have highlighted a slightly different aspect of pathogenesis of *Bahaq wa Bars.* According to them, both *Bahaq* and *Bars* occur as a result of weakness of *quwate mughaiyarah* of skin. This weakened faculty leads to the weakness of *quwate mushabbeha* (resemblance faculty) under the influence of morbid humours due to which the incoming nutrients, that reach the affected part through blood circulation, lose their tendency to get converted into the similar form and colour of skin. Then these unaltered nutrients remain accumulated in the affected area and finally leading to the genesis of ailment. Further they differentiated between the causative humours of two diseases by stating that the causative matter of *Bahaq* is not viscid with *strong Quwate Dafia* (expulsive faculty) due to which it is displaced towards the superficial layer of skin and this result in the formation of superficial white patches on skin known as *Bahaq Abyaz* whereas the causative matter of *Bars* is thick and sticky with weak *Quwate Dafia* due to which it is retained and accumulated at the affected area thus leading to deeply seated white patches known as *Bars*. At another place, they stated that there are included in heredity diseases which are transmitted from generation to generation. [2, 3, 12]

Ahmad bin Rabban Mohd Tabri (10th century A.D.) the author of "*Moalijate Buqratiya*", is of the opinion that the causative matter of *Bahaq* neither penetrates deep into the skin nor it whitens the hairs of affected site. He described that *Bars* is of two types. In first type of *Bars,* the *ratoobate fasida* (morbid fluids) affect completely the site of lesion and may reach deep up to the bones. This type of *Bars* is difficult to treat. In second type of *Bars*, the lesion is superficial and its treatment is possible. [10]

Ibn Zohar (11th century A.D), an eminent Unani Scholar and author of "*Kitab al Taisir*" described that *Bahaq Abyaz* is a metabolic disease occurring due to *Zoafe Hazm* (altered digestion) of organs while *Bahaq Aswad* is a black patch on skin caused due to the accumulation of melancholic humour. According to him, *Bars* is a white shining spot appearing on the skin due to the metabolic disturbance resulted from weak *quwate mugayyrah or quwate mumayyiza* of liver. If neither redness on rubbing nor bleeding occur on pricking is difficult to treat. [13]

Ibn Rushd (12th century A.D.), the author of "*Kitabul Kulliyat",* stated that *Bahaq* usually occurs due to weakness of *quwate mumayyiza* of liver or malabsorption of *Sauda* in spleen or due to *Sue mizaj* (derangement of temperament) of vessels that result in excess production of *Sauda* inside the body. It may also occur due to *Sue mizaj* of the body organs or due to intake of such dietary items that increases the production of *Sauda*. He further described that *Bars* appears due to derangement in the function of *quwate ghazia* (nutritive faculty) and weakness of *quwate hazma* (digestive faculty). In this condition, the nutrients reach the tissues and are retained there, but do not take the proper

form and texture due to failure of these *Quwa* (powers or faculties). [14]

Abul M. H. Qamri (9th Century A.D.) described in his book "*Ghina Muna*", quoting Yahya Ibne Masviyah that if the white patches of *Bars* turn red on rubbing, it means the lesion is fresh and can be treated easily and if the change of colour takes time, it indicates that the disease is chronic and it is difficult to treat. Again he quoted Rhazi that if *Bars* is extensive, chronic and it has cloudy colour, then it is not curable. He also added that the patches on the feet and the hands do not respond to treatment adequately. [15]

Hakim Akbar Arzani has also given a detailed account of *Bahaq wa Bars* in his famous book *Tibbe Akbar*. According to him, *Bars* is a whiteness appearing on the skin. When it spreads all over the body it is called *Barse Muntashir* (generalized vitiligo), weakness of *quwate mughayirah* being its cause. If it turns chronic and remains progressive, its treatment becomes difficult. He has given an account of the prognostic factors in *Bars*. Those lesions where the hairs are not affected and the lesions which become red on rubbing are curable. [4]

CLINICAL PRESENTATION

The typical clinical features of *Bahaq Abyaz wa Bars* are discrete white patches on different parts of the body. According to Akbar Arzani, *Bahaq Abyaz* appears a superficial, small, hypopigmented round patches of skin. He distinguished *Bahaq Abyaz* from *Bars* by stating that *Bahaq Abyaz* remains superficial and does not penetrate deep into the skin. After pricking the needle at the site of *Bahaq*, blood always comes out and the growing hairs at the site of lesion never turns white even after the chronicity of disease. But the whiteness of *Bars* penetrates deep into the skin, growing hairs at the site of lesion are always white and the site of lesion does not turned red on rubbing. [2, 4, 5, 9, 13, 15-17] According to Hakeem Ajmal Khan, *Bahaq Abyaz* appears in the form of white patches characterized by scaling and itching, mostly on trunk (chest and abdomen), cheeks and arms. Initially small white yellow spots appear which coalesce together to form a big depigmented patch. These white patches are slightly raised from the surface of skin but too difficult to be differentiated. [6-8] *Bahaq Aswad* is characterized by black discolouration of body with irritation, burning and scaling of skin. [18] It occurs mostly in adolescence and is characterized by the formation of scales on skin just like scales of wheat shell. [4, 5, 17]

The authors of *Moalejate Nafeesi, Aqsarai* and *Sadeedi* unanimously mentioned that both *Bahaq* as well as *Bars* are skin diseases characterized by white patches in which former remains superficial and does not penetrate deep while later penetrates deep into the skin and muscles. [19-22] In *Bars*, white spots are initially small in size and gradually increase. Ahmad bin Rabban Tabri described that sometimes the lesion of *Bars* is smooth, shiny and soft to touch and in some cases the lesion is neither smooth nor shining and soft. Sometimes the lesion is reddish. [10]

GENERAL PRINCIPLES OF TREATMENT

Unani system of medicine offers a quite effective treatment of *Bahaq wa Bars* which is totally based on holistic approach. The overall management is based on three therapeutic modalities viz *Ilaj Nafsani, Ilaj Bil Ghiza* and *Ilaj Bil Dawa* as described by Greco Arabic physicians like Ibn Sina, Razi and Ismail Jurjani in their treatises. [1-4, 15, 22]

Ilaj Nafsani (Psychotherapy):

Both *Bahaq* as well as *Bars* are associated with social stigma because of cosmetic problems. Usually the patients are depressed psychologically because there is myth in the society that both the diseases are communicable just like *Jarb* (scabies) and *Juzam* (leprosy). Therefore psychological counselling or psychotherapy is the foremost and indispensible part of treatment. Patients and their close relatives are assured first in order to get rid of their misconception about the disease and its prognosis. Patients are made psychologically stable by assuring that the disease is chronic, non contagious in nature and do not harm the body.

Ilaj Bil Ghiza (Dietotherapy):

Dietotherapy is the hallmark of treatment methodology in Unani system of medicine. Unani physicians often suggest dietotherapy as the first line of treatment or as adjuvant therapy with other modalities of treatment. In case of *Bahaq* and *Bars*, although there is a contradiction about the role of dietotherapy in treatment, majority of Unani scholars have suggested that patients of *Bahaq* and *Bars* should take easily digestible food of hot temperament capable of producing sufficient amount of pure blood in the body. They have recommended the meat of birds and goats in diet. Further, they have stated that the diet should be taken only when it is desired and also advised the intake of digestive tonics two hours after meals in order to accelerate the processes of digestion and absorption. Unani scholars have advised the patients to avoid intake of such food items that lead to the increased production of phlegm and black bile which

are the actual culprits for the genesis of disease. According to Ibn Sarabiyoon [1, 9], patients are advised to avoid cold and moist dietary items such as fresh fish, fresh vegetables, fruits and fatty diet.

***Ilaj Bil Dawa* (Pharmacotherapy):** It is done in two steps viz;

Systemic Therapy

Topical Therapy

Systemic Therapy: It includes *Istifragh (Tanqiyahe Badan*) and *Tabreed wa Tadeel Mizaj* (moderation of temperament).

Istifragh (Evacuation): It is the fundamental principle of treatment of all chronic diseases like *Bahaq* and *Bars*. It is the method of expulsion or elimination of morbid humours from the body. These morbid humours are the actual causes of diseases and aggravate the disease process if remain stagnant in the body. Therefore, these abnormal causative humours are evacuated from the body by a method known as *Istifragh*. But prior to *Istifragh*, the process of *Nuzj* (concoction) is employed by the administration of *Munzijat* (concoctives) of respective humour involved. *Nuzj* means that the morbid matter is made easily removable from the body by changing its consistency. Once the features of *Nuzj* are established in the respective humour, the actual method of *Istifragh* is followed through various modes of *Istifragh* like *Ishal* (purgation), *Qai* (emesis), *Hajamat* (cupping), *Fasd* (venesection), *Tareeq* (diaphoresis), *Irsale Alaq* (leeching), *Idrar* (diuresis), *Tanfees (expectoration)*, *Huqna* (enema), *Hammam* (turkish bath), *Dalk* (massage), *Riyazat* (exercise) etc. *Ishal* is the most common method of *Istifragh* used for the purpose of treatment.

Usoole Ilaj (Principles of Treatment) of *Bahaq Abyaz wa Bars*

Istifragh or *Tanqiya Balgham* (Evacuation of Phlegm)

Tadeel Mizaj (Restoration of normal Temperament)

Islahe Hazm (Correction of digestion)

Topical application of *Jali* (detergent), *Muhammir* (rubeficient) and *Musakhkhin* (calorofic) drugs in the form of *Tila, Zimad* and *Roghan* (Jelly, ointment or oil).

Tanqiya Balgham

Bahaq Abyaz wa Bars are caused by the excessive accumulation of morbid phlegm. Ancient Unani physicians have suggested that its treatment should begin with the evacuation of excess phlegm from the body through various means. The commonest mode of *Istifragh* employed for the excretion of phlegm is *Munzij wa Mushil* (concoctive and purgative) therapy which is usually done in three steps;

Use of *Munzijate Balgham* (Phlegmatic Concoctives)
Use of *Mushilate Balgham* (Phlegmatic Purgatives)
Tabreed Badan (Refrigeration of body)

Examples of *Munzijate Balgham*

Bekhe badiyan (root of Foeniculum Vulgare) *7gram, Bekhe kasni* (root of Cichorium intybus) *7gram, Bekhe karafs* (root of Apium graveolens) *7gram, Ustukhuddoos* (Lavandula steochas) 7gram, *Bekhe izkhar* (root of Andopogon jwarancusa) *7gram, Asalassoos muqashar* (root of Glyctrrhiza glabra) *7gram, Barge gauzuban* (leaves of Borage officinalis) *7gram, Anjeer zard* (Ficus Carica) *5 No., Maweez munaqa* (Vitis vinifera) *8 No., Parsiawashan* (Adiantum capillus veneris) 5 gram. Patients are advised to take 40 ml decoction on empty stomach twice a day for a period of 2-3 weeks till the symptoms of *Nuzj* appears. Then, an appropriate dose of *Mushilate Balgham* is added to the decoction of *Munzije Balgham* for a period of 3-5 days to induce purgation.

Examples of *Mushilate Balgham*

Barge sana (leaves of Cassia angustifolia) 6 gram, *Turbud* (Operculina turpethum) 6 gram, *Turanjabeen* (Alhagi pseudalhagi) 40 gram, *Ghariqoon* (Agaricus alba) 4 gram, *Sibre zard* (Aloe barbadensis) 8 gram, *Sheere khisht* (Fraxinus ornus) 7 gram, *Roghane baed anjeer* (oil of Ricinus communis) *25ml.*

Tabreed Badan

This is usually done with the help of *Mubarridat* (refrigerant dugs) to neutralize the side effects of *Mushilat* on intestines. Commonly used drugs are *Luabe bahidana* (mucilage of Cydonia oblonga), *Luabe ispagol* (mucilage of Plantago ovata), *Luabe resha khatmi* (mucilage of Althoea officinalis), *Sheera Unnab* (juice of Zizyphus vulgaris), *Sheere badiyan* (juice of Foeniculum vulgare), *Arq shahitra* (extract of Fumaria officinalis). These are used for a period of 2-3 days. After the completion of *Munzij wa Mushil* therapy, patients are advised to take thermogenic drugs like *Maajeen, Harirajat* and *Itrefalat*. Then the specific drugs of *Bahaq wa Bars* are advised for topical application.

*Usoole Ilaj (*Principles of Treatment) of *Bahaq Aswad*

Istifragh or *Tanqiyahe Sauda* (Evactuation of Black bile)

Tadeele Mizaj (Restoration of normal Temperament)

Islahe Hazm (Correction of digestion)

Rafae Qabz (Correction of constipation)

Tarteeb Badan (Production of fluids inside the body)

Islahe Tihal (Correction of functions of spleen)

Topical application of *Jali, Muhammir Musakhkhin* and *Mohallil* (anti-inflammatory) drugs in the form of *Tila, Zimad* and *Roghan* (Jelly, ointment or oil).

Tanqiya Sauda

The commonest mode of *Istifragh* employed for the excretion of *Sauda* is *Munzij wa Mushil* therapy which is usually done in three steps.

Use of *Munzijate Sauda* (Melancholic Concotives)

Use of *Mushilate Sauda* (Melancholic Purgatives)

Tabreed Badan (genesis of *ratoobat* or fluids in the body).

Examples of *Munzijate Sauda*

Halela siyah (Terminalia chebula) 7 gram, *Badranjboya* (Melissa parviflora) 7gram, *Aftimoon* (Cuscuta chinensis) 7gram, *Ustukhuddoos* (Lavandula steochas) 7gram, *Bisfaij* (Polypodium vulgare) 7gram, *Maul Jubn* (Goat's milk) 40ml.

Examples of *Mushilate Sauda*

Turbud (Operculina turpethum) 10 gram, *Barge sana* (leaves of Cassia angustifolia) 10gram, *Maghz amaltas* (Citrullus colocynthis)10gram, *Ghariqoon* (Agaricus alba) 10 gram, *Maghz jamalhota* (Croton tiglium) 3 gram.

Tabreed Badan

Bahaq Aswad is a chronic disease occurring due to excess *Sauda* in the body and hence results in the production of excess *yabusat* (dryness). Therefore as per Unani doctrine, the line of treatment is aimed at *Tarteebe Badan.* For this purpose, patients are advised to take plenty of fluids including water and fresh fruits. Some Unani physicians recommended frequent *Hammam* (turkish bath) for the production of fluids in the body. Besides drugs like *Luabe bahidana* (mucilage of Cydonia oblonga), *Luabe ispagol* (mucilage of Plantago ovata), *Luabe resha khatmi* (mucilage of Althoea officinalis), *Sheera Unnab* (juice of Zizyphus Vulgaris), *Sheere badiyan* (juice of Foeniculum vulgare), *Arq shahitra* (extract of Fumaria officinalis) used.

Topical Therapy

As per Unani doctrine, *Bahaq wa Bars* are *Muzmin* (chronic) diseases having *Barid* (cold) temperament. Therefore, on the basis of principle of *Ilaj bil Zid* (contrary therapy) which is the hallmark of Unani treatment methodology, the first line of treatment of *Bahaq* is *Tadeel Mizaj* in order to restore the normal *mizaj*. For this purpose various regimes are adopted including the systemic and topical application of *Haarul Mizaj Advia* (drugs having hot temperament) that possess *Jali, Muhammir Muhallil* and *Musakhkhin* properties. Ancient Unani scholars have emphasized extensively on the topical mode of treatment in the form of *Tila, Zimad and Roghan*. These drugs will alleviate the excess *buroodat (coldness)* from the body as well as from the site of lesion and will produce *hararat (warmth)* over the affected area. Consequently blood circulation of the affected part will increase that will restore the normal pigmentation of skin. Commonly used herbo-mineral drugs employed for topical application in *Bahaq wa Bars* are *Babchi* (Psoralea corylifolia), *Aatrilal* (Ammi majus), *panwar* (Cassia tora), *chaksu* (Cassia absus), *Sirka* (vinegar), *Kibreeyat* (Sulphur), *Sheetraj Hindi* (Plumbugo zeylanicum), *Majeeth* (Rubia cordifolia), *Tukhme turb* (Raphanus sativus), *Kundush* (Dregea volubis), *Kharbaq* (Picrorhiza kurroa), *Kalonji* (Nigella sativa), *Khardal* (Brassica nigra), *Shora* (Potassium nitrate), *Unsul* (Allium cepa), *Lehsun* (Allium sativum), *Shahad* (Honey), *Sudab* (Ruta graveolens). After the topical application of drugs the affected area is exposed to sun light for about 5-10 minutes that enhances the process of repigmentation.

Zakaria Razi [1] has suggested several means of topical regimens that are beneficial for the ailment. These include continuous *Takmeed* (fomentation) of affected area with hot water until it becomes hot followed by application of emollient drugs, multiple pricking with needle at the site of lesion and exposure of affected area to sun light.

The commonly used compound Unani formulations for the treatment of Bahaq are *Zimade Bahaq, Roghane Baze murg, Roghane Babchi, Roghane kameela* for topical application and *Sharbate Unnab, Majoon Ushba, Itrephal shahitra, Safoofe Bars, Safoofe Aatrilal* for oral administration. [18, 23]

PROGNOSIS

According to *Ahmad bin Rabban Tabri*,[10] the usual response of the treatment varies from person to person. It depends on duration, site of lesion, size and type of lesion. The factors supposed to be responsible for failure of treatment are presence of patches on hands, feet, front of wrists, above the iliac crest, waist and lips, presence of white hairs on patches, poor nutritional state, presence of helmenthic infestation, stress, anxiety, emotional upsets, old age, indigestion, heredity and constipation.

CONCLUSION

It may be concluded that *Bahaq wa Bars* are *chronic* humoural disease occurring because of alteration in the quality and quantity of morbid phlegm beneath the skin and resulting in hypopigmented patches. *Bahaq Aswad* is characterized by black discolouration of body with irritation, burning and scaling of ski, occurring due to the accumulation of melancholic humour. Under the influence of the accumulation of morbid humours beneath the skin, the normal physiology of skin gets altered and its protective mechanism is lost, consequently it becomes susceptible to infections. Despite the use of numerous newer therapeutic regimens, in Western medicine, *Bahaq wa Bars* have remained an enigma because of recurrence and resistance of the antbiotics. Greco-Arab medicine axiomatically claims for successfully treating these disease since a long time without any unwanted effects. The treatment is based on the holistic approach of *Munzij wa Mushil* therapy along with topical application of *Jali, Muhammir. Muhallil* and *Musakhkhin* drugs. Thus Unani medicine is preferred over contemporary medicine in the treatment of these refractory skin ailments.

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Al-Hijamat: Conceptual Amalgamation of War'm (A Transient Immuno-Inflammatory Response), Acupuncture and Acupressure Mechanisms and its Operational Implications

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Summary

Here, important sites and possible mechanisms of action like War'm (Greeko -Arab concept of protective Immuno-inflammatory response), Acupuncture and Acupressure techniques, and important sites are being stressed.

Key Words: War'm, cupping points and their subdivisions

Introduction

Cupping is a very old treatment technique, but a very new topic of empirical study. Our results from a number of pre-post designs suggest that cupping is a highly effective means to treat idiopathic and other painful conditions. Obviously, more work remains to be done; in fact, research in understudied fields such as this one often inspires more questions than they answer. First, there is need for a case-control design to test the efficacy of cupping in comparison to other, more empirically-supported techniques and in comparison to placebo-control or non-treatment groups or conventional measures groups, different complementary/alternative therapy groups. Secondly, more careful analysis of cupping's efficacy on different unexplored morbidities is needed.

Thirdly, it remains unclear how does cupping works? We have presented hypotheses concerning the conceptual amalgamation of War'm(a Unani explanation of immunoprotective respone), Acupressure and Acupuncture (a Chinese hypotheses), but further research on these topics and the test of hypothesis are needed. Last, there is need for cupping to be tested at MULTICENTRE LEVEL and different maladjustments of the body conditions according to their Mizaj cohorts (temperament-an incomplete explanation of mizaj).

Despite these remaining questions, our results came from different trials conducted at our institute suggest that use of wet-cupping treatment in addition to standard care will result in persisting, clinical relevant benefits for primary care patients with painful conditions.

Al-Hijamah as a War'm (transient immuno-inflammatory response) producing device: Inflammation is a complex reaction to injurious agents such as microbes and damaged, usually, necrotic cells that consist of vascular responses, migration and activation of leucocytes and systemic reactions. These consequences are fundamentally a protective response, the ultimate goal of which is to rid the organisms of both the initial cause of cell injury (e.g. microbes, toxins and the consequences of such injury (necrotic cells and tissues). Inflammation and repair may be potentially harmful, if it is defective or in case of excessive inflammation and if the healing is improper.

Hypothesis: cupping induces such a transient inflammatory process that cannot be very harmful but its protective effect is so remarkable that it provides stimulus and starts subtle and persistent regeneration and healing processes to, especially, those diseased areas where this process had been stopped, completely or partially. If the stem cells of that organ had not completely been destroyed, they start regeneration. But if they have been completely destroyed

due to any reason, it induces the migration and proliferation of protective cells to the most effective area from the less important site (where the healing is immediate as this is the transient inflammatory process for the superficial lesion which leads to prompt healing).And also for those cells which are harmful and persisting chronic inflammation, it (cupping) facilitates their migration towards the transient inflammatory sites of cupping (IMALA or chemotaxis, migration and transmigration at cellular level and transformation of liquid (humours) to the appropriate site at large) as it is confusing and deviating (sucking) the morbid humour from the site of amraze murakkaba (complex and chronic diseased inflammatory site) to the comparatively lesser harmful site of Amraze tarkibi aarzi (Simple and transient immuno-inflammatory response due to cupping).Not only this transient phase may induce persistent, straight and reverse migration of protective and harmful cells, respectively (humours), but may also start apoptosis of the harmful cells thus may produce homeostatic equilibrium between proliferation of protective cell (probably stem cells), their differentiation and death of the mature cells (DIFFERENTIATED CELLS).

This transient type of inflammatory response cannot be accomplished without **complementary activation**. As the cupping also effects the flow of blood towards the effective site together with causing minor injuries and pricking and the activation/stimulation of the specialized points as described by Albucasis and ibne sena (14 special points) and twenty points, if including Hippocratic description. Their several further sub-divisions, and the points of the effected organs, and altering the pressure mechanism of the area (hydrostatic, colloidal, osmotic etc.) by sucking –'a most important action of cupping which can be seen as a remarkable protrusion and bulging sign of the cupped site produces their synergistic effects. This also strengthens the organ of specific cupped area and also pulls (leeches) the deviated alignment of the distorted structure (tafarruq ittesal) due to degenerative course of disease in order to restore the previous alignment to the possible extent. It also boosts up the innate and adaptive immunity and may also check the hyperactive immune system. As Unani physicians prescribed the aim of Ilaj bittadabir (including cupping and various other remedies) is to attain change in the asbaabe sittah zaroriyah (six major domains of life) of the inner body and outside the body which ultimately alter the Naturae Madicatrix (Tabiyat) and Quwwate mudabbira badan (general body power/ Potentiality and re-vitality power) and the Mizaj (temperament). (Kabeeruddinn1930,Zillurrehman1994, Kumar et al2005)

As an Acupuncture and Acupressure techniques:

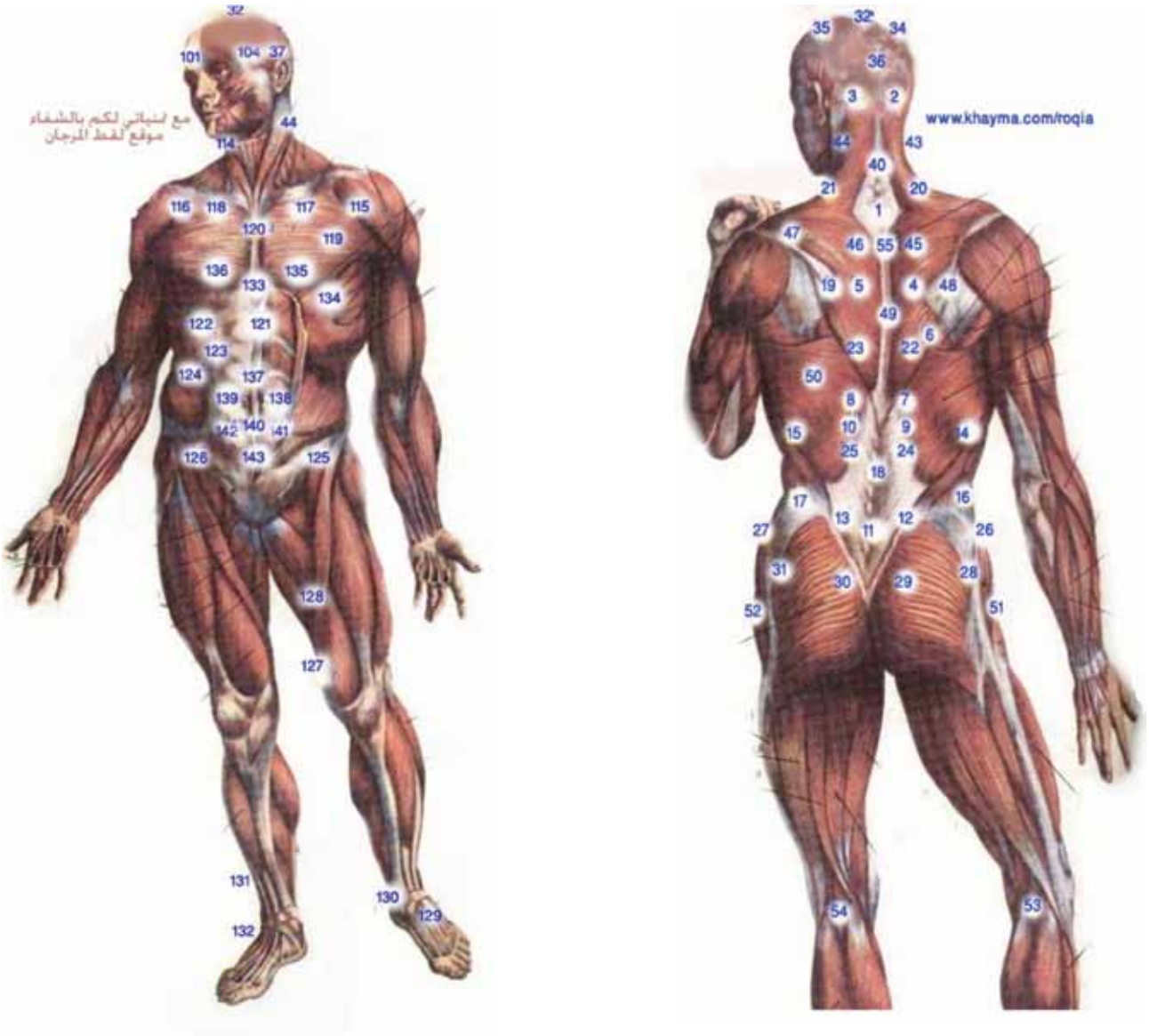
In Al-Hijamah practice, the skin is pinched, sometimes at specialized points (e.g., bladder meridian points) until a redness is generated. Cupping is applied as puncturing to certain specific points as well as to regions of the body that are affected by pain (where the pain is deeper than the tissues to be pulled). The principles of Acupuncture and Acupressure are very similar to that of Wet Cupping Therapy, except for the fact that Wet Cupping involves it's unique and special features- letting of blood whereas Acupuncture and Acupressure utilize suction and stimulation of points to attain the desired results. Letting out blood is in fact among the oldest of acupuncture techniques (Dharmananda, 2004). Albucasis, Bu-Ali Ibnesena and Hippocrates have described 20 points for cupping of the different regions and their values. Suction of area involved exertion of negative pressure towards the bulging site. That's why cupping can be inferred as the mother of all acupuncture and pressure techniques. This also led to origin of those mechanisms. It is speculated that acupuncture, Chinese method, started as a method of pricking boils of the skin, then expanded to letting out "bad blood" that was generated by injuries or fevers and finally allowing invisible evil spirits and perverse atmospheric (most notably "wind") escape from the body (Unschuld, 1985). Focusing attention back to the research into Chinese healing traditions, the discovery of Acupressure and Acupuncture analgesia has proved that they can elicit the release of morphine like substances (Endorphins), Serotonin or Cortisol which can ultimately lead to pain relief and alter the physiological status of the individual (Schulte, 1996). Acupressure and Acupuncture in fact are being utilized and proven useful in pain and addictive management (Schulte, 1996; Hinze, 1988; Cadwell, 1998). At a biological level, Acupressure and Acupuncture work by stimulating or activating (1) the immune system, (2) Enkephalin secretion, (3) neurotransmitter release, (4) vasoconstriction and dilatation and (5) the gates for pain in the CNS which interpret pain sensation (NIH Consensus Development Panel, 1998; Schulte, 1996). Finally, it is believed that stimulation of Acupoints can lead to the pain gates to be overwhelmed by increasing frequency of impulses, therefore, ultimately leading to closure of the gates and hence pain reduction (Oumeish, 1998; Cadwell, 1998).

Specialized cupping points and their subdivisions for cupping of different regions for various morbidities mentioned in ancient text are:

Special cupping points: Hama/Yafookh(center of the head), Kamdada (4fingers above the neck/Occiput), Gud-

di (nape of the neck) cupping: this is to be done after the complete evacuation of the body and may take place the venesection of the cephalic vein and should be avoided in catarrh and coldness of the brain, old persons, and its addiction may lead to oblivion ,Tahtuzzaqan(chin) cupping: it may replace venesection of four labial veins, Akhzain (neck's both sides) cupping: it replaces the venesection of the basilic vein, Qafa (below neck), Kahiliya cupping (between the shoulder/Interscapular region) can replace the venesection of median and cephalic vein and it should be little high above the level of heart, Mondhe (shoulders and blades), antebrachium (inside the fore arms) cupping: it can replace three vein, namely, the basilica, median and the cephalic, and draws blood from all capillaries of the flesh of hand, which draws from the larger veins till drawing reaches those great veins and the scarification should not be very deep, Pistan (below breast), Qutn (low back including coccyx where the suction should be very strong and the vessels should be of bronze or hard material), Warqain(hips), Fakhzain(thighs), Tahaturraqba(behind the knees), Pindhli (calf) and Kabain(over the ankles) withdraws blood from whole body. (Kabeeruddinn1930, Albucasis)

Subdivisions of specialized cupping points in a diagrammatic and flow chart view:



Points of Application	Diseases
1/55/101/36/32/34/35/11، ثم حجامة على المفاصل والعضلات والرقبة 43/44 من الأمام والخلف مع العسل وغذاء ملكات النحل ومساج يومي.	1 - ضمور خلايا المخ Atrophy of Brain Cells-1
1/55/101/36/32/ (107 على الجهتين) /114/11 12/13	2 - كهرباء زائدة بالمخ (التشنجات) Excessive electrical discharge in brain
1/55/2/3/32	3 - تنشيط مركز التركيز Activation of concentration center
39/ (البعاد ضارة بالذاكرة وتكرارها يورث النسيان)	4 - مركز الذاكرة Center for memory
1/55/2/3 ويمكن استبدال 43/44 بدل 2/3. ويضاف ما يلي إذا كان السبب:	5 – الصداع Headache
104/105/36	(1) إجهاد العين Eye strain
102/103/114	(2) الجيوب الأنفية Nasal sinus
11/101/32	(3) الضغط العالي Hypertension
28/29/30/31	(4) الإمساك Constipation
120/4/5	(5) نزلات البرد Cold catarrh
7/8	(6) المعدة Stomach
9/10	(7) الكلى Kidney
11/12/13	(8) الدورة الشهرية للنساء Menses
6/48	(9) الكبد والمرارة Liver and Gall bladder
On vertebral column	(10) العمود الفقري Vertebral Column
6/11/32.	(11) الأوتار Tendon
120/ 49 وخلطة من كيلو عسل أسمر و 1/4 كيلو حبة البركة مطحونة و1/4 كيلو حلبة مطحونة يخلط ويؤخذ كل يوم ملعقة.	(12) الأنيميا Anemia
In the place of pain	(13) أورام المخ Brain growths
1/55/ 2/3/106 + أماكن الألم.	6 - الصداع النصفي Migraine
1/55/36 مع الخل المخفف وقليل من السكر.	7 - كثرة النوم Hypersomnia
1/55/ 6/11/32 ، تحت الركبتين.	8 - الاكتئاب والانطواء والأرق والتوتر العصبي Stress, Sleeplessness
1/55/6/48/7/8/14/15/16/17/18/45/46 وجافة 137	9 - القولون العصبي Colonic colic

بعد أعمار خمس سنوات حجامات جافة 137/138/139/140/142/143/125/126	10 - التبول اللاإرادي Incontinence of Urine
1/55/110/111/112/113 على الجهة المصابة وموضع 114.	11 - التهاب العصب الخامس والسابع 5th and 7th
يمين: 1/55/11/12/26/51 ومواضع الألم بالساق وخاصة بداية ونهاية العضلة. الرجل اليسرى: 1/55/11/13/27/52 ومواضع الألم بالساق.	12 - عرق النسا Sciatica
1/55/11/12/13/34 أو 35 وجميع مفاصل الجانب المصاب ومساج يومي.	13 - الشلل النصفي Hemiplegia
1/55/11/12/13/34/35/36 وجميع مفاصل الجسم ومساج يومي	14 - الشلل الكلي Renal Failure
1/55/40/20/21 ومفاصل وعضلات الذراع المصابة.	15 - تنميل الأذرع Numbness of forearm
1/55/11/12/13/26/27 ومفاصل وعضلات الرجل المصابة.	16 - تنميل الأرجل Numbness of Leg
1/55/36/101/104/105/9/10/34/35 وفوق الحاجبين وعلى دائرة الشعر.	17 - جميع أمراض العين Eye diseases
1/55/20/21/41/42/120/49/114/43/44	18 - اللوزتان والحنجرة واللثة والأسنان والأذن الوسطى ENT
1/55/102/103/108/109/36/14 ودائرة الشعر	19 - الجيوب الأنفية Nasal Sinus
1/55/20/21/37/38 وخلف الأذن	20 - ضعف السمع والتهاب أعصاب السمع ووشوش الأذن Deafness and Inflammation of auditory nerve
1/55/36/33/107/114	21 - عدم النطق Aphasia
1/55/4/5/120/49/115/116/9/10/117/118/135/136 وحجامتان أسفل الركبتين.	22 - السعال المزمن وأمراض الرئة Chronic cough and Lung disorders
1/55/106/11/32	23 - المساعدة على الإقلاع عن التدخين Withdrawal of Smoking
1/55/19/119/7/8/46/47/133/134	24 - أمراض القلب Heart diseases
1/55/11 وحجامات على مواضع الألم وملعقة خل مخفف وقليل من السكر يوم بعد يوم وخاصة خل التفاح.	25 - ضيق الأوعية وتصلب الشرايين Vascular constriction and Sclerosis
1/55/2/3/11/12/13/101/32/6/48/9/10/7/8 ويمكن استبدال 43 و 44 بدلاً من 2 و 3	26 - ارتفاع ضغط الدم Hypertension
ملاحظة: يتم الراحة قبلها يومين ورفع القدم المصابة لأعلى، ثم وضعها في ماء دافئ لمدة ساعتين قبل الحجامة. 1/55/11/12/13/120/49/121 وحول الرجل المصابة من أعلى لأسفل بالإضافة إلى 125/126/53/54	27 - داء الفيل Elephantiasis
1/55/28/29/30/31/132 ومواضع الإصابة بعيداً عن الأماكن البارزة.	28 – دوالي الساقين Varicosity of legs
1/55/11 وعشر حجامات على جانبي العمود الفقري من أعلى إلى أسفل بالإضافة إلى ملعقة خل وقليل من السكر يوم بعد يوم.	29 – تنشيط الدورة الدموية Menstrual irragularities
1/55/9/10/41/42/ وجافة 137/140	30 – أمراض الكلى Renal disorders

1/55/48/41/42/46/51/122/123/124 و5 حجامات على الساق اليمنى من الخارج.	31 – الكبد والمرارة Liver & Gall Blader
1/55/121	32 – التهاب فم المعدة Gastratis
1/55/7/8/50/41/42/جافة 137/138/139/14	33 – المعدة والقرحة Gastric ulcer
حجامات جافة 137/138/139/140	34 – الإسهال Diarrhea
1/55/11/12/13/28/29/30/31	35 – الإمساك المزمن Chronic constipation
1/55/121/11/6 وحجامات جافة 137/138/129	36 – البواسير Pile
1/55/6/11/12/13 وحول فتحة الشرج وفوق فتحة الناسور.	37 – الناسور Fistula
حجامة واحدة جافة على السرة مباشرة.	38 – حساسية الطعام Food Allergy
1/55/9/10/120/49 والمواضع المترهلة.	39 – السمنة Obesity
1/55/121	40 – النحافة Emaciation
1/55 وجميع مواضع الألم.	41 – الروماتيزم Rhumatism
1/55/120/49/36 وجميع مفاصل الجسم الكبيرة والصغيرة.	42 – الروماتويد Rheumatoid A
1/55/11/12/13 وحول الركبة ويمكن إضافة 53/54.	43 – خشونة الركبة Osteoarthritis of Knee
1/55/13 ويمين ويسار الكعب ويمكن إضافة 9/10	44 – أملاح القدم Uric acid of foot
1/55/28/29/30/31/121 ومواضع الألم	45 – النقرس Gout
Many cups on affected muscles	46 – الشد العضلي Rigid muscles
1/55/40/20/21 ومواضع الألم	47 – آلام الركبة والأكتاف Shoulder and knee pain
1/55 وعلى جانبي العمود الفقري ومواضع الألم	48 – آلام الظهر Backache
1/55/7/8 وجافة على 137/138/139/140 وعلى الظهر مقابل مكان الألم.	49 – آلام البطن Abdominal Pain
1/55/120/49/129/131/7/8/21 وعلى أماكن الإصابة	50 – الأمراض الجلدية Dermatological disorders
1/55/129/120	51 – قرح ودمامل الساقين والفخذين وحكة بالإلية Boils of shank, and thigh
1/55/41/42	52 – الغدة الدرقية Thyroid gland
1/55/6/7/8/22/23/24/25/120/49 ويدهن مكان الحجامة بكريم فيوسيدين لمدة ثلاثة أيام.	53 – السكر Diabetes
1/55/120/49	54 – ضعف المناعة Immune deficiency
1/55/6/11/12/13/120/49/125/126/ 143/41/42	55 – العقم Sterility

1/55/6/11/12/13 ويضاف للضعف الجنسي: 125/126/131 على الرجلين وجافة 140/143	56 – البروستاتا والضعف الجنسي Prostate and Erectile Dysfunction
1/55/6/11/12/13/28/29/30/31/125/126	57 – دوالي الخصية Varicocele
1/55 وثلاث حجامات جافة تحت كل ثدي كل يوم حتى يرتفع الدم.	أمراض النساء: 58 – نزيف الرحم Uterine bleeding
1/55/129 و 131 من الخارج /135/136	59 – انقطاع الدورة الشهرية Amenorrhea
ثلاث حجامات جافة تحت كل ثدي كل يوم حتى ترتفع الإفرازات و1/55/120/49/11/12/13/143 وإذا كانت بدون رائحة ولا لون ولا هرش: 1/55/9/10/41/42/11/12/13/143	60 – إفرازات مهبلية بنية اللون Bad vaginal secretions
1/55 وجافة 125/126/137/138/139/140/141/142/143	61 – مشاكل الحيض للفتيات Menstrual disorders of girls
1/55/11 وجافة 125/126	62 – لتنشيط المبيض Induction of ovary
1/55/6/48/11/12/13/120/49 وجافة 125/ 126 ولتنظيم مواعيد الدورة يفضل ثاني يوم الدورة.	63 – الأم ما بعد عملية الرحم ومغص الدورة ومشاكل بعد عملية الربط للمبايض ووجود لبن في الثدي بدون حمل وأمراض سن اليأس (الاكتئاب – التوتر العصبي- التهابات الرحم - الحالات النفسية) Menopausal disorders

(Kabeeruddinn1930, Albucasis, web 1)

Conclusion: cupping is more than the local inflammatory response of the superficial skin and it is the systemic transient immune inflammatory response which leads to proper healing, regeneration, opsonisation, apoptosis and activation of the complementary system and also involves migration of harmful and protective cell of inflammation towards the appropriate ends. It is also a mother of acupressure and acupuncture mechanism, moreover, it is the Divine and miraculous remedy also which almost always produces positive outcome, even sometimes more subtle than obvious, if practiced, according to the recommendations (principles) of the Unani physicians and the areas and the techniques and type of the vessels required for that ailments and organ, seasons and dietary modifications also should strictly be need keen checking. Some needs more sittings of massage and anointment before cupping; some required more dry cupping sittings, some require complete evacuation of the body and some need fluid retention according to their temperaments; some need more scarification deep or superficial, it varies. Always the emphasis should be given to the special points and their sub divisions. The ways (pattern) in which we do clinical trials these days also need be changed and grouping and matching is to be done for different cohort of Unani Asbab (risk factors) and should be carried out in larger sample size. In short, it should be patient specific and holistic way of approach rather than the generalized way, common for every patients of the same disease. National institute of Unani medicine is carrying out research work in different morbidities through cupping and other regimens in its Regimenal therapy unit wing and getting the positive outcome while serving the population of all kind.

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Norms for Qae (Vomiting) and Is'hal (purgation): The Traditional Graeco-Arabic approaches

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Summary

Qae (Vomiting) and Is'hal (purgation) are amongst the important principles of treatment in Graeco-Arabic Medicine (Unani Medicine). Their application needs a vast knowledge of norms regarding them. The present paper reviewed the traditional Graeco-Arabic (Unani) knowledge regarding the norms for Qae (Vomiting) and Is'hal (purgation).

Introduction

Dietary intake also yields some waste material in our body. *Tabiyat,* through different routes, excretes some of them such as, urine, stool, sweat, saliva, menstrual blood. But, some quantity of *Fuzlate Badan* tends to retained in the body and their retention produces harmful consequences. *Is'hal* and *Qae* the important types of *Tanqiya* (elimination) helps in removal of such retained *Fuzlate Badan*. In present paper, we have discussed aims and objectives of elimination, contraindication for elimination, general rules and mode of action for *Qae* and *Is'hal,* rules for *Is'hal*, rules for *Qae,* dangers of excessive *Qae,* treatment of complication due to *Qae* and finally conclusion.

Aims and objectives of elimination

1. Only the matter required to be eliminated should be removed.
2. Elimination should be in direction of outflow.
3. Elimination should be through an appropriate organ and towards the one where morbid matter is drifting.
4. The time of elimination should be decided according to the presence and absence of maturation.
5. The quantity of matter should be estimated from
   (a) The amount of the matter of the body.
   (b) The strength of patient and
   (c) The chances of complications.

Contraindication for elimination

1. Plethora: if the body is in the state of depletion, *Tanqiya* is definitely contraindicated.
2. Strength: weakness of any primary faculties contraindicates *Tanqiya.*
3. Temperament: elimination is contraindicated in hot and dry *Mizaj.* It is also not permitted in cold and moist temperament.
4. Physique: elimination is contraindicated in the markedly lean and obese patients. In thin patients, excess of bile, should be managed with cooling and moistening food to obviate the need for elimination.
5. Nature of symptoms: diarrhea and spasms in childhood contraindicate elimination as it is the period of growth and development and in old age it is because the end old life is near.
6. Season: excess of heat or cold contraindicates elimination.
7. Local climate: elimination is absolutely contraindicated in the residents of extremely hot southerly countries.

8. Habit: elimination should be avoided in unaccustomed persons.
9. Occupation: effects and indications vary according to the occupation.

General rules and mode of action for *Qae* and *Is'hal*

The points to be considered in *Tanqiya* (elimination) are plethora, potency of the patient, *Mizaji Kaifiat* (temperamental state), body fluid, age, season, local climate, occupation and previous habits of *Tanqiya.*

1. The food taken before *Qae* or *Is'hal* should be small in quantity.
2. The meals should consist of a wide variety of articles because the stomach and intestine tend to expel heterogenous type of food.
3. If a meal consist of similar type of food and, especially, when it is taken in small amount at long intervals, the stomach holds it like a miser.
4. *Qae* and *Is'hal* are both difficult in cases of abdominal viscera. In such cases, *Mus'hil* has to be given of mild strength such as ivy, safflower seeds, polypody and purging cassia etc.
5. According to Hippocrates, *Qae* is easier in the case of lean and thin persons. Hence it is best way for cleaning the system for them.
6. The best season for *Tanqiya* is summer, spring or autumn, but not winter.
7. Before eliminating with *Qae* or *Is'hal*, the offending humour should be prepared by softening and liquefaction.
8. When a strong *Mus'hil* (purgative) or *Muqi* (emetic) has to be given the body should be prepared in advance to receive it. If the abdominal wall is thin and wasted, emetics and *Mus'hils* can be most distressing and even dangerous.
9. Overwhelming desire for sleep after *Qae* or *Is'hal* is a sign of successful elimination.
10. Excessive thirst during *Qae* or *Is'hal* also indicates that the body has been properly cleansed.
11. The humours drawn by *Mus'hils* are specific to each *Mus'hil*. Thus a Mus'hil might draw thick but not thin humours. The expellants of *Sauwda* also act in this manner.
12. Mus'hil and emetics draw humours from the channels normally used for absorption. When these humours arrive in the stomach and intestine, the system expels them (by *Qae* or *Is'hal*).
13. Emetics act as *Mus'hil* when:
    a. The stomach is strong
    b. The emetic is taken in empty stomach
    c. Bowels have been loose and there is diarrhea
    d. The patient is unaccustomed to *Qae*
    e. The emetic is heavy and thus liable to pass downwards.
14. Similarly, a *Mus'hil* may act as an emetic when:
    a. Stomach is weak
    b. The patient is passing dry stool (fecolith)
    c. The medicine is distasteful and unduly nauseating or
    d. When the patient is suffering from dispepsia.

Rules for *Is'hal*

1. Before giving a *Mus'hil,* body should be prepared by loosening the matter and opening the channels with a laxative. This is particularly necessary in the treatment of cold diseases. It is thus best to relax the bowels before giving a *Mus'hil* as that would save a lot of inconvenience.
2. A preliminary laxative should, however, be avoided in persons with a tendency towards diarrhea. In such cases a mild emetic should be incorporated in the prescription so that the *Mus'hil* does not pass down too quickly. Such a prescription will, off course, consist of opposite type of medicines but these acts as corrective of each other.
3. A bath taken regularly for a number of days before taking a *Mus'hil* helps to liquefy the morbid matter. Baths are on the best means of preparing for *Is'hal* provided they are not contraindicated. However, some interval between bath and *Mus'hil* should be maintained.
4. Bath should not be taken soon after a *Mus'hil* as morbid matter would then get diverted towards skin and thus hinders rather than help *Is'hal.* Massage and oil rubs also assist *Is'hal.*
5. Strong *Mus'hil* should be avoided by those unaccustomed.
6. Thirst is an indication for arresting *Is'hal.* As long as there is no thirst, there is no fear of catharsis. Thirst, however, develops for other reasons. It may be caused by heat, dryness of stomach or irritation by some morbid matter e.g. bile.
7. Expulsion of blood after *Is'hal* is a sign of great danger. Griping from *Mus'hil* also needs treatment.

Rules for *Qae*

1. *Qae* aims at the direct cleansing of stomach but not intestine. Head and other parts of body are cleansed indirectly. It thus withdraws morbid matter from below upwards.
2. *Qae* is particularly suited for the constitutionally thin and bilious persons. But not suitable for the followings
   a) Narrow chests and breathing difficulties
   b) are Subject to haemoptysis
   c) have thin narrow necks
   d) are prone to inflammatory swellings of the throat.
   e) Obese persons with weak stomachs are treated better with *Is'hal* than *Qae*. Thin and lean persons in whom bile is excessive are treated better with *Qae*.
   f) *Qae* is unsuitable for persons who find vomiting difficult or who are not accustomed to it.
3. When there is some doubt, a mild emetic should be tried first. If it is successful, a stronger emetic like hellebore is given afterwards.
4. Where *Qae* is no quite suitable but is indicated, patient should be prepared in advance by habituating him gradually to vomiting and feeding on soft, sweet and oily substances. Exercise should be forbidden and *Qae* induced [when ready] with fats and oils and alcohol given afterwards. Every effort should be made to assist vomiting.
5. The food given before *Qae* should be of good quality, especially when vomiting is likely to be difficult; this is because on the failure of emetic, the food left in stomach should be at least of wholesome type.
6. More food should not be given until the patient begins to feel really hungry.
7. Thirst is allayed with syrup of apples but water should not be given.
8. Honey and syrup of vinegar should be avoided as both tend to provoke nausea.
9. The best food, before the vomiting has begun, is roasted chicken followed by three cups of wine.
10. If without any previous history there is a sudden vomiting of sour material and pulse show signs of heat, food should be withheld until mid day and even then it should be proceeded by a drink of warm rose water.
11. Those who tend to habitually bring up *Sauwda* should keep up sponge soaked in hot vinegar over the epigastrium.
12. The food for vomiting should consist of wide variety of things because stomach has the natural tendency to retain food consisting of similar things.
13. Where the vomit contains a lot of mucoid matter pigeon or sparrow meat should be given but care taken that tiny bit of bone from the wings and legs of birds are not swallowed. Being heavy, these tend to remain in stomach for a long time.
14. A hot bath is also advisable. After the emetic, patient should be encouraged to move about and take sufficient exercise to get tired before the vomiting begins. The whole procedure should be carried out at about noon time.
15. Eyes should be covered with a pad and bandaged.
16. A soft binder should also be tied gently over the abdomen.
17. Substances which facilitate *Qae* are herb- rockets, radish, wild thyme, dry salted fish, onion, leek and barley water sweetened with honey and taken whole with its sediment. Slops of purslane made with sugar are also useful for this purpose. Sweet wines, almonds with honey, fried bread with sugar, seeds or infusions of roots of snake cucumber and melon may be served with sugar. Radish soup may also be tried.
18. The food taken to induce vomiting should not be masticated too much.
19. If alcohol is given as an emetic it should be given in a large quantity otherwise it would fail to produce vomiting. Beer taken after the bath produces vomiting as well as diarrhea.
20. When a strong emetic such as hellebore is taken, it should be taken on empty stomach at about two hours after the sunrise when bowel have moved.
21. *Qae* may be induced by tickling the throat with a feather, preferably dipped in oil, such as henna.
22. If vomiting fails to occur, a gentle walk or some other mild exercise should be taken. When this is not successful, bath should be tried.
23. If the emetic produces restlessness and discomfort warm water containing olive oil should be given to drink. This helps to empty the stomach and assists in moving the bowels.
24. *Qae* is assisted by keeping the limbs and abdomen warm. Warmth stimulates nausea and, thus induces vomiting.
25. When the emetic proves too strong and quick the patient should be kept in bed and given some pleasant

scent to inhale. The limbs should be pressed and massaged. A small quantity of vinegar and apple or quince with a small quantity of mastic should be given by mouth. It is worth remembering that muscular activity favours *Qae* while rest hinders it.

26. When the physical condition contra-indicates *Qae* but an emetic is needed then it may be given but only during summer.
27. Signs of successful *Qae*: body feels light, appetite is improved, respiration and pulse become better and all organs of the body begin to function more efficiently.
28. Before vomiting begins there is nausea but afterwards there are no lasting side effects other than the usual irritation of stomach which follows powerful emetics. There is a free flow of saliva and plenty of liquid secretion [mucus] as in ordinary vomiting.
29. Mild pain or irritation in the stomach, absence of discomfort other than nausea and the usual restlessness point to a successful result.
30. Occasionally, *Qae* may be followed by diarrhea. At about four hours from the last vomit patient generally settles down and wants to have rest and sleep.
31. Signs of unsuccessful *Qae* are: lack of free vomiting, feeling of tension and spasm, congestion and prominence of eyes and excessive sweating and hoarseness of voice. In such conditions, following steps should be taken at once.
    (a) Administer enema. (Therefore, equipment for enema should always be kept handy for such emergencies).
    (b) Give honey and warm water by mouth.
    (c) Treat with oily antidotes such as oil of lilies.
    (d) Induce vomiting.
32. *Qae* benefits chronic diseases such as epilepsy, dropsy, melancholia, leprosy, sciatica and gout. Although *Qae* is generally beneficial, sometimes it produces deafness.
33. *Qae* and venesection should not be tried together. There should be at least three days interval between the two procedures as otherwise the pit of stomach would get clogged up with the humours.
34. When humours are unduly tin, *Qae* would be difficult. In such cases a small quantity of powdered dry pomegranate seeds should be given to make the humours sufficiently thick for elimination.
35. If after an emetic there is severe diarrhoea, it is a sign of indigestible matter having moved downwards. Conversely, if after the *Mus'hil* there is vomiting this should be taken as an undesirable complication.
36. The best time for *Qae* is the noon time of summer season.
37. *Qae* is generally good for the body but harmful to the eyes.
38. During pregnancy vomiting should not be encouraged as unhealthy humours normally eliminated through menses are not eliminated by this route and thus produce unnecessary fatigue, restlessness and other disturbances. When there is no pregnancy, vomiting may be encouraged rather than hindered.
39. When the vomiting stops, face should be cleansed with water containing a small quantity of vinegar. This removes the heaviness of head which generally follows *Qae*. Apple juice with a small quantity of mastic may be given but food and drinks should be avoided for some time afterwards. The patient should be encouraged to rest; his epigastrium should be massaged with oil and a quick bath given afterwards. When hunger becomes unbearable some light tasty food should be given.
40. Intestines are normally cleansed by the daily discharge of bile, there is no such provision for cleansing the stomach. Hippocrates recommends that *Qae* should be taken on two consecutive days every month. This is to ensure elimination of the matter left behind in the stomach from the previous day or drown into it afterwards. Hippocrates claims it to be a good way of preserving health. Therefore, For the purpose of general health *Qae* is induced best after meals, but only once or twice a month- and not necessarily at a fixed time.
41. Vomiting before meals ensures the entry of food in a clean stomach. It cures aversion to fatty food and brings back normal appetite.
42. *Qae* removes the surplus of phlegm and clears the stomach of accumulated bile and *Sauwda*.
43. *Qae* relieves the common complaint of heaviness in the head: it clears the vision and cures indigestion. Since the accumulation of bile in the stomach produces abnormal changes in food, *Qae* benefits persons suffering from it's after- effects.
44. Excessive craving for hot, spicy, acid and bitter things also cured by vomiting.
45. *Qae* is good for puffiness and benefits those suffering from ulceration of kidneys and bladder.
46. It is a useful treatment for leprosy, discoloration of skin, epilepsy from disorders of stomach, jaundice, asthma, tremors and paralysis. It is a good treatment for eczema.

Dangers of excessive *Qae*

1. Frequent *Qae* is bad for the stomach. It tends to make it weak and predisposes it to the accumulation of noxious matter.
2. It is bad for the chest, eyes and teeth.
3. Excessive *Qae* is injurious in epilepsy of cerebral origin but not in the one, caused by disorders of the lower organs.
4. It is also harmful to the liver, lungs, and eyes because, sometimes, it ruptures the blood vessels.

Treatment of complication due to *Qae*

1. In case of pain and tension under the ribs, hot fomentation should be given and massage with oil and try hot cupping.
2. When after vomiting there is burning and irritation in the stomach greasy but easily digestible soup should be served and the epigastrium massaged with violet oil mixed with wax.
3. If hiccup develops during *Qae* and continues to persist, sneezing should be induced and hot water given to sip.
4. If after the *Qae* rigidity and cold nervous disorder [such as spasms, convulsions etc.] stupor and loss of voice appear the limbs should be tightly bandaged, and the pit of stomach fomented with olive oil in which rue and squirting cucumber have been boiled.
5. Hot water with honey should be given as a drink. Similar treatment is carried out for the fits and few drops of olive are dropped into the ears.
6. Patient should be put on bed and helped to sleep. Limbs should be bandaged as in the treatment of diarrhea and strong astringents applied to the epigastrium.
7. If vomiting is too severe or bloody than milk with six ounces of vinegar should be given. This would reduce the severity of vomiting, stop bleeding and act as a sedative.
8. To prevent further bleeding and clear the blood clots from stomach and oesophagus, syrup of vinegar cooled with ice should be given to sip. Juice of purslane leaves, taken with Armenian bole, is beneficial in cases of haemorrhage resulting from violent *Qae*.

Conclusion: These are trouble-free, inexpensive and simple ways of evacuation of *Fuzlat* (wastes) from the body.

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Historical Perspective of Comparative Evaluation of Calcination

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Summary

Calcination(Taklees) is the process of making finely divided powder of minerals/metals by default and some animals & plant origin drugs used in Unani medicine and Aurveda, known as Kushta and Bhasama (calcined form), respectively. These two systems of medicine are some- what contemporary and are trying to have precedence over each other on many inventions as this may prove their antiquity. It is often said that calcination is specifically a process that has been proposed and developed by Ayurveda as claimed by some Ayurvedic and also by some Unani scholars. Of course, nothing can be said with certainty when and how this process came in vogue in medicare system because all the claims are not strictly adhered to historical facts. However, the history of use of metals and minerals in burnt form can be traced to the remote past in Greece. For long ago, this dosage form was in practice in Greece which is evident from old Greek writings. It can be said with some degree of confidence that Greco - Arab medicine is worth crowning with this invention. This paper aims at making the historical perspectives of calcination conspicuous.

Key Words: Taklees, Kushta, Unani Medicine, Ayurveda, Historical perspectives

Introduction

The term Taklees(calcination) is taken from the word 'Kils' which means lime, applied to a process by which a substance is converted in a form that looks like lime, known as *Mukallas or Kushta*. *Kushta* is the past participle of *Kushtan* (Persian -"to kill"); it therefore means "killed, conquered"[1,2,3]. Technically, this term is applied to a process in which hard elements[4] are made soft and converted in to white powder[5]. In this process solid material is heated to drive off either carbon dioxide or water. It decomposes most of the constituents leaving behind only oxides which is infusible and increases the absorption many fold. However, some authors have used the term *Ihraq* (ignition) in place of *Taklees* [6,7,8,9,10]. But, both are two different forms, and both are meant to burn some matters with difference in temperature required and therefore the product yielded out of these processes is also different. *Kushta* is the finest powder form of the medicinal preparation. The drugs, by special process, are calcined in closed crucibles and in pits of different size having varying number of cow dung cakes and with different intensity of heat[11]. In Unani medicine, the term *Kushta* is employed for a dosage form that is used in small quantity and one that is immediately effective. It is a blend of metals, metallic oxides, non metals and their compounds or minerals. The preparation results in the efficacy of a medicine and after its entry into the body discharges its curative role promptly and effectively.

Historically, it is not very clear that when and how this dosage forms was incorporated in medicine because most of the claims are not supported by strong historical evidences. It is often said that calcination is specifically a process that has been proposed and developed by Ayurveda as claimed by some Ayurvedic [12,13]and also by some Unani scholar[14,15]. For long ago, this dosage form was in practice in Greece and Italy[16]. The earliest mention of use of burnt metals is found in old Greek writings. Metals were burnt in the period of Hermis (B.C)[17]. This may also be proved by some historical facts. Galen states, the efficacy of burnt lead is unparallel in cancer[18]; copper was burnt before its use because it is harmful for the body when used as it is [17]. Aribasus (326-403 A.D)[19] used ash of animals[20]. It is a historical truth that old Unani physicians used some remedies containing certain minerals, such as salts or oxides of copper and lead[21]. Classical Unani books such as *Al Qanoon*

fi al Tib, Kamil al San'a, Kitab al Umda fi al Jarahat, Kitab al Mukhtarat, Kitab al Kulliyat have mentioned the term *Ihraq* (ignition) which may be considered synonymous with Taklees. It appeared in Ayurveda in developed form only after Nagarjuna (7th Cent. A.D.)[22,23]. The history of use of calcined materials in Unani medicine is yet scattered, it may safely be said that its use in Unani medicine is much older than Ayurveda. The use of iron rust is evident from the epics of Homer, the great Greek poet [24].

The Arabs were master in alchemy. Jabir (b.831. A.D) is regarded as 'father of chemistry', Razi (d.925. A.D) is also a reputed personality in chemistry [25,26]. Though, the Arabs were not directly engaged in making calx of metals rather it was a part of their chemistry. From the first century of Hijra, Muslims began to take interest in alchemy which greatly developed in their hands for five centuries. According to H.G. Wells, they made a good beginning in chemistry. They discovered many new substances, such as potash, nitrate of silver, corrosive sublimate, nitric acid and sulphuric acid. The great historian, Gibbon mentions that the science of chemistry has its origin and improvement to the industry of the Saracens[27].

The history of calcination is not very much illuminated in Arabic period but irrespective of the history of calcination, this dosage form was accepted by scholars at large. A number of books on calcinations have been written by Unani Physicians. Jabir, in his book '*Nakhbe Jabri*', has mentioned the use and method of preparing of *Kushta* of iron, tin and ammonium chloride[28]. Razi, in his book '*Sirrul Asrar*', mentioned the use and method of making *Kushta*[29]. A treatise on *Taklees*, '*Risala fi al Hikmah al Mastoorah*' known as *Kitab al Taklees* has also been written by Ibne Sina [30,31.] *Risala Fi al Taklees*[32] and *Risala dar Azkare Tanqia wa Taklees*[30] are rare books on *Kushta Sazi.* Other books though not dealing specifically with calcination, include a chapter on *Taklee* such as *Majmooat al Sanae* by Shamsuddin Undulusi, *Haqaiq Asrar al Tib* by Masood bin Mohammad al sanjary, *Makhzan al Hikmat* by Ismail, *Tibbe Aurang Shahi* by Hakim Durvash Mohammad Aminabadi, *Qarabadeene Masumi* by Masoom bin Kareemuddin Sherazi, *Majma al Bahrain, Mufradat Kitab Dastoor al Hunood* and *Ganj-i Bad award* by Amanullah Khan, *Matla al Nayyaran* by Baragi Khan, *Majmoa Ziai* by Zia Mohammd, *Ahwal al jawahar* by Mohammd bin Mansoor,[18,30,33] etc. can be cited here for the contribution and legacy of Unani physician in *Kushta Sazi*. In the light of historical truth, it seems unfair to impose the monopoly of Ayurveda in this field.

However, in the excitement of proving that *Kushta* has been introduced in Medicare system by Unani physician, apart from providing some authentic and genuine proof, many writers of late have exaggerated in their ethos and described some unreliable facts. It has been commonly written in some Unani books of Indian writers that *Barakalsus* was a great Unani physician and pharmacist of ancient period who introduced the science of *Kushta Sazi*. They have given an impression that *Barakalsus*, as the name is simulating a Unani name, is very ancient writer that itself proves that *Kushta* in Unani medicine is being used since ancient time. But, their contention is not factual as *Barakalsus* is none other than the famous Paracelsus (1493-1541A.D) the father of modern pharmaceutics. He wrote a book entitled "*The New Chemical Medicine of Paracelsus*" published in Latin in 1611. This book was translated into Arabic by Salih Ibn Nasr Allah al Halabi Ibn Sallum (d. 1670/1081) under the title "*Kitāb al-Tibb al-jadīd al-kīmīyā'ī ta'līf Barākalsūs*" and subsequently in Persian. When it was translated into Arabic the name of author was given as Barakalsus instead of Paracelsus because 'P' is not used in Arabic language. Some Unani writers took Barakalsus a Unani physician and claimed that *Kushta Sazi* is in vogue in Unani medicine since very ancient times. The manuscript of Arabic translation is available in National Medical Library of USA while Persian one is at Raza library, Rampur. The name Paracelsus as author has been clearly given in translated works[34, 35].

The Indian alchemy, which is an art as well as a science, owns a very ancient history of minerals, pitch and other drugs found even after thousands of years of oblivion at Mohenjo-Daro excavations, reveals that, as early as 2500 years B C. in pre – Vedic period, the Indus valley people had a knowledge of the minerals drugs of preventive and curative value. In Vedic period mostly single herbs were used as medicine. Minerals and animals substances were also prescribed but no compound preparation were in use[36]. Among the two kinds of medicine, as described in Charaka Samhita , priority is given to 'Rasayana' for promoting the strength, vitality, health and virility, and then comes next in rank, the medicine proper, for curing disease.

Systematic evolution of Indian alchemy in the form of 'Rasasastra' took place since the time of Nagarjuna (7th century A.D.), mercury, sulphur, mica and other metals and minerals as well as poisons assumed great importance. From the second century onwards, the Indian alchemy progressed more and more into a formal science and reached its peak during the next six centuries which was incorporated in Ayurveda. The word 'rasa' as used in the alchemical literature is in general reserved for mercury, though it is equally applicable to a mineral or a metallic salt also[37].

Now , the use of mercury both in alchemy and in medicine is well known, which is found only in later literature

i.e., the earliest tantric texts in the 5th or 6th century A.D. Mercury is entirely unknown in earlier literature . It is mentioned only once in *Charaka Samhita*, once in the Bower Manuscript of 4th century A.D and twice in *Susruta Samhita* [22].

Conclusion

Historical evidences stand in favor of Unani medicine; it seems, therefore, fair to say that the scale pan of calcination processes inclines towards Greco – Arab (now Unani Medicine) medicine.

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Tabasheer (Bambosa Arudinacea): a Review

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Summary

A tall thorny bamboo upto 30 m in height with many sterns, tufted on stout root stock, nodes prominent, the lowest rooting, internodes upto 45 cm long, stem sheath coriaceous, orange-yellow, streaked, glabrous beneath, base rounded, ciliate, tip stiff, midrib narrow, leaf sheaths with a short bristly auricle, ligules short; spikelet's glabrous, yellow or yellowish green, in very long panicles, often occupying the whole stem, floral glumes, 3-7 in number, the uppermost 1-3 male or neuter, lodicules 3, hyaline, 1-3 nerved, ciliate; fruits oblong grains, beaked by the style base, grooved on one side. Analysis of tender shoots gave protein, carbohydrates, calcium, phosphorus, iron, magnesium, sodium, copper, chlorine, thiamine, and vitamin C etc. The leaves are sweet, astringent, cooling, ophthalmic, vulnerary, constipating and febrifuge. It is phlegmatic suppressant. It is very effective in skin related ailment, improves the skin complexion, prevents indigestion and is effective in diarrhea. It helps in expelling out the mucus from the body and hence it keeps the respiratory tract clean.

Key Words: Bamboo, Copper, Constipation

Introduction

Tabasheer is hard whitish siliceous and translucent concretion (1,2,3,4) extracted from the Internodes of bamboo. Mainly consist of pure silica, this opal like herbaceous gems highly valued in the east for medicinal purposes. It is a versatile, highly demanded substance described to be cold in nature. Although it comes from many different bamboos, one of them is *Bambosa arundinaceae.* It is found in central and south India (2,3,5) and cultivated in North West India and Bengal(2,5)

Botanical name: *Bambosa arundinaceae* (1,2,3,4,5,6,7,8)

Family*:* Gramineae (1,2,3,4,5,6,7,8)

Vernacular names (1,2,3,4,5,6,7,8)

Arabic : *Qasab, Tabashir*

English : Spiny bamboo, Thorny bamboo, Bamboo manna

Hindi : *Bans, Banslochan, Kantabans*

Kannada : *Bidaru, Bedru*

Persian : *Nai, Tabashir*

Tamil : *Mundul, Mungil*

Telugu : *Bongu, Bonga*

Urdu : *Bansa*

Description

Bamboo is a graceful, green, hollow, spinous / thorny stout, knotty with short rhizomes and dense culms, reaching 24-30 m in height and 15-17 cm in diameter, Purplish green when young, turning golden yellow with prominent nodes and long internodes, lower ones rooting often sub angular, flexuous, leaves linear or linear lanceolate 7-18 cm x 2-20 mm. The hollow internodes accumulate a substance called *tabasheer* or *banslochan* used medicinally (1,3,5,8).

Tabasheer consists of irregularly shaped fragments of an opaque white or bluish opalescent color, the larger pieces are about an inch in diameter concavo-convex and have evidently derived this form the internodes of bamboo in which the deposit has collected (1,3)

In Unani literature *Tabasheer* is said to be a secretion accumulated and dried in the cavity of bamboo when bamboo is incised it comes out. Taste of *Tabasheer* is muddy,

bluish white in color, transparent, also called *Tabasheer sadafi* which is the best one (9,10,11)

Parts used: sap, *Tabashir* or pearl opal is an organic stone that forms in damaged joints (nodes) of bamboo plants. This hydrated form of Silica appears as a rounded mass of opal, and looks like seed pearls (9).

Afaal (actions) (9,10,11,12,13,14)

- *Mufarreh* (Exhilarant)
- *Muqawwi qalb* (Cardiac tonic)
- *Qabiz* (Astringent)
- *Mubarrid shadeed* (Refrigerant)
- *Mujaffif* (Siccative)
- *Muqawwie meda wa ama* (Tonic to stomach and intestine)
- *Mohallil* (Resolvent)
- *Kasire riyah* (Carminative)

Uses (9,10,11,13,15) *Wahshat*, *Gham*, *Karb*, *Tawahush*, *Zalaqul am'a*, *Sozishe me'da*, *Nafakhe Shikam*, *Sozishe baul*, *Ishaale safravi*, *Ishaale damvi*, *Khafqaan*, *Ghashi*, *Zaheer*, *Qoorohe am'a*, *Sahaje am'a*

Ethnobotanical uses (2,6,8)

- aphrodisiac in Indian, Chinese, and other Asian cultures
- asthma treatment calms mind and benefits eyes childhood convulsive disease clears away heat and cools the blood
- clears obscuration from the heart, mind, and lungs
- coma and stroke rehabilitation
- cooling tonic irritability and sleeplessness
- medicine for the cure of bilious vomiting, bloody flux, piles, and various other diseases in the East Indies
- poison antidote
- stimulant treats and cures paralytic complaints in Indian culture
- treats spasms and convulsions due to phlegm
- Fever, Cough, Asthma, Snakebite, Paralysis, Flatulence

Tabasheer uses worldwide

Bamboo is an exotic reed which grows very quickly, sometimes over twenty centimetres a day, to a height of ten metres. It is often used as building material in Asia. In natural medicine, the siliceous secretion is harvested on the knots of the stems which are called bamboosil or Tabashir in India and China. Being very rich in Silica, bamboo gum is believed to have a beneficial action on the joints, it stimulates the synthesis of collagen in the bones and connective tissues thus facilitating the reconstitution of the cartilage which can be destroyed during some illnesses. With its remineralising properties, it can also help prevent bone loss brought on by the menopause (8).

Tabasheer is used by people in many parts of the world for maintaining healthy bones, hair, skin, teeth and nails. Tabasheer contains 75% Silica and has the highest content of Silica known in plant form. There is more silica in Tabasheer than in horsetail and nettle. Tabasheer is one of the main substances from bamboo used in Unani medicine; it is often called bamboo-manna or bamboo silica (because it is rich in silica). Its properties include: stimulant, astringent, febrifuge, tonic, antispasmodic, and aphrodisiac. A major source in India is Bambusa arundinacea, though other species of Bambusa are also used. An Ayurvedic remedy, Sitopaladi Churna, was used traditionally for tuberculosis and other wasting diseases and has been adopted as a popular remedy for common cold, sore throat, sinus congestion, and cough. It is a powder (= churna) made with tabasheer as the main ingredient, plus small amounts of long pepper, cardamom, and cinnamon in a base of sugar. In Tibet, formulas with tabasheer as the main ingredient are used for treating lung diseases.

Miqdare khurak (Dose) (10,11,13)

5-7 *masha*

Mizaj (Temperament)

- *Barid* 2^0 and *Yabis* 3^0 (9,10,11,12,14,15)
- *Barid* 2^0 and *Yabis* 2^0 (16)
- *Murakkabul quwa* (9,10,12)

Mazarrat (Toxicity) (10,11,13,16)

- *Muzife Baah*
- *Muzife Riya*
- *Muzife Meda*

Musleh (Correctives) (10,11,13,16)

Shahade khalis, Mastagi, Unaab, Sibr, Zaafraan

Badal (Substitutes) (10,11,13)

- *Tukhme Khurfa*
- *Samaghe Arabi*

Murakkabat (Compound formulations) (11,17)

- *Safoofe sat gilo*
- *Safoofe tabasheer*
- *Qurs ziyabetus*
- *Mufarrehe Barid Sada*

Chemical constituents

Tabasheer mainly contains 70% of silicic and 30% of potash and lime (3,10). Guibourt determined its specific gravity in water to be 2.149 at 4 °C is found. Indian *Tabasheer* is to be composed of 97.39% of silicic acid, 2.9 % water with traces of potash and lime (3).

Scientific reports (18,19)

1. Antitumor's activity of bamboo leaf extract against benzopyrene and 4-nitroquinoline-1-oxide-induced tumors in rats, after administration of extract (0.71mg/ml) or its lignin 0.1% in drinking water libitum for 150 days, was found to be insignificant. Damage to tumor DNA by extract was observed in vitro indicating its direct action on tumor cells.
2. Antibacterial, Anti-inflammatory and antiulcer activity.
3. Antioxident properties.
4. Antifertility effect of bamboo shoot extract in male rats.

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The Physician's Ethics as Viewed by Issac Ali Al-Rahawy

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Summary

The subject of the Physician's Ethics and medical responsibility in our present age is one of the most important topics, displayed for research, that the medical professional ethics and its laws has its historical bearings. Through my research on this topic, I found the book on The Physician's Ethics written by Issac Ali Al-Rahawy as one of the most important books in this concern which discussed, clarified and cherished the medical professional ethics by putting the laws and rules for this topic.

Key Words: Islamic Medical Ethics, Islamic Medicine, Arabic Medicine, Issac Ibn Ali AL-Rahawy

Introduction:

Medicine's profession, originally became of moral commitment and had important responsibility not only toward sick and healthy people but also toward community as a whole, the physician, professionally, is communicated strongly to the men where he gets himself acquainted with them, and goes through them to know their own inner souls and secrets, and by turn, they come to him asking for cure, where he either succeeds to achieve their healthy happiness through his treatment and advice or gets failed but those people do not know why the Physician fails to prove his profession with his wisdom granted or he claims it, upon that, some people justify his failure, while others blame. Due to that, Medicine's profession should be ruled by principles or laws to organize and clarify the community commonly. Therefore, communities, though long generation have set laws for Medical treatment, but some of which are unfair to the doctors, others are acceptable and in force up to date.

Issac Ibn Ali Al-Rahawy:

He is a favored doctor, knows Galen's, speaking. He has good writings in Medicine industry. He has many books: the book (adab altabib) doctor's politeness, he collects this book from ten essays by Galen's knowing as (almayam) about making Medicine according to illness of organs from head to foot. These were collection that he collects from four books by Galen which were arranged by Aliskandaraneans in his first books which are the book (alfark) diversity the book (alsinaa` alsaghir) the small industry, the book (alnabd alsaghir) the small pulsation, and his book (Ila Agaloten). He makes these books in chapters and the first of these chapters in dictionary's letters.

Doctor's Characteristics:

Issac Ibn Ali Al-Rahawy's book on the Physician's Ethics is considered as one of the most important books in this concern. It included 20 chapters most of which are discussing the physician's ethics and his dilemma. In the first chapter, he said, " The Governor's merits are mostly suitable for the doctor to adopt, that Aristotle said, "We should look in the governor for four merits: to be an accountant, to be a scientist, to be pious, and not to be hasty.", "The governor weighs the sentence despite of its unlikeness, but if you ascribe such sayings to the doctors you would find them quite suitable, that the doctor's duty who heals the souls and the bodies which in ,no doubt, are much dearer than wealth. So, the doctor should preserve the ethics and sciences useful in the medical in good morals. If his shyness compels him to behave himself and correct his demeanor, to look for their men and ask them gently to help him in learning

from them and to be under their control, he could then get science and application to preserve the health of the healthy people and to treat the patients as well. Some ignorant people may think that his staying under the supervision of another doctor of fame to get his experience and knowledge of medicines and compounds and how to apply phlebotomy and the like, from a pharmacist, this would suffices him from reading the medical books and know their origins and rules, such would be of misfortune for himself and those whom are looking for his treatment, that he would not be able to apply what he has got in the correct site of the body and how to use it when and where in the correct places and of what sayings that he would make the healthy sick and kill the patients than preserving the health of the healthy and heal the sick ones.

Doctor's duties towards his God:

In addition, the doctor should seriously consider the relation between himself and his creator:

Firstly: to believe that every creature has his one creator who is capable, wise and doing intentionally all what may survive or deaden, sickening or healing.

Secondly: to believe in the Almighty God truly love and to direct himself toward him with all his mind, soul and choice, that the free lover is better than that who is obedient through fear and compulsion.

Thirdly: To believe that God has sent his messengers and prophets to his creatures with what may set them aright that reason alone is not enough without His messengers to set His rules whatever, wherever and whenever they are. Those messengers were the chosen and the elite among His creatures.

If the deceived person did not preserve these trusts, and lost those ways, he could refer for clearing his blindness to read the God's rules which encourage him to do good and order him to do well to get the useful and what may correct his misdeeds and restore the good ethics which frustrate those who lose them and getting lost without them. He should return to their correct path.

Arstotle had advised Alexander to:

Stick to the ancestors' ways in order to survive, that in getting rid of them has made him lose this happiness; the one who is hoping to get healed from blindness and getting rid of his bewilderment has to read the books of the predecessor wise men, who have exploited themselves in mental ways and in standard laws to target the right and get it. He might find in their eloquent sayings and in their sound data the belief in almighty God's unity, ability , wisdom and presence, and to accept his messengers, laws and grace or punishment which, if collected, would be much to be born or heavier to be carried, but it is good to confess the little of it which may render those who are seeking the right and the blame toward those who have swerved to the bad opinions and the spoiled ways.

Aristotle's sayings clarified in his book titled: "The Metaphysics" especially in its L essay that there is no place which includes the end of the bodies as well as all the things in space is really God's existence, and in another place in this essay he stated that it is the right and sound to believe in that reasonable thing who is beyond all atoms, that there is no participation between him and then not in behavior nor in any form or shape, is He the gracious God, and added, it is our aim in this speech that He is the first who does not move, He is the right God, and from his sayings which he declared as a kind of prophecies in Nature, his statement that it is no wonder that the Nature which is misunderstood is driven in its actualities to its aim, though it does not think, in doing what it does, and said after a long saying that God does know himself and all the things He created of their states and conditions omnisciently. He said in his book " the Entity Hearing" many sayings in this art, in which he stated in his eighth essay: "the creatures are not passive in preparation and action, but if they have any preparation, they are obliged to have a will and capacity described and limited, and God only is the one who is unlimited and un-described.

In doctor's daily life:

The doctor should attend the great and literary men's meetings, that literature is becoming, and not that kind of boring literary meetings, where murmurs, spitting, yawning and such things occur, that such things result from over feeding, and over drinking, and the doctor should be careful, not to fall in, and have dinners which should be avoided. After that, he should apply rubbing his teeth with (sewak) toothbrush and apply the substance which bleaches the teeth, giving a flavor and strengthening the gum, such refreshing condiments like (alsaad), the (ithkhor) and like substances, and to chew the (Oud) to moisten the mouth with its flavor and strengthen his stomach , brain, and the gum as well. Galen had said, there came a man with a foul breath from his mouth. he treated it until it disappeared and diminished by vomiting and diarrhea by medicines and drinks, then he began to spit phlegm and with the (sathej) of good scent, and not leaving his house before becoming pure, he should examine the scent of his

organs, to get rid of their bad odor, by applying the zinc for the pit odor, and the (zaraer) for the bad odors. The doctor should keep his hearing by not listening to the ignorant talking, and not to listen to the evil sayings, and the bad opinions, by not attending such bad peoples' meetings, and not to communicate with them, that it is much better for him to be alone. Then he should read what he had prepared for himself of medical books according to the ancestors' order, then, he should go to visit his patients, after saying the daily morning prayers, asking God to grant him success in his endeavor, and to heal his patients, that he goes to his patients with true intention to treat their ailments, which made their eyes awake from bad plight to stay asleep, thanking God for what He granted, and asking His help in healing his patients. If he met his patient asking about his condition and refreshed himself by promising him to get healed.

I did not mention here how he asked his patients and how they should be and how their servants would be, that I have specified a chapter for each condition. That, will come later by God's help. The doctor should broaden his demeanor by helping his patients'. Boring and overlooking any talking, he heard, from them, without inconsideration, and he should get from all that he hears, what may assist his patients' healing, and anything beyond that, should be overlooked. The doctor should not stop his patient from over complaining, that he appears boring by understanding from his sayings, signs denoting what the doctor may take as indices to a correct diagnosis of his sickness. The doctor, if happened to drink wine, he should drink it for his benefit by drinking it unaccompanied, and the best hours for drinking are after digesting the food at the night's beginning, that wine consumes the food and assists the liver with its moderate heat to assimilate the extract of food as blood. That wine is the nearest thing to blood in structure, and wine should be mingled with water to be sipped little by little, with conversing with people of science by reading their books, and he should read a while, and copy a while, with drinking meanwhile until he falls asleep.

Conclusion:

We discovered that our Arab physicians have insisted on preserving the medical professional ethics and put the rules and laws for preserving them in order to practice this profession. The Physician Issac Ali Al-Rahawy was one of the most prominent one who discussed the topic in his book "The Physician's Ethics" where he referred to those who had mentioned this topic, like Aristotle and Galen and adapted what may suit his age to build up his rules to govern his physicians' age and those who came after to be a good reference worth following.

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Laxative Medicine as Viewed by Abu Nasr Sa`ed Al-Baghdadi

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Summary

The health of digestive system considers importance for whole body, so laxative medicines also have this value for physicians.

Our Arab physicians focused about laxative medicines and they mentioned on their medical books, one of them is Abu Nasr al-Baghdadi who wrote "Kitab Intikhab al-iqtidab according to the technique of questioning and answering". Abu Nasr mentioned laxative medicines on his book.

Our Arab physicians focused about laxative medicines and they mentioned on their medical books, one of them is Abu Nasr al-Baghdadi who wrote "Kitab Intikhab al-iqtidab according to the technique of questioning and answering". Abu Nasr mentioned laxative medicines on his book.

Whenever digestive system is good all body is good, so diarrhea or constipation affect negative on health, we focused on plants that al-Baghdadi told its affect on digestive system and put these plants in lists with its preparing method, and comparing with New Science for results

Key Words: Abu Nasr Al-Baghdadi, laxative medicine, Intikhab al-iqtidab book.

1-1- Introduction:

The health of digestive system considers importance for whole body, so laxative medicines also have this value for physicians.

Our Arab physicians focused about laxative medicines and they mentioned on their medical books, one of them is Abu Nasr al-Baghdadi who wrote "Kitab Intikhab al-iqtidab according to the technique of questioning and answering". Abu Nasr mentioned laxative medicines on his book.

1-2 - The Importance of Research:

The importance of research to the fact that laxative n their medicine is most important for physicians since ancient until modern medicine, Arab physicians study laxative medicine on their book such as Abu Nasr al-Baghdadi, and this research offer historical and scientific study of these medicine.

1-3 - The aim of the research:

Definition by Abu Nasr al-Baghdadi, who has treated the Abbasid Caliph al-Nasser, and he was from Baghdad medical school professors and historical scientific study for the laxative medicine which mentioned by Abu Nasr Al-Baghdadi in his book "Intikhab al-iqtidab ".

2- The Biography of Abu Nasr Al-Baghdadi, The Author:

Abu Nasr Sa`id ben Abi Al-Khare ben Issa ben Al-Masihi is one of the remarkable people, and the elite between professors in the manufacturing of medicine. He died after 598A.H(1). He treated the Abbasid Caliph Al-Nasr Lidin Allah from a stone in the bladder(2). He continued in arbiteration until Al-Nasr died(1).

And Abu Nasr ben Al-Masihi wrote Kitab al-iqtidab according to the technique of question and answer in medicine then he summarized it in "Kitab Intikhab al-iqtidab"(3).

2-1- Intikhab al-iqtidab book:

Al- Baghdadi mentions that the reason behind writing manuscripts is to be an introduction for the beginner, and a reminder for those who finish medicinal sciences. It discussed a lot of medical subjects that can be classified as the following:

1. *Thorough in Medicine:*

   He talked about the humors, the elements, the organs and their kinds (4).
2. *Diseases and Their Reasons:*

   He talked about the types of diseases and their kinds (5).
3. *Medicines and Rules for How to Treat and Use Them (5).*
4. *Organs Medicines: where he mentioned the many groups of medicines(5).*
5. *Several Medical Topics: He talked about the advantage and the disadvantage of every single one such as bleeding, fever, tumor, and pulse(5).*
6. *The Diversities between diseases: where he mentioned the diversity between almost sixty diseases(4).*
7. *The Recommendations of Practicing and Conducting Diseases: This sections points to an important recent topic which is known as the doctor's morals. It also assured how the ancient Arab physicians are interested in this topic (4).*

3- Laxative Medicine

3-1- Fig

- *The scientific name: Ficus carica L (5).*
- *Family: Moraceae (5)*
- *At Abu Nasr Al-Baghdadi: Useful for the ear, and laxative (4)*
- *At Avicenna: Useful for herpes, good for the blur of the eye and the roughness of the throat, good for the chest and the windpipe, pours milk, also his juice is useful for the chronic cough and the pain of the chest, useful for the tumor of penis and lungs, the fig is easy to decay and to effect, laxative, clears the womb, pours menstruation and urine. (7)*
- *At Ibn Al-Bittar: Relaxes the stomach- produce sweat- stops thirst- cool down fever- good for the throat, the windpipe, the bladder, the kidneys, and the asthma- pours menstruation- It might be useful for the bite of the dog (8)*
- *Medical uses: Laxative, expectorant for the tracheitis, cools down the pain of the insect bite. (10)*

3-2- Garlic:

- *The scientific name: Allium sativum (5)*
- *Family: Liliaceae(5)*
- *At Abu Nasr Al-Baghdadi: Laxative, and pours menstruation(4)*
- *At Avicenna: Laxative- kills the lice- useful for alopecia and sciatica- clears the throat if cooked- useful for the chronic cough, the pain of the chest and cold- pours menstruation and urine- also useful for the bite of vermin and the bite of the dog (7)*
- *At Ibn Al-Bittar: Pour urine, cools down the cough, good for the pain of the intestines, relaxes the stomach, good for the asthma (8)*
- *Medical uses: Reduces blood pressure, antispasmodic reduces blood sugar, kills helminthiasis (10).*

3-3- Mustard

- *The scientific name: Brassica nigra Koch. (5)*
- *Family: Cruciferae (5)*
- *At Abu Nasr Al-Baghdadi: Laxative, and pours menstruation(4)*
- *At Avicenna: Stops the sputum, purifies the face, good for vitiligo, makes the tongue dry, and useful for the alopecia, useful for the scabies, the arthritis, and sciatica. Useful for earache and the pain of the molar tooth, also useful for the suffocation of the womb, heals the sexual intercourse(7)*
- *At Ibn Al-Bittar: Useful for the pain of the liver and the spleen (8)*
- *Medical uses: Useful for the inflammation of the respiratory system as well as the urinary system(10)*

3-4-Safflower:

- *The scientific name: Carthamus tinctorius L (5)*
- *Family: Asteraceae (5)*
- *At Abu Nasr Al-Baghdadi: Useful for the sputum, and laxative(4)*
- *At Avicenna: The organs of the chest: Clears the chest, clears the voice, useful for the sexual intercourse(7)*
- *At Ibn Al-Bittar: Laxative, useful for the melancholia and leprosy, increases the sperm(8)*
- *Medical uses: Useful for the heart, a pain killer for the stomach and the dermatosis, and pours menstruation (10).*

3-5- Styrax

- *The scientific name: Styrax officinalis (5)*
- *Family: Styraceae (5)*
- *At Abu Nasr Al-Baghdadi: Laxative (4)*
- *At Avicenna: eases constipation(7).*
- *At Ibn Al-Bittar: Heats the body, laxative, useful for coughing and cold, pours menstruation(8)*
- *Medical uses: Sterilizer, Inflammation of the respiratory tract (10)*

3-6- Borax

- *The scientific name: Sodium Borate.*
- *Chemical symbol: $Na_2B_4O_7{\cdot}10H_2O$*
- *At Abu Nasr Al-Baghdadi: Stimulates vomiting, clears the ear, and laxative(4)*
- *At Avicenna: Clears strongly, good for itching, also good for nerve twist, stimulate vomiting, facilitate the exertion(7).*
- *At Ibn Al-Bittar: Heals itching and stimulate vomiting, if it was mixed with honey it would strengthen the eyesight, good for slimness, good for the people who have sputum, eases the body, good for deafness, and stimulate sexual intercourse. (8)*

Medical uses: Borax is a mineral used for getting rid of hemorrhoids and to reduce itching.

4- The Results and the Discussion

1- Intikhab al- iqtidab book as an easy reference:

Intikhab al-iqtidab written by Abu Nasr Al-Baghdadi, can be considered as an easy medical reference where the author used the short and the comprehensive questions and answers in all the fields of medicine. It is also known for its distinguished diagnosis which was given to the most common diseases according to the Arab.

2- The number for the laxative medicines, which were studied and compared, reached 6 medicines:

- Garlic: We notice a complete historical accordance concerning the usage. We also notice that this field is not studied in the modern medicine and

- Mustard: We notice the scientific accordance and the accordance of Ibn Al-Bittar. But Avicenna did not mention the laxative usage for the Mustard.

- *Safflower: We notice the complete scientific historical accordance concerning the laxative usage.*
- *Styrax: We notice a remarkable difference where we find accordance with Ibn Al-Bittar and a contradiction with Avicenna.*
- *Borax: We notice a complete scientific historical accordance concerning the laxative usage.*

5- The conclusion:

1- Intikhab al- iqtidab book is a historical and medical reference for the pocket.

2- The correlational study for the laxative medicine can be summarized according to the following chart:

Modern Medicine	Ibn Al-Bittar	Avicenna	Medicine	No.
agree	agree	agree	figs	1
Not studied	agree	agree	Garlic	2
agree	agree	disagree	Mustard	3
agree	agree	agree	Safflower	4
Not studied	agree	disagree	Styrax	5
Not studied	agree	agree	Borax	6

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To What Extent Was Montpellier, the Oldest Surviving Medical School in Europe, Inspired by Islamic Medicine?

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Summary

In spite of the fact that the medical school of Montpellier wasn't the first medical school founded in Europe, it's considered the oldest medical school persisted up to now in the western world. It's sometimes regarded as an offshoot of Salerno medical school, but after the heyday of Salerno was over it became, for a considerable time, the leading medical school in whole Europe.

What were the real reasons for the rise of its illustrious fame in medieval ages? The answer for this question is still a controversial issue. Although there are many evidences clarify the role of Islamic medicine in the emergence and the superiority of it, some western historians tried to diminish or deny the Islamic contributions.

In our treatise, we tried to follow the steps of the foundation and rising of the medical school of Montpellier in the medieval era. Furthermore, we attempted to highlight the participation of Islamic medicine in the development of various aspects of this faculty (curriculum, library, teachers and authors) until the decline of these Islamic effects in the mid 16th century.

Key Words: Medical School of Montpellier, Islamic Medicine in Europe, Medieval Universities.

The Birth of Medicine in Montpellier:

The city of Montpellier was established around 985AD as a village of merchants importing spices from the Levant (Syria). With the imports, came the medical uses of their products from the knowledge of Arabic medicine.[1] By the year 1000AD, graduates of Salerno medical school were teaching merchants and students in Montpellier although much of the learning was imparted by Arab and Jewish trading partners. Montpellier, like Salerno, was a health resort. Furthermore, it was easily accessible from Spain and Italy, so that the appearance of a medical school in such a centre is not surprising.[2] It is certain that, as early as 1137, there were excellent physicians at Montpellier. Louis Dulieu said that Montpellier was already a reputable medical centre at that time.[3]

The fame of Montpellier in medicine owed to the policies of the Guilhem lords of Montpellier, by which any licensed physician might lecture there, with no fixed limit to the number of teachers, lectures multiplied, and there was a great choice of teachers. In 1180, the lord of the city, Guilhem (William) VIII (1157-1202),[4] proclaimed that "anyone, no matter their religion or roots, could teach medicine in Montpellier". [5] There doesn't seem to be any reference in the records as to whether the teacher had to be qualified! Anyway, these policies demonstrated the prevailing tolerance in the community and reflected the domination of anarchy upon the practice of medicine at that time, because anybody could open a school to teach medicine and look after the patients.

At the end of the twelfth century, medicine was practiced by the monks of the convents, by some Islamic doctors living there and by few Jews.[6] Actually, the study of medicine in Montpellier was open to various talents, following the Antique, Arab and Judeo-Arabic schools.

The Foundation of the Medical School of Montpellier:

The Medical School of Montpellier is considered the oldest still-active medical school in Europe. In 17 August 1220, the professors of medicine formed a "Univeratas Medicorum"[7] and the cardinal Conrad von Urach, legate of Pope Honorius III (1148–1227), granted the school its necessary charter and brought the disorder of medical practice to its end. Later, the organization was completed in 1240 when the school was placed under the direction of the

Bishop of Maguelonne, but the school enjoyed a great deal of autonomy.[8] In this way, nobody could practice medicine without having the authorization granted by a jury consisting of scientists and presided over by a religious personage.[9] However, The Medical School of Montpellier was organized on the lines of the Arabic medical schools.

George Sarton stated that "The earliest teaching at the Medical School of Montpellier was in Arabic and Hebrew; at any rate, Latin was the language used in the twelfth century".[10]

Fig.1. Pope Nicholas IV. Source: http://en.wikivisual.com

In 1289, the university was formally found, associated with a bull issued by Pope Nicholas IV (1227–1292),[11] combining all the long-existing schools (medicine, law and may be astrology as Charles Homer Haskins stated[12]) into a university. Later, other faculties (Art, Theology, Science and Letters..) were established in the university. [13]

How the Islamic Medicine Reached Montpellier?

Actually, Many factors gathered to facilitate the access of Islamic medicine to Montpellier. The first factor was the closeness of the south of France to Muslim Spain.

The second factor was the European Christians' awareness and probably envy for what was beyond the mountain chain of Pyrenees that separated France from Spain. This attitude obviously appears in the following testimony of Michael Scot (1175–1232?):[14] "Semi barbarous Europe looked with wonder upon a land so blessed by nature and adorned by art; where the remains of classic antiquity were taught in the same schools with the botany of Syria and the chemistry of Spain; where a philosophic spirit of inquiry had awakened the noblest aspiration of the human intellect, and where knightly courtesy had replaced the rudeness of sword".[15]

The commercial aspects also played an important role, with regard to the fact that Muslims had extensive trading links in Montpellier even coming from as far as the Muslim east. Louis Dulieu stated that such commercial links were accompanied by the influences of Muslim library and scientific achievements. Thus, Islamic medicine found not just an echo, but excited interest too.[16]

Fig.2. The medical faculty of Montpellier. Located at Street "rue école de pharmacie". Source: http://www.ericandersonsworld.com

The fourth factor was the fanaticism of the Spanish rulers of the Christian Spain and Al-Mohades in the south, besides the war burdens, which pushed many of the Muslims and Jews physicians and scientists to resort to Montpellier in the 12th century where they found peace, tolerance and opportunities. This explains why a considerable Muslim and Jewish population (schooled in Muslim education and learned in Arabic) was living in it, and the Christian population was also able to speak Arabic at the time.[17]

The teachers at the medical school of Salerno developed a good curriculum, founded on their translations of the great texts of Greek (from Arabic) and on Arabic Islamic medicine. Constantine the African (1020–1087) was instrumental in transmitting Islamic medicine to the Latin world with its new concepts. Sooner, the curriculum of Salerno medical school transmitted to Montpellier. Lucian Luclerc quoted from the book "Histoire Litteraire de la France" that "During the 2nd half of the 13th century, many Italian physicians (for example Roger de Parme) left their homeland, due to many disturbances, towards France carrying with them the works of Albucasis.[18] As Rashdall states, Montpellier medical faculty "may have been an offshoot of Salerno".[19]

At last, the journeys of the western scientist and students to the Islamic world including Syria, Egypt, Northern Africa and Andalusia, especially after the Spanish conquest of Toledo. Some famous examples included: Michael Scot, Adelard of Bath, Pope Sylvester II, Gerard de Cremona, Arnold of Villanova and many others. These European scholars learned Arabic and translated many of the Arabic books to Latin. It's must be taken into consideration that the library of Toledo was full of Arabic medical manuscripts which became available for European people to translate and study after Alfonso VI capture Toledo in 1085. The translation process carried out either from Arabic to Latin directly or at most from Arabic to Hebrew or Spanish, then to Latin. Jews and Christians participated in the latter method.

Islamic Medicine imprinted the Medical School of Montpellier:

The Islamic medical effects were demonstrated in various aspects of the school including the curriculum, the library, the teachers, the students, the publications and the translations.

The Curriculum:

During all the thirteenth and the fourteenth centuries, Islamic medicine was the most important subject in the teaching program of the medical school of Montpellier. The teachers commented on Avicenna (Ibn Sina), they explained Rhazes (Razi), Mesue (Ibn Massawih) etc.. Galen was quoted from time to time and Hippocrates was rarely quoted. As regards the other Greek doctors, they were purely and simply unknown.[20]

At that time, there were 16 teaching books in Montpellier library, 13 of which were books of Islamic medicine. These books were:

The Canon of Avicenna. The Antidotarium, the Continent, Al-Mansouri and the Aphorisms of Rhazes. The treatise about Pestilence of Avenzoar. The book of fevers by Isaac Ibn Suleiman. The Isagoge of Hunayn Ibn Isaac. The translations of Constantine (Ali Ibn Al-Abbas, Isaac Ibn Suleiman and Ibn Al-Jazzar). The guide of doctors and the spring water. In addition to the Techne, De Morbo et Accidenti of Galen, and the Aphorisms of Hippocrates.[21]

"The book of the lessons and keys" in the Records of the University, gives us a precise idea about the programs of the school of Montpellier from 1489 to 1500.[22]

Avicenna's Books	Galen's Books	Hippocrates's Books	Year
4	2	1	1489
3	0	0	1490
4	2	0	1491
4	0	1	1492
6	3	2	1493
5	2	1	1494
5	4	1	1495
4	2	1	1496
6	2	0	1497
5	2	1	1498
4	1	1	1499
3	4	1	1500

From the former table, it's obviously that:

1. The works of Avicenna had the lion's share from 1489 to 1500, and that they were the exclusive references in 1490. It's only since 1500 the works of Galen exceeded, for teaching, the ones of Avicenna.
2. Hippocrates did not have the importance given to him by the Westerners.

Actually, Avicenna's medical book "Canon of Medicine" appeared in the oldest known syllabus of teaching given to the School of Medicine at Montpellier, a bull of Clement V, dating from 1309, and in all subsequent ones until 1557.[23]

At any rate, Islamic medicine was still desired till the beginning of 17th century. During the meeting hold at the university in 10 April 1607, some students asked their teacher Jacqes Paradille to explain the treatise of Avicenna.[24] In the next meeting hold in 3 October 1607, they demanded him to explain liver diseases by using Rhazes 's book. In Addition, they ask another teacher Francois Ranchin to teach them child and stomach diseases by using Avicenna's and Razi's books respectively.

The Canon was highly prized in the later Middle Ages, was used as a textbook in many medical schools, even in that of Montpellier as late as 1650, was eventually printed in numerous editions, and was the subject of many commentaries.[25]

The Library:

There is nothing better to help form a precise idea on the Islamic medical impact on Montpellier than by looking at its faculty of medicine and making a summary of the Latin translation of some original Islamic manuscripts it contains:[26]

- Abulcasis (Al-Zahrawi): (The Book of Al-Tasrif) Number. H.89- XIII_XIV centuries.
- Ametus (Ibn Al-Jazzar): H. 277-XIV-XV c. (f. 65. Epistola Ameti filii Habre.. de proprietalibus ad qemdam consanguinem suum).
- Avenzoar (Ibn Zuhr): Number. The book of Al-Taysir, Treatise of Epidemic). Number. H. 25-XIIIc. (fol 1-47).
- Avicenna (980-1036): The Book of Canon. Number. H.15 XIIIc.
- The Translation of Constantin the African for the following Islamic physicians:
  1. Ibn Al-Jazzar: Viaticum (Zad Al-Mousafer), Number. H. 324: XIII c. I (fol 1-54). Of Stomach: H. 421 XIII c. I
  2. Isaac Ibn Suleiman: On Diets (Universal and Particular), Number. II (fol 55-6). On Urines and On Fevers, Number. H. 182. XIV c. I.[27]
  3. Isaac Ibn Omran: Of Melancholia. Number. H. 421 XIII c.
  4. Ali Ibn Al-Abbas: Pantechni (Al-Malaki, Kamel Al-Sinaa Al-Tibbia), Number. H. 187. XIII c.
- Geberus (Jabir): Incipunt flores naturarum quod est primus liber Geberi. Number. H. 277 (fol 61-3).
- Mesue (Ibn Massawih al-Maradini): Allforismi Johannis Damasceni filii Serapionis (cum commentario), Number. H.182. XIV c.
- Rhazes (Al-Razi): The books of Al-Hawi, Al-Mansouri and The Aphorisms (Al-Fosoul).
- Hunayn Ibn Isaac: The Isagoge (Al-Masael) which is a translation of Galen.
- The list also included works by Ibn sarabi, Ibn Ridwan, etc.., and also manuscripts in Romance languages, including the book of Al-Tasrif by Abulcasis.

It's noteworthy that the library of Montpellier contained all of these Islamic books Although there were a scant amount of books in European universities, for example Paris university contained only 9 books, one of them "Al-Hawi" of Rhazes.

The Teachers:

Among the most famous teachers at the medical school of Montpellier, there were Arnaldus de Villa Nova (also spelled Arnaldus de Villanueva), Ermengaud Blein, Pierre de Capestang, Jean Jacme and other ones, who were called the Arabic Scholars, as they only taught the Arab medicine. For example, Arnaldus de Villa Nova (1235–1311)[28] was born in Valencia, but he spent most of his life

Fig. 3. Arnaldus de Villa Nova.
Source: www.crystalinks.com

at Montpellier.[29] He taught, for many years, in Montpellier school of medicine. he was highly esteemed at court, and among his patients were included two kings and three popes. His unorthodox views brought him into conflict with the Church, consequently, some of his works were publicly Burned.[30]

He wrote many medical books like "Breviarium Practicae" and "Liber de Vinis". He is credited with translating a number of medical texts from Arabic, including Avicenna's "Maqala fi Ahkam al-adwiya al-qalbiya" as De "viribus cordis", the "De medicinis simplicibus" by Abu al-Salt (Albuzali), and Costa Ibn Luca's "De physicis ligaturis". George Sarton stated that he also wrote "Libellus Regiminis de Confortatione Visus", which he entirely copied the technical part of his book from Ibn Masawaih al-Maridini.[31] Plus, he wrote a commentary on the Regimen of Salerno.[32]

Many teachers at Montpellier previously learned Islamic medicine at Salerno. For example, Roger of Salerno, the greatest Salernitan surgeon, has been flourished in Salerno about 1170, then became Chancellor of the medical school at Montpellier and wrote the "Practica Chirurgia" in 1180.[33] It became the surgical textbook of Salerno medical school, and it was chiefly based on the writings of Constantine the African,[34] in other words, on Islamic medicine.

Other examples include: Bernard of Provence, also known as Bernardus Provincialis, was a Salernitan physician who flourished in Provence in late 12th century.[35] He taught medicine at Montpellier. Giles of Corbeil (d. 1220-1224), a French physician, studied at Salerno, then he stayed for a while in Montpellier.[36] His most famous work was "Medical Poems" which were very popular in the Christian world until the 16th century.[37]

Even after 1500, the Islamic medicine was still taught in Montpellier and it had still its defenders. We find a typical example in the book of Jack Austruc "Memories Serving the History of Montpellier University", "Rene Moreau, a teacher of the University, reproached Jacobus Sylvius, another teacher of Montpellier for being a follower of the Arabs and of the Barbarians and for not attending to Hippocrates or to Galen.[38] In the same way, he reproached the university of Montpellier for its taste for the Arab medicine. This story proves that, even in the middle of the sixteenth century, the Arab medicine exercised an important influence in Montpellier". Moreover, Austruc says: "Surely, Montpellier had taught the Arab medicine for a long time. It was not in a position to teach other medicines. This fondness for the Arab medicine was common to all the universities".[39]

The Students and Authors:

Guy de Chauliac (1300-1368) was one of the most famous French physicians and surgeons. He studied medicine at Montpellier, then Around 1325, he became a Master of Medicine and Surgery. Chauliac's reputation as a physician grew quickly. He was invited to the Papal Court in Avignon, France, to serve as a personal physician to Pope Clement VI (1342–1352). He also served as physician to Pope Innocent VI (1352–1362), and then to Pope Urbain V (1362–1370). In 1363 he completed a large and influential treatise on surgery, titled in Latin "Chirurgia Magna" which means the Major Surgery. The work was extremely popular and widely read by physicians in late medieval Europe until the sixteenth century. The original manuscript was in Latin, but it was sooner translated into many other languages (including English, French, Hebrew, Dutch, Italian, and Provencal). The Hebrew translation of the 30th essay still exist at Montpellier library with beautiful figures of the surgical instruments.[40] He claimed that surgery found its start with Hippocrates and Galen, and further developed in the Arab world through people such as Haly (Ali Ibn Al-Abbas), Albucasis, and Rhazes. His book was greatly influenced by Islamic scientists; he frequently quoted Albucasis and Avicenna in his book.[41] He cited Albucasis for more than 200 times.[42] Chirurgia Magna was reworked multiple times, included removing references to Islamic scientists, to the point that the work was no longer recognizable as Chauliac's own. In figures 5 and 6, it's obvious that there is much resemblance between the medical instruments used by Albucasis and Guy de Chauliac.

Fig.4. Illustration from de Chauliac's book "Chirurgia Magna" shows Anatomy Lesson at Montpellier Medical School. Source: www.bbc.co.uk

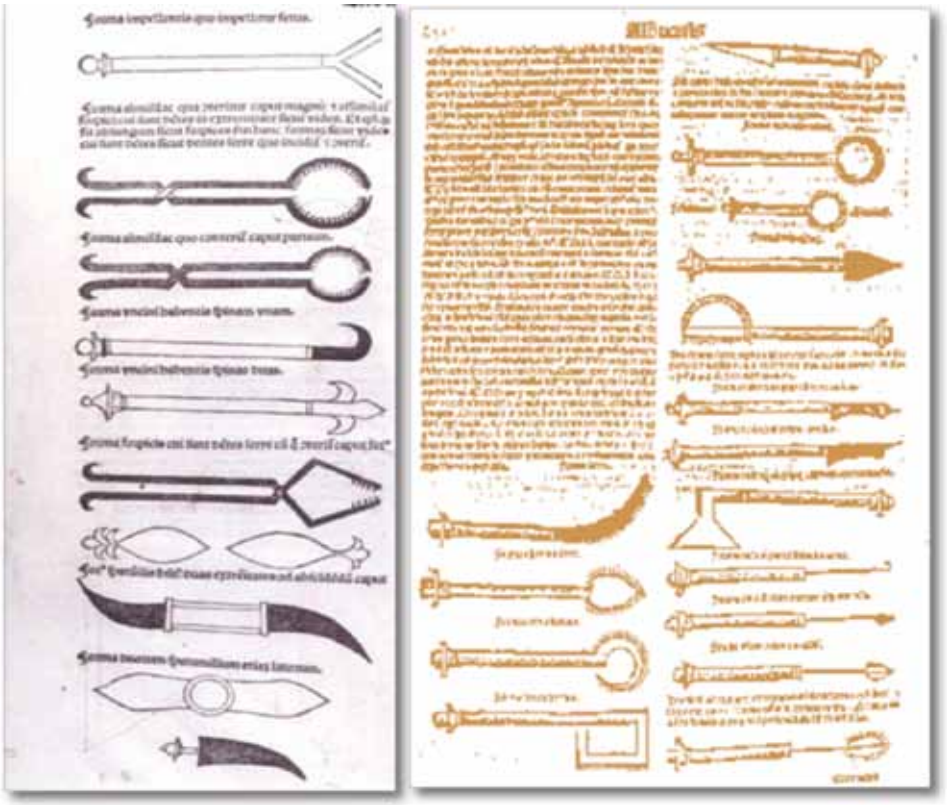

Fig.5. The Medical Instruments in "Chirurgia Magna". Source: www.awesomestories.com

Montpellier attracted students from many countries in the period of Islamic medicine, including a number of enterprising Englishmen. There was Gilbertus Anglicus (d. 1250), who wrote a compendium of medicine which contained nothing new. A more distinguished English student at Montpellier was John of Gaddesden (1280-1361), who became professor at Merton College, Oxford, and whose book bears the curious title "Rosa Anglica".[43]

Petrus Hispanus (c. 1277) was born at Lisbon, and after a brilliant career as a student of theology and medicine, was appointed physician to Pope Gregory X. A little later, owing to a series of unexpected events, he was elected to the papal chair as John XXI. His best known work, Thesaurus pauperum "Treasury of the Poor" was very popular.[44]

Bernard De Gordon (c. 1285), another student or teacher of Montpellier, contributed to the garden of medicine by writing the Lilium Medicinae, which still exists in rare manuscript form.[45]

John of Arderne (1307-1390), who wrote an illustrated treatise on fistula, Educated at Montpellier and remained for some time in France as an army surgeon.[46]

Fig.6 The Medical Instruments in Albucasis's treatise on surgical. Translated to Latin in 1531. Source: www.wikipedia.com

By far, the greatest clinical physician of the seventeenth century was Thomas Sydenham (1624-1689), Graduating at Oxford, Sydenham continued his medical studies at Montpellier, and on his return he practiced in London.[47]

The "La Gazette de France", the first periodical of any kind in Europe, was first published in May 1631 by Theophraste Renaudot (1586-l653) who studied medicine at Montpellier.[48]

The Translators:

In 13th century Montpellier, Profatius and Bernardus Honofredi translated the "The book of Diets (Kitab alaghdiya)" by Ibn Zuhr (Avenzoar) as "De Regimine sanitatis"; and Armengaudus Blasius translated the "Poem of Medicine (Al-Urjuza fi al-Tibb)", a work combining the medical writings of Avicenna and Averroes, as "Cantica cum commento".[49]

The Jews, Ibn Tibbon family (Samuel, Moses and Judah), Jacob Ben Mahir and John of Brescia, Ibn Ezra etc.., in particular, played a major part in the Latin translation for the Arabic medical books.

Judah ben Saul Ibn Tibbon (1120 –1190?), the father of Jewish translators as Sarton stated,[50] was a translator and physician. He was born in Granada, but he left Spain in 1150, probably on account persecution by the Al-Mohades, and went to southern France.[51] He translated a number of philosophical and grammatical treatises.[52] His son Samuel Ibn Tibbon (1150-1230) translated the following writings of Arabic authors: Ali Ibn Ridwan's commentary on the "Tegni" of Galen, Three smaller treatises of Averroes, under the title "Sheloshah Ma'amarim" and Yahya Ibn Batrik's Arabic translation of "Aristotle's Meteora".[53] Samuel's son Moses Ibn Tibbon was also a physician, author and translator. His most important translations are as follows: Averroes: Commentaries on "Aristotle's Physica Auscultatio", Bi'ur Arguza (commentary on Avicenna's "Arjuzah"). Avicenna: "The Small Canon". Alfarabi: Book of the Principles. Ibn Al-Jazzar: Viaticum. Hunain Ibn Isaac: Introduction to Medical Science. Razi: Book of the Classifications of Diseaes, Antidotarium. Many translations from Maimonides included: Commentary on Hippocrates' Aphorisms, a treatise on poisons, a treatise on logic, a treatise on hygiene in the form of a letter to the sultan and others. He was the father of the Judah Ibn Tibbon who was prominent in the Maimonidean controversy which took place at Montpellier.[54]

Conclusion:

It's obviously shown that the Arabic Islamic medicine accompanied the school of Montpellier from its creation to the second half of the sixteenth century. It made it possible for the school of Montpellier to develop, to open out and to become a scientific center, not only in France but also in Europe, towards which students and patients made their way. Montgomery Watt (1909 –2006), the Scottish historian,[55] admitted this truth as he wrote "the contribution of Montpellier to the development of European medicine on Arab lines is probably more important than is generally accepted".[56]

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Chronology of Dalak (Massage) and Riyazat (Exercise)

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Summary

The current practice of medicine owes much to the knowledge and achievements of the past. It is surprising how far back one must look to find out the true beginning of scientific knowledge. With Rheumatology, it can be truly said that its origin goes back to antiquity as far as ancients Greeks, Indians and Egyptians who suffered, described and named many syndromes. The trail of Rheumatology has witnessed several twists and turns, victories and defeats, scintillating light and somber darkness. After over 5000 years of history, Rheumatology has now evolved into a well-developed branch of medical science poised to make a quantum leap in 21st century. It is worth looking back to understand what the past has taught us.

In the classical text of Unāni Medicine, the illness of joint pain is mentioned under the caption of Wajaulmafāsil which includes other types of arthritis too.

Key Words: Dalak, Riyazat, Arabs, Greek Physicians

Dalak (Therapeutic Massage):

The art of ***Dalak*** has been practiced since ancient times. Greek philosophers and physicians prescribed *Dalak* both for its restorative power and for the maintenance of general health of body and mind.

The history of *Dalak* probably begins before we had started calling ourselves human. We instinctively rub a pain or an ache, we instinctively strike a bruise. We used to touch in healing without thinking about it which proves its antiquarian nature.

Dalak may be the oldest and simplest therapy of preventive and medical care. The practices of *Dalak* have been mentioned in all the recorded ancient civilizations. In **Babylon** and **Assyria,** it was used principally to expel the evil spirit from the body of the patient. **Egyptian tomb** paintings show people being massaged. In eastern cultures, massage has been practiced vsince ancient times; in it was used in a more scientific way. A **Chinese** book from 2700 B.C., ***"The Yellow Emperor's Classic of Internal Medicine"*** recommends breathing exercises, massage of skin and flesh, and exercise of hand and feet as the appropriate treatment for complete paralysis, chills, and fever.

In about 619 – 907 B.C., during **Tang Dynasty,** massage was recognized as a part of medical practice. After **Sung Dynasty** (960 – 1279 AD) however, the practice of massage by physicians of China was declined and become the strong hold of the barbers.

In India, the uses of massage were well known before its modern name came into being. In Sanskrit literature it is known as ***Champan*** **or** ***Mardan*** as well as ***Abhyang.*** Its mention is found in ***Ayurveda*** – the medical part of ***Atharvaveda,*** supposed to have been written around 2nd millennium B.C.

Megasthanes and **Alexander's** of India and the **Buddhist** literature and sculptures also depict its widely used status in India.

It was one of the principal methods of relieving pain for Greek and Roman physicians. An early leader of ***Unani*** **System of Medicine, Asclepius** (c.1200 B.C.) also promoted massage along with Herbs, Diet, Relaxation and Hydrotherapy. He had recommended massage as the third most important treatment. It was he, who discovered that sleep might be induced by gentle 'stroking'.

Herodicus made **Exercise** and **Massage** as part of medicine, while his pupil **Hippocrates** (460 – 375 B.C.) was the first person, who discussed the qualities and contraindications of Massage. He recognized Massage as a therapeutic agent and called it, ***"Anatripsis"*** and wrote:

- *Anatripsis* can relax, brace, incarnate, and attenuate.
- *Anatripsis* braces soft, relaxes much.
- *Anatripsis* attenuates and moderate thickens.

According to him, "the physician must be acquainted with many things and assuredly with *Anatripsis* for things which have the same name have not always the same effects for rubbing, can bind a joint that is too loosen and loosen a joint that is too hard.

Another renowned physician of Greek philosophy **Galen** (125 – 195 AD) wrote about **16 books** related to **exercise** and **massage.** In these books he discussed about the massage at length. He also classified this technique into three qualities and by different combinations he found nine forms of massage, each of which had its own indications.

Avicenna (980 – 1030 AD) has well discussed the various types of Dalak in the 1st Vol. of his treatise, ***"The Canon of Medicine".***

In 1st century, Roman physician, **Celsus** devoted seven of the eight volume of his ***"De Medicine"*** to prevention and therapeutics including rubbing and massage.

Greek and Romans left behind a lot of literature in which they mentioned the use of massage in conditions like paralysis, cold extremity, muscle sprain etc. which hold good even today. **Cicero (Greek King)** considered his anointer equal to his physician.

Julius Caesar had reported to receive daily massage by a special trained slave in order to relieve his neurologic pain.

After the fall of Roman Empire massage and medical gymnastics went back to the level of Folk medicine. There is no mention of massage in medical literature till fourteenth century. Toward fifteenth century people again started writing about massage. **Antonius, Gazius, Hieronymus, Mercurius** and **Ambroise Pare** collected the teachings of Hippocrates and Galen, and started using massage in various conditions.

Ambroise Pare (1510 – 1590 AD), who was a great surgeon, started the application of massage to surgical patients.

In sixteenth century **Fabricus-Ab-Aquapendente** who was the tutor of **William Harvey** wrote a book on massage in which he warmly recommended the use of massage as a **Rational Therapy** for **Joint Affection.** It was he who used the term **'Kneading'** for the first time.

Franciss Glisson (1597 – 1677 AD) one of the founders of Royal society mentioned the use of massages and exercises in the treatment of Rickets.

Thomas Sydenhams (1624 – 1689 AD) also known as English Hippocrates was a strong supporter of physical therapy. During this time several books were published where massage was mentioned in the care of almost all the diseases including Syphilis.

Friedreich Hoffman first said that human body is a machine which is subjected to mechanical laws. **Nicholas Andry** in his ***L'Orthopedie*** published in 1741, described the effects of massage on the circulation and the skin colour. He used these effects to soften the tendons and muscles.

In 1780, **Joseph Clement Tissot** published a book on exercise where he spoke of 'Alternate Pressure and Relaxation' on external part which should cause a movement of the solids and liquids and thus, increases the circulation.

In **nineteenth century** the person who contributed a lot in this field was **Per Henrik Ling** (1776 – 1839 AD). His system (Swedish massage) was based on the study of Gymnastics and Physiology and on the techniques borrowed from China, Egypt, Greece and Rome. He classified the techniques of conventional massage and incorporated the French word such as **Percussion, Tapotment, and Effleurage** etc. in his **Swedish System of Massage**.

After 1850 the number of books, articles and journals on gymnastics and massage increased remarkably. During this time two important **Doctoral Thesis** on massage by **Estraderf** (in 1863) and **Mezger** (in 1868) were published, where massage was discussed in a more appropriate manner in the disorders of locomotor system.

During World War – I patients suffering from nerve injury or shell shock were treated with massage. In last quarter of nineteenth century massage was studied in various research projects. Towards the end of nineteenth century, massage was prescribed in combination with heat, exercises and electricity. In this century some workers attempted to establish a solid scientific basis of massage but a few misused and abused it.

Massage is now used in Intensive Care Units, for Children, Elderly People, Babies in Incubators and Patients with Cancer, Aids, Heart Attack, and Strokes. A variety of massage techniques have also been incorporated in several other complimentary therapies such as – Aromatherapy, Reflexology, Rolfing, Heller Work, and Osteopathy.

During the 1930's and 1940's massage's decreased as a result of medical advancement of the time, while in 1970's massages influence grew once again with a notable rise among the Athletes. Massage was used up until the 1960's and 1970's by nurses to help ease the patient and help them to sleep. In 1996 Summer Olympics was the first major event when massage was offered as a core medical service.[5, 11-15]

Riyazat (Exercise):

The use of therapeutic exercise (then referred to as medical gymnastics) was recorded as early as 800 BC in the

manuscripts of *Atherva Veda.* According to this manuscript exercise and massage were recommended for chronic rheumatism. However, most historians in the field believe that therapeutic exercise first gain popularity and wide spread use in ancient **Greece (*Unan*).**

Herodicus is believed to be the first physician to write on the subject (ca. 480 BC) and is considered the **Father of Therapeutic Exercise.** Herodicus claimed to have used exercise to cure himself of an 'incurable' disease and he developed an elaborate system for athletes.

Hippocrates the most famous Herodicus's student wrote of the beneficial effects of exercise and its value in strengthening muscles, improving mental attitude, decreasing obesity.

Galen, considered by some as the greatest physician in the Rome, wrote of exercise in 2nd century AD. He was appointed the physician for the gladiators and classified exercise according to **Intensity, Duration** and **Frequency.**

In the 5th century AD another Roman physician **Aurilianus** recommended exercise during convalescence from surgery and advocated the use of weights and pulleys.

Razi (865 AD – 925 AD) has described time, uses, types and precautionary measures before and after the *Riyazat* in ***Kitabul Murshid.***

Avicenna (980AD – 1030AD) has well discussed regarding *Riyazat* in his treatise, **"*Al Qanoon fi Tib*".** He detailed the mechanism of action, varieties, methods, special exercise for each organ, therapeutic exercises, time limit and amount of Riyazat. [16]

In 1533 AD, in Spain **Mendez** wrote, ***Libro Del Exercicio*** the first book on therapeutic exercise.

Therapeutic exercise of modern times appears to have originated in the Sweden in 19th century with fencing instructor named **Per Henri Ling**. His system of therapeutic exercise included dosage counting and detailed instructions of each exercise. He demonstrated that precise movements if scientifically applied could serve to remedy diseases and dysfunction of the body.

In 1902 AD, Swiss physician **Frankel** wrote a controversial paper. He proposed an exercise program for ataxia that incorporated repetitive activities to improve damaged nerves.

In 1934 AD, **Codman** developed a series of exercises to alleviate pain in shoulder; these exercises are now referred to as **Codman's** or **pendulum exercises.**

One of the most important advancement was the adaptation of **Progressive Resistance Exercise (PRE)** by **Delorme** in 1945; which was used in military hospitals to rehabilitate patients after knee surgery.

Kabat (1956) introduced diagonal movement and use of a variety of reflexes to facilitate muscle contraction.

Using principles of vector analysis on the flexor and extensor muscles that control the spine, **William** developed a series of postural exercises and strategy activities to alleviate back pain and emphasize flexion.

Hislop and **Perrine** introduced the concept of **Isokinetic exercise** in 1967.

Maitland, Menell, and Kaltenborn introduced the basic concept of **Arthrokinetics** and the use of **mobilization** and **manipulation** to **decrease pain** and **capsular stiffness**- can't be overlooked as an important contribution of **20th century.** [5, 16, and 17]

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Healthy Environment as Viewed by Ibn Bu□lān

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Summary

The generic preventive measures are the essential foundations in the ancient and modern science of medicine, and that must be modified and followed by everyone prefers prolonged health. Especially those related to the types of different foods. Ibn Bu□lān has talked in detail about most of these measures in his manuscript (Taqwīm al-Ṣiḥḥa bi'l-Asbāb al-Ṣittah), particularly those related to managing the environment.

Healthy environment for Ibn Bu□lān is based on the following components: Herbs, flowers, incenses, perfumes, assemblies, wind, air, times, countries, and epidemiological air.

Key Words: Preventive Medicine in the Islamic Medicine, Ibn Bu□lān, Health Improving, Healthy Environment.

Introduction:

Preventive Medicine occupies presently, pride of place among the branches of medical science. The ancient Arab physicians knew the importance of preventive medicine, and they called: Health Protection, in addition to their interest in re-health topics to him (Therapeutic Medicine).

Among those physicians who paid full attention to this subject is AL-Mukhtār Abu'l-□asan, Ibn Bu□lān (458 H/ 1066 A.D), who was perhaps the first of the laws in the writingstyle,whichismentionedinhismanuscript(Taqwīmal-Ṣiḥḥa bi'l-Asbāb al-Ṣittah), a health agenda, and concise in medicine, is divided into fifteen columns.

Accordingly, this research is aimed to shed light on one of the most important common summaries of books on medicine and especially preventive one in that time.

Author and manuscript (Taqwīm al-Ṣiḥḥa bi'l-Asbāb al-Ṣittah):

IBN BU□LĀN, ABU'L-□ASAN AL-MUKHTĀR IBN ᶜABDŪN IBN SAᶜDŪN *(b. Baghdad, ca. Beginning eleventh century; d. Antioch, 458 H/ 1066 A.D), medicine.*

He was a Christian physician who first practiced in Baghdad. His master, Abu'l-Faraj ibn al-□ayyib, was also a Christian. He taught at a hospital founded in Baghdad by ᶜA□ud al-Dawla, who held him in high esteem and who made him study a great many medical works. Ibn Bu□lān also knew well Abu'l-□asan Thābit ibn Ibrāhīm al-□arrāni and felt that the latter had taught him most of the practical medicine he knew.

In 440/ 1049 he left his native city, and came to Fus□a □, Egypt, by way of al-Ra□ba, al-Ru□āfa, Aleppo, Antioch, and Latakia. There he met the physician ᶜAlī ibn Ri□wān with whom he engaged in sharp controversy. Then he continued on to Constantinople, where the plague was rampant. From there he returned to Antioch. Finally, he retired to a monastery in that city where he remained as a monk until his death (1) on 8 Shawwāl 458/ 2 September 1066 and was buried in the church of the monastery. Being single himself and never married (2).

The literary production of Ibn Bu□lān is distinguished by its originality. His main work is the Taqwīm al-Ṣiḥḥa bi'l-Asbāb al-Ṣittah, a synopsis of hygiene and macrobiotics in the form of tables, an arrangement borrowed from works of astronomy; al-Ghazāli in the preface of his I□yā □ refers to it as his precedent for using an arrangement familiar to the readers from another branch of learning, and it served as a model for the Súlūk al-mālik fī tadbīr al-mamālik, a "mirror for princes" by Ibn Abi 'l-Rabīᶜ (wrote 655/1256). It was translated into Latin with the title Tacuini Sanitatis Elluchasem Elimithar Medici de Baldath, Argentorati 1531, second ed. 1533, and into German, by Michael herr, with the title Schachtafeln der Gesundheit, Strasburg 1533 (2).

The Manuscript of Taqwīm al-Ṣiḥḥa bi'l-Asbāb al-Ṣittah:

On hygienic principles, macrobiotics and therapeutics in the form of synoptic tables or charts. This system was borrowed from the charted tables (zîjs) drawn by astronomers to report their observations of movement of stars and planets at a specific locality, with the aid of astrolabes. This innovation was enthusiastically accepted in medical circles and was imitated in later works on the subject.

The author did not begin the text with religious phrases and repetition of pious praises usually used by authors of this period. Instead, he directly went into the subject matter as any serious medical educator would do in modern times. In it he elaborates the importance of the wise and moderate use of the Galen- Ḥunayn's six essentials for the preservation of good health:

1. The good, clean and fresh air which one breathes, an early warning against the hazards of air pollution as a matter of life and breath.
2. Balanced diet (literally, moderation in what one eats and drinks).
3. Moderation in both work and relaxation.
4. Moderation in devoting the right time for wakefulness or slumber.
5. Moderation in the use of enemas, laxatives and vomit inducing drugs.
6. Moderation in expressing emotional reactions of joy, anger, fear and anxiety.

He compares the good effects of these principles on the body, in preventing sickness and promoting healthy living, with the faces of the moon. As it wanes and then waxes to full moon so is health, "advances from corruption to perfection. Each, therefore, must learn how to use the good things and to take the right measures to avoid what is dangerous to his health".

He divides each tabulae in the text (al-zuyûjah and zuyûjât, taqwīm or jadwal) into fifteen categories: Serial numbers denoting page location, name of the simple drug, its nature, degree or quality, description of unadulterated (best) simples, benefits and disadvantages, remedies to prevent harm caused by one of the simples, the resulting humor, temperament, age, seasons, places, what the ancient sages thought and said of the drug, qualities and choices of kinds, and preferences for use. Ibn Bu□lān, unfortunately, did not hesitate in this remarkable presentation, to include astrological interpretations, superstitions and speculations of a pseudo-scientific nature (3).

Healthy Environment as viewed by Ibn Bu□lān in his book (Taqwīm al-Ṣiḥḥa bi'l-Asbāb al-Ṣittah):

I. Herbs and Flowers:

A. Using herbs and fragrant in the assemblies for air refreshment, and strengthen the brain, so it does not accept wine vapours which corrupt it, smell relish, and complement them with the five senses.

B. The presence of different herbs, flowers, fragrant is depending on the months of the year. For example, in September there is citron and Lemon. Jasmine and mandrake in April. They became available in warm countries earlier than in cold countries.

C. The difference in colours and aromas are due to the difference in its behaviour in hot, cold wet and dry atmosphere.

D. People preference differs according to the mentality agreement. This is not an absolute rule.

E. Ibn Bu□lān has mentioned the characteristics and benefits of certain types of herbs and flowers, like jasmine narcissus, and roses, and some types of fragrant fruits like apples, peaches and quince.

II. Incenses and Perfumes:

A. Ibn Bu□lān describes the good smells, saying: " good smells are soul nutrition, where soul the ride of forces, like airway is ready to accept the brightness".

B. Good smells are divided into:
   1. Simple:
      a. From the trees and flowers like camphor and sandalwood
      b. From animals like musk.
      c. From eyes like Amber.
   2. Compounds like الند

III. Assemblies:

A. Care should be taken for assemblies as they are place of life and living.

B. Conditions of healthy assemblies and housing:
   1. Inhaled air must be free of any bad and malignance essence.
   2. They must smell good like the smell of incense and perfume.
   3. Wind flow from north to sweep the malignant odours, dust and smoke.

4. Winter sun should enter to bring warm.
5. Is recommended to adorn with pictures which helps sleeping by staring towards them.

C. Ibn Bu□lān then moved to how to manage summer heat and winter cold as follows:

1. Managing the summer heat:

a. Houses should be facing northwards with double sackcloths, cold smells, fresh water and spaciousتاجنهذاب filled with لخاخ and herbs and fruits.

b. Spraying houses sackcloths with rose water, and vaporized cold incenses like camphor and sandalwood.

c. Stripping off clothes and the use of hand fans. Perfume scent essence

2. Managing the winter cold:

a. Houses should be facing eastwards.

b. Use of coal and large cuts of timber which are good for heating like charcoal of al-ghadha and figs.

c. Use of warm incenses like الدن and amber.

d. Houses should be furnished with soft and humid upholstery.

Then Ibn Bu□lān talked about how to protect housing, in general, from insects like bugs and flies, saying: "In general, housing is disturbed by bugs which are destroyed by incenses which, in its turn, brings pleasure. Wind carries vapours which are evaporated from the land by the sun. The nature of these vapours is the same of the nature of the land coming from.

IV. Wind, Air, Times and Countries

A. Ibn Bu□lān defined the air and the wind, saying: "Air is one of four elements, wind vapour is dissolved from the earth by the sun's passage on that zoon, and the nature of the dissolved vapour is such as the nature of the land dissolved from".

B. Ibn Bu□lān divided air into two parts:

1. Mild air: gentle, pure, smells delicious, moderate heat, moderate cold, moderate humidity, rapidly changing to warm and cold at sunset and sunrise, strengthens the body, and filters humor and soul and improves digestion.
2. Fierce air, divided into:
   a. Fierce substance of air, such as: epidemic air, and this happens because of two reasons:
      1. Mixing with the air to corrupt vapours from lakes surrounding cities, dead animals or dead fighters which all lead to fatal diseases.
      2. Air fluctuation according to the season such as warm and dry winter, with vice versa summer.
   b. Fierce nature of air such as hotter or colder than average and this happens because of five reasons:

1. Seasons: summer should be hot and dry. Winter is vice versa, spring should be mild. Autumn should be mild dry and mild cold.
2. Rise and set of the planets and their closeness and farness to the Sun like Sirius.
3. Wind: Northern wind should be cold helps to live longer, improves bodies, improves digestion, harm cold mentality like Sqalbh people. Southern wind is vice versa, eastern wind (sirocco) is moderate like spring and western wind (zephyr) is troubled like autumn.
4. Countries, geographical location and terrain:
   a. Wind, and its mood depending on destination.
   b. Country nature and its site:
      1. Countries in high mountains: have pure air and water, people have good colours. Low land countries are vice versa.
      2. Northern Countries like Sqalbh, are very cold and dry. People there have wide chests, brave, rough morality, with thin legs, live long, drink in frugal. Their women are barren because they do not clean menstrual blood, they hardly produce baby milk, birth with difficulties. Southern countries are vice versa like Ethiopia.
      3. Eastern countries: have pure and mild air like spring. Their food and water are fresh and pure. People there have white reddish colours, with fertile bodies, and clear voices. Few illnesses, beautiful faces, have decent morals. Have quiet and pleasant character. Have plenty of trees and herbs. Western countries are vice versa like autumn.
      4. The mood of each country is similar to the mood of its neighbour and country in the middle has the average of them.
   c. Countries nearby mountain: countries with mountains in its south are just like northern countries.

d. Countries adjacent to seas: country gets same character of sea direction. For example, if the sea is in the southern borders the country is just like southern countries.

e. Nature of soil and land: rocky land is cold and its water is cold (cooler than mud water). Gypsum land is hot.

5. Air nature changes according steam rise (not it's nature).

C. Ibn Bu□lān cleared that the same country may have more than one character which affect it's people morals and mentality.

D. Ibn Bu□lān talked about the four kinds of air:

1. Warm and cold air: he said: "warm air slims the body, yellows colour, brings thirst, dulls hunger, protects the heart, rots blood, occurs viruses, brings nosebleed, bleeding, weakening the strong, opens the pores, relaxes body, harms digestion, helps people having cold and flu, is good for paralyzed and cause cramping of moisture, and cold air is vice versa".

2. Moist and dry air: he described them saying: "moist air keeps body moisture, good for thin people, softens the skin and flesh and grants them water and lustre, and dry air is vice versa".

E. He then moved to talk about how to manage the four air kinds saying: "when air is hot it is advised to resort to basements and sackcloths and to drink cold water. When air is cold it is advised to wear thick clothes and fur and to get a shelter. When air is dry it is advised to go to humid houses and to drink cold water. When air is moist, go to high places where the sun rises".

F. Ibn Bu□lān cleared that benefit of air is by its cool not its content. This is why we suffocate in the bath. Man needs air more than food or water.

V. Epidemic Air:

Explaining epidemic air, Ibn Bu□lān said: "if air smells reprehensible, smallpox and plagues spread, people must run to tunnels and dry basements. Go to homes away from buildings. Spray vinegar. Vaporized with olibanum, myrtle and sandals. Add lots of vinegar to food and mix it with water. Immediately clean the body and use draining by drug and phlebotomy, Eat a lot of washed Armenian mud. Inhale rose water and camphor" (4).

Results and discussion:

1. Ibn Bu□lān realized smells must be like air in nature. This agreed with what is known today that the material to be of smell must be volatile to evaporate into the air to reach the nose (5).
2. He observed that fine odours have helps spirit recovery and the subsequent activity of the body, which emphasizes deep understanding to the connection between body activity and spirit and that body activity is related to spirit activity.
3. Human health is related to internal factors due to physical health, and environmental factors due to the elements of the general environment (natural, human and cultural). People may think that science of health environment is secretions of modern civilization life. But what is revealed out in this subject of Ibn Bu□lān shows his awareness of the relationship between human health and natural environmental conditions that surround. Starting from air people breathed, drinking water, houses, food and finally the surrounding human aggregation.
4. The preventive medicine today stems from the work to maintain a balance of individuals - as useful members of society - with the surrounding environment (6); accordingly, as much as we can maintain this balance as much as we can promote health and prevent diseases. Environmental system is the primary source of life. Environmental Health is defined as the state that provides a correct and stable environment for a certain type of living organisms, especially human, so he can survive properly, and maintain an undamaged environment (7).
5. The interest in preventive health, that Ibn Bu□lān is interested in, occupies today a prominent place in our current life commensurate with the astonishing progress in both the scientific and technical development with threats to human physical and psychological health which are increasing in a mass scale resulted from the accelerated development of civilization and the increasing transitions of physical and mental lesions of human caused by contamination of the natural environment, various incidents, occupational injuries, housing problems, and so on.
6. The generalities which Ibn Bu□lān spoke about regarding environment health comply in its guidelines with what we know and consider today. It is only that the civilization and development has produced complicated environmental problems where efforts are still focused on to solve. Differences in the nature of problems and

solutions are in one hand related the changed circumstances of current disease and to the progress of science and universal knowledge on the other hand. It is not due to the different objectives of public health.

7. Air pollution problem which Ibn Bu□lān raised is considered as the most serious problems that threatens humanity in this era which is the era of science and technology. The risks are not changed considering the following:
   A. Air-borne epidemics. Ibn Bu□lān spotted the relation between corrupted air and epidemics linking the epidemic and the air. He advised to stay away from pests to clean air, pure of diseases impurities (as he put it). Ibn Bu□lān referred to handling infected air despite his ignorance of the pathogens that cause epidemic diseases.
   B. Today's chemical pollution of the air. Ibn Bu□lān has warned of the various impurities that can be found in nature that mix with soil and spoiling it, mix with water spoiling it and mix with air spoiling it (8).
8. Ibn Bu□lān quoted as evidence the need to manage houses and air theoretically then used what is significant tangible. He knew the interaction relationship between the main elements of the environment. He knew the non-living factors, which include water, soil and air, and the known factors of live like vegetation, human and animal and the need for each other, and the impact of each in the other. This effect is proved by studies today; air pollutants atoms may also be located on the soil, on plants, and on the water, thereby increasing human exposure to these pollutants (8). It is known today as well that the pollution of air and water increases generate free radicals in the body for normal limit, which in turn is responsible for the attack and destruction of the human body cells especially the DNA destroying it leading to the lose of it's function. Free radicals are the bitterest enemies of the brain cells leading to premature aging and associated disorders and sick. The reason for this is that the brain itself produced them by consumption of more oxygen in addition to being the most body essential content of fat, where fat is fertile land of the free radicals (9).
9. What Ibn Bu□lān realized about the vulnerability of the degree of contamination by a factor the location and topography up and down is being today available in detail in the books of public health (6).
10. I It was found at Ibn Bu□lān, signals to the science of human geography and its relationship to the environment health. Of that are his words on the causes of migration and mobility in the country in general, such as migration due to wars, and health reasons in particular, such as migration to escape the epidemic plague for example. Also his words about different descriptions of people's physical, psychological, according to areas that settled in. This is also falls under the name of genetics or of genetic medicine and epidemiology as it is a branch of the knowledge, which contribute to the understanding the truth of upgrading from the medical point of view, because many diseases can only be understood through the view of bio-cultural, demographic and evolutionary. Diseases such as anaemia, hepatitis, heart disease, are treated according to this perspective, which biologically population was able to groups put in one frame (10).
11. Ibn Bu□lān did not ignore the impact of environment caring and repairing on the psychological and physical features of human life. This no doubt is an important element as we recognise today. He stated that environment elements lead to have soul and bodies differences. He also said that the fumes disturbing air and contaminate it lead to body lethargy, debility and lassitude in addition to souls harming leading to apathy and weakness. Ibn Bu□lān also mentioned the psychological and physical impact of the sun light, as it is well known that sunlight is a basic element to increase the activity and vitality. It increases oxygen consumption and improve physical growth and psychological and neural activity (11). This effect of the body in the soul is what we call today organic psychological medicine.
12. The relation of weather to diseases that Ibn Bu□lān referred to is a clear and known relationship in preventive medicine. For example: heart and blood vessels diseases of often occur to people who are exposed to the pressures of extreme weather, either too heat or too cold. Climate effects are considered to be the most important effects among environment effects on the human body. There are certain disorders only occur at specific environmental condition (8). We know today the harms can be caused by increased or decreased temperature. High temperatures and excessive exposure to sunlight leads to skin injury causing several injuries including: sunburn, Photoaging, Photosensitivity and Xeroderma pigmentosum. Low temperatures and chronic exposure to cold leads to severe injuries including: frost bite Chilblains (Pernio). It also leads to nails low growth rate.

Excessive exposure to sunlight can also cause skin hyper pigmentation disorders like freckles (Ephelis), and chaloasma (Melasma).These pigmentations are located on the

sites of skin most exposed to sun such as the face. They Increase in summer and decrease in winter.

Chronic exposure to the sun, as well, is predisposing factor for the emergence of dermatoses pre-cancerous like Actinic or Solar Keratosis and, Cutaneous horn. Also skin cancers like Boven Bowen's disease, Basal Cell Carcinoma (BCC), Squamous Cell Carcinoma (SCC) and Malignant Melanoma (MM) (12).

This is in addition to the indirect effect of the weather in the incidence of many respiratory diseases in winter and summer digestive tract.

13. Healthy housing environment engineering as viewed by ibn Bu□lān:

    A. Although houses, in general, are of variable in appearance, they are linked to the nature of the regions and its nature is linked to the environment and cultural heritage of the urban population who built (13).

    B. We know today that the adopted direction in architecture is the direction of environmental which flexibly accommodate nature and its forces to seize its natural warmth, coldness and its light. Architecture reacts with the sun, wind, earth, water and in reaction included in the old law of nature: the balance to employ these powers after they are tamed to reach comfort no matter how the weather was, and within the natural method as possible (14).

Ibn Bu□lān believes that everyone do care about his body should choose the best available house, which fits his own nature. Everyone must reform his home environment, by re-engineering it according to healthy environment of the house.

He stated the conditions of health housing and assemblies and how to manage each of them according to the seasons, and recommended wind direction to expose in each season.

He confirms that this rule runs the individual houses and all houses of the globe because it was agreed by researchers that transcendental housing in mountainous grant better mood and purer air compared to places in plain and low land. Places at higher position in plains have better air and better breeze compared to cavernous ones.

14. If we look today at the recommendations of the science of public health about the health of housing, we will see that Ibn Bu□lān have talked about the capacity of housing, ventilation, lightning, decoration, insuring appropriate atmospheric temperatures, fighting harmful insects and others (12, 15), which complies with most of what Ibn Bu□lān has said.

15. What Ibn Bu□lān has said about the differences between the general rules for health improving according to times and seasons, was based on the theory of mixtures.

Conclusion:

1. Ibn Bu□lān was a physician and an experienced practitioner, has ample knowledge of ancient and modern work of physicians and their opinions, and due to the fact the Ibn Bu□lān of the clergy has been informed of the philosophical and logical science, which has reinforced the trend monetary that we observed in the medical opinions.
2. The book (**Taqwīm al-Ṣiḥḥa**) was the first of its kind in terms of style and direction-author, with the scientific presentation of the material in innovative ways, and a new, away from the crane and dwell; to facilitate the benefit from it, and was a starting point for this type of composition, and the practice of some physicians subsequent, such as: ibn Jazlah in his book (Taqwīm al-abdān), and Sa□i□d ibn Hibat Allāh in his book (al-Mughnī fī al-ṭibb). It is also an important reference and a brief (in terms of form and content) of many ancient and contemporary literature to him, and addressing issues of public health and preventive medicine, and also reflects the medical opinions and ideas that were prevalent at that date.

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Ibn-e-Sena and Breast Feeding in Today's Prospective

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Summary

Breast feeding has been the most acceptable form of infant feeding from the earliest days of human civilization. In the developing countries, a large proportion of health budget is allocated to improve the conditions of mother and child health, with no satisfactory improvement in the situation. In this situation breast feeding can be helpful in improving the situation to some extent as it has profound effect on children's health as well as mother's also. Ibn-e-Sena the famous Arab scholar, a great physician have very much emphasized on the breast feeding and devoted a full chapter to the description breast feeding. Thus the incorporation of the Ibn-e-Sena's view on breast feeding into the health policy can be very much helpful in achieving the goal regarding mother and child's health.

Key Words: Breastfeeding, Ibn-e-Sena, Al – Qanoon – Fit – Tib, Mother's Milk

Introduction

Breast feeding has been a method to which human infants have adapted and have survived for millions of years. This is why a complex and unique relationship has been evolved between mothers and infants. The imprints of historical evidence relevant to breast feeding and "mothering" are to be found on ancient monuments and at excavated archaeological sites of Egypt, Babylon, Phoenicia and Arabia as well as in the tenets of scared book, the legacies of physician, philosophers and other writers[1]; Ibn-e-Sena was among them. Ibn-e-Sena who flourished in the eleventh century A.D., laid down the principles of infant feeding and weaning in his "Canon of Medicine", a medical encyclopedia which was translated in to Latin and many other languages. Canon of Medicine was very famous book and was the main text book of medicine taught in various medical colleges in the Europe. Thus Ibn-e-Sena's advice, through the "Canon of Medicine influenced breast feeding during the Middle Ages and the Renaissance throughout Europe.

Ibn-e-Sena and Breast feeding

Breastfeeding has been widely acknowledged as the ideal means of giving infants a healthy start to life.[2] Breast milk is age specific and is produced at the correct temperature and without any need for preparation. It not only provides the correct amount and balance of nutrients for optimal growth and development, it also protects against illness.[3] It has been estimated that 98% of mothers are capable of providing breast milk for their own infants.[4] Globally, exclusive breast feeding is recommended for the first six month of life.[5] Health care workers are encouraged to play a role in promoting breast feeding and providing mothers with the appropriate information and support.

In Unani system of Medicine mother's milk has been given immense importance. In his famous book Al-Qanoon -Fit -Tib, Ibn-e-Sena devoted a part to describe the children's bringing up and their diseases. This part consists of four chapters. The first chapter devoted to the description of management of the new born until the child starts to walk. In this chapter he describes all the issues which are necessary to be carried out for every new born baby. In the second chapter he describes about the condition of breast feeding, the character of good wet nurse and weaning. In this regard Ibn-e-Sena stresses on the necessity of doing all efforts to breastfeed the new born. Regarding weaning he says that it should be gradually and first light food should be given such as soup. In the continuation of this description he also talks about the condition in which child should not be breastfed. Ibn-e-Sena recognized the importance of breast milk in infant feeding. According to him "whenever possible, the mother milk should be given and by suckling

because mother's milk is most suitable and better adapted for the infant.[6]

The benefits of breastfeeding

The superiority of breastfeeding and breast milk for infant and maternal health in the developed world[7] has been clearly demonstrated. The following advantages of breastfeeding have been reported:

For infants

1. Protection from gastro-enteritis [8] and infections of the middle ear,[9-11] respiratory system[8] and urinary tract [12]
2. Optimum neurological development[13-15]
3. Reduced risk of necrotising enterocolitis[16] (which has a mortality of at least 25%)
4. Decreased rates of sudden infant death syndrome[17]

For older children

There are reduced risks of:

1. Diseases of the respiratory system[18]
2. Allergic disorders[19]
3. Insulin-dependent diabetes[20]
4. Raised systolic blood pressure[18]
5. Obesity[21-22]
6. Asthma[23]

For mothers

1. Enhanced weight loss following pregnancy[24]
2. Delayed return to fertility[25]
3. Lower risk of cancer of the ovary[26]
4. Increased postpartum uterine activity (inferentially this would lead to reduced postpartum blood loss) and thus stopping post-birth bleeding[27]
5. Lower risk of post-menopausal osteoporotic hip fracture[28-30]
6. Decreased incidence of premenopausal breast cancer[17]

Other benefits reported include decreased rates of sudden infant death syndrome, reduction in the incidence of type 1 and type 2 diabetes mellitus, certain types of cancer, and improved performance on certain tests of cognitive development.[31]

While even brief or partial breastfeeding confers advantages to mother and child, the greatest benefits are obtained if breastfeeding is exclusive for several months and continued at least through the second half of the first year. According to Ibn-e-Sena the normal duration of lactation should be two years. When a supplement is required, the addition should be made step by step; weaning must not be abrupt. After the first two teeth have appeared, a programme of stronger food is to be considered. To begin, premasticated bread should be given. Things that hard to chew should not be allowed. Exclusive breastfeeding through 6 months is associated with delayed resumption of menses, at least in settings with high breastfeeding frequency. The more prolonged lactational amenorrhea represents an additional advantage of continued exclusive breastfeeding in developing country settings.[32]

It is also found that prolonged exclusive breastfeeding to be associated with more rapid maternal postpartum weight loss. Such an effect would be an additional benefit if it were generalizable to developed country settings where gestational weight gains and postpartum weight retention are high, but would be a disadvantage if it is applied to undernourished women in developing countries.[33]

In a meta-analysis of 11 studies by Anderson et al showed that breast feeding conferred a benefit in cognitive function between 6 month and 16 years of age compared with formula feeding. This study also shows the effect of breast feeding on cognitive function is dose response effect. The longer is the duration of breast feeding; the better is the effect on cognitive function. The effect of breast feeding on cognitive function may be due to mechanism other than composition of milk. Factors that might affect development include physical and psychological contact during breast feeding. [34]

Mother's milk is also best suited in adverse conditions like low birth weight. According to a report the breast milk of mothers who have preterm babies has higher concentrations of several nutrients such as energy, protein, calcium and folate. There is strong and consistent evidence that feeding mother's own milk to preterm infants of any gestation is associated with a lower incidence of infection and necrotizing enterocolitis and improved neurodevelopmental outcome as compared with formula feeding.[35]

Breast feeding is so much emphasized in Unani Medicine that it prefers a wet nurse over the formula milk[6] and now American Academy of Pediatrics (AAP) recommends human milk for all infants and in whom breastfeeding is not possible expressed human milk should be provided.[36] According to AAP during the first week of breastfeeding the infant should have 8-12 feeding every 24 hour. After breastfeeding is well established, the frequency of feeding may be decline to about eight times per 24 hour. The moth-

er should offer both the breast at each feeding. In the early weeks after birth infant should be aroused to feed if four hours have passed since last feeding.[36]

There is increasing evidence that breast feeding has a protective effect against obesity in later life. Arenz et al[37] and Owen et al[38] both reported that initiation of breast-feeding was associated with a reduced risk of pediatric overweight. Possible explanations include behavioral and hormonal mechanisms and differences in macronutrient intake. Higher plasma-insulin concentrations in bottle-fed compared to breast-fed infants could stimulate fat deposition and lead to early development of adipocytes. Bioactive factors in breast-milk might modulate growth factors, which inhibit adipocyte differentiation in vitro. Furthermore, protein intake and amount of energy metabolization is lower in breastfed than in formula-fed infants. A study showed a significant association between early protein intake and later BMI, suggesting that a higher protein intake early in life might increase the risk of later obesity. In animal studies the availability of protein during fetal and early postnatal development was found to have a long-term effect on the metabolic programming of glucose metabolism and body composition in later life. These pathways alone or in combination provide plausible explanations for a protective effect of breast-feeding against obesity.[37]

Long term benefits of breastfeeding

Breastfeeding compared with formula feeding has been shown to have long term beneficial effect on CVD risk factors such as blood pressure, insulin resistance, dyslipidemia and obesity. There is a dose response association so that a higher proportion of human milk intake has greater beneficial effect supporting a casual risk between breastfeeding and later CVD risk.[39]

The potential mechanism by which breast feeding protects against later CVD risk can be broadly categorized in to

(I) Behavioral

(II) Related to unique nutrition composition to human milk[39]

Behavioral explanations may include the possibility that breastfeeding is more common in families that adopt healthier lifestyle habits. Brest fed infant also control the amount of milk they consume and so learn to self regulate their energy intake.[39]

Nutritional explanation for the benefits of breastfeeding on CVD risk may include the presence of bioactive nutrients in human milk. Difference in early protein intake could also affect later adiposity. It is also suggested that the benefits of breast feeding for long term obesity may be result of slower pattern of growth in breastfed infants compared to formula fed infant, the growth acceleration hypothesis.[39]

Ill health of mothers and breast feeding

According to Avicenna there are many conditions in which mother's milk should not be given to the baby. It may be due to the weakness of the mother or due to defective quality of mother's milk.[6] In a recent study it was found that diseases of the mother considerably influence the composition of breast milk. In some studies, energy content and micronutrient composition of breast milk from women with diabetes were characterized. Increased concentrations of glucose and insulin as well as higher energy content of diabetic breast milk were observed, as compared with breast milk from healthy mothers. Even in diabetic mothers with good metabolic control, considerable alterations were found in colostrums and transitional milk.[40]

Maternal infectious disease and breast feeding

Human breast milk contain organism found in the mother's microbial skin flora and thus it can be a source of pathogenic microorganisms from mothers. However there are very few diseases for which cessation or interruption of breastfeeding is indicated. When a nursing mother presents with symptoms of an infectious disease, she has already exposed her infant to the pathogen. Cessation of breastfeeding does not prevent exposure, and may instead decrease the infant protection that comes through maternal antibodies and other protective factors found in the human milk.[41]

Mothers with mastitis or breast abscess should be encouraged to continue breastfeeding. Maternal tuberculosis is compatible with breastfeeding, provided the mother is not contagious or she is taking appropriate ATT regime and some time has been passed.[41]

Contraindication to breast feeding

Breast feeding is contraindicated for infants who have classic galactosemia; an autosomal recessive disorder in the liver enzyme galactose phosphate uridyltransferase is absent. When this diagnosis is suspected abrupt weaning from breast feeding is necessary.[36]

Breastfeeding may be a cause of transmission of viral disease from mother to infant. The World Health Organization (WHO) recommends avoidance of all breastfeeding by

Human Immunodeficiency Virus (HIV) infected mothers when replacement feeding is acceptable, feasible, affordable, sustainable and safe.[36, 41]

Mothers who are positive to human lymphotropic HTLV-1 or HTLV-2 should not breastfeed.

Women who have herpetic lesion on their breast should refrain from breastfeeding.[36]

In mothers with latent cytomegalovirus (CMV) infection, the virus reactivates in breast milk and can be transmitted to the infant with breastfeeding.[41]

Medications

Almost all the drugs are excreted into human milk to some degree but only a very few are unsafe to the infants. Mothers who are receiving radioactive isotopes, anti-metabolites, or chemotherapeutics agents should not breastfeed until the medications no longer excreted in the milk. Individual drugs that preclude breastfeeding include lithium, atropine, chloramphenicol, cyclosporine, bromocriptine, ergot alkaloid and iodides. Long term maternal ingestion of drugs that have sedative effect can cause sedation and withdrawal symptoms.[36]

If mother and infant both are using isoniazid, then there are concerns about possible excessive drug concentration in the infant.[41]

Conclusion

The benefits of breastfeeding for the health and emotional well-being of children, and the health of mothers, have been well documented. Breastfeeding is an unequalled way of providing ideal food for the healthy growth and development of infants. It is safe, hygienic, inexpensive, and readily available to the infant at right temperature and with ideal nutritional value. It provides protection against many diseases and helps in the developments of body systems. Breast feeding is also an integral part of the reproductive process with important implications for the health of mothers. It prevents mother from PPH, and also helps to promote natural family planning and protection against pregnancy and may cause amenorrhea which prevents breast cancer, ovarian cancer. The medical literature related to Unani Medicine overwhelmingly supports and encourages breastfeeding wherever possible and even today Ibn-e-Sena' advice can play a major role in promoting the maternal and child's health by providing protection against many diseases.

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Role Of Exercise (Riyazat) In Health And During Illness

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Exercise or Riyazat is the best physical activity. Apart from many health benefits it offers, it also counteracts the effect of stress-the mother of all ailments. "One who has the opportunity of taking moderate and regular exercise has no need for such medicaments as are required for remedying humoral and temperamental imbalance" (Ibn Sina). Unani Tibb gives more emphasis on the prevention than, the treatment of the diseases. Many regimens for preserving health are described in Unani text especially in Al-Qanun, in which exercise is placed first in order of preference.

Exercise in Unani Tibb:

According to Ibn Sina "exercise is a voluntary movement entailing deep and hurried respiration". (Al-Qanun). As per this definition of Ibn Sina, two criterion are must be fulfilled for exercise. One is that it should be a voluntary movement and the second is that the rate and depth of respiration should increase. Voluntary movement means movement performed or controlled by the voluntary action of muscles, working in opposition to an external force. Voluntary movements during professional activities or ordinary daily human activities though result in some sort of exercise but cannot be termed as exercise in real terms.

Voluntary movements when deliberate and intended to gain its required benefits, is called exercise or Riyazat-e-Khali's (pure exercise). Likewise, the activities which do not lead to increase in rate and depth of respiration, cannot serve the purpose of exercise.

Purpose of Exercise:

Exercise can be classified into two types depending on the purpose for which it is used.

1. **Preventive exercise** - is the exercise performed to maintain the healthy state of the body.
2. **Therapeutic exercise** – is the exercise recommended by a physician or an expert to a patient for the treatment of a particular ailment. In the past few decades a new branch of medicine has emerged known as exercise therapy or physiotherapy. The basic principle of this therapy is the use of movements and exercises for therapeutic purposes. Unani Medicine provides therapeutic exercises for a wide range of disorders. Some of the ailments for which different exercises are prescribed are - sleeplessness, disease of diaphragm, absentmindedness, dementia, phlegmatic fever, gout pain, renal diseases, poor vision, dropsy, apoplexy.

Types of Exercise (Riyazat) in Unani Medicine

There are two types of riyazat (exercise) in Unani Tibb as-

- Riyazat - e - arzia (Involuntory exercise)
  e.g. labour, agriculture etc.
- Riyazat - e - zatia (Voluntory exercise)

It may be riyazat - e - amaa (exercise of whole body) and riyazat - e –khasa (exercise of particular part of the body).

Other types of exercise (riyazat):

The exercise in Unani Medicine has been classified on the basis of rate, duration and intensity of exercise. The following types of exercise are described:

1. Riyazat Qalila (Short duration exercise)
2. Riyazat Kaseera (Long duration exercise)
3. Riyazat Qawiya (Rigorous exercise)

4. Riyazat Zaeefa (Light exercise)
5. Riyazat Sareeaa (Quick exercise): is the exercise in which movements are performed rapidly.
6. Riyazat Bateeaa (Slow exercise): it is opposite of Sareeaa.
7. Riyazat Hasheesha (Quick and Rigorous exercise)
8. Riyazat Tarakhiya (Slow and Light exercise

In classical Unani literature is also found various ways to exercise (riyazat), a few of which are mentioned as:

Walking ,Running , Swimming, Mountaineering, Boat rowing< Horse ridind, Archery, Wrestling etc.

Benefits of Exercise:

The advantages of Riyazat (exercise) as mention in kulliyat Nafisi as follows:

- Help in excretion of waste material from the body.
- Make body light and active.
- Helps in digestion.
- Strength joints, nerves, tendon, ligaments and muscles.
- Protects from maddi diseases and temperamental diseases.

Systemic physical exercise has many benefits. The more important benefits are mentioned below:-

- Regular exercise taken properly can achieve the increase use of food by the body, which contributes to health and fitness. The BMR and habitual body temperature will slowly rise during several weeks of physical exercise.
- Improved capillary action in the working of muscular and brain tissue results from exercise carried to the point of real endurance. This permits greater blood flow and gives the muscles, including the heart, more resistance to fatigue. Massage, heat and moderate exercise are relatively ineffective in producing additional capillary action as compared with vigorous exercise.
- The full use of the lungs in vigorous exercise can reduce or prevent lung congestion due to lymph accumulation.
- Gas and intra-intestinal accumulations can be reduced by exercise that acts to kneed and squeeze or vibrate the intra-intestinal mass.
- Improvement in tone and function of veins can be accomplished by repetitiously squeezing and draining the blood out of them and then allowing them to fill.
- Sweating in exercise aids kidneys by helping the eliminate the waste matter from the body.
- Regular exercise also plays an important role in the fight against stress. It provides recreation and mental relaxation, besides keeping the body physical and mentally fit. It is nature's best tranquilizer.
- **Heart disease and stroke –** Daily physical activity can help to prevent heart disease and stroke by strengthening heart muscle lowering blood pressure, raising High-Density Lipoprotein (HDL) levels (good cholesterol) and lowering Low-Density Lipoprotein (LDL) levels (bad cholesterol), improving blood flow, and increasing heart's working capacity.
- **Non-insulin Dependent Diabetes (NIDDM) –** By reducing body fatness, exercise can help to prevent and control of NIDDM.
- **Obesity:-** Exercise helps to reduce body fat by building or preserving muscle mass and improving the body's ability to use calories.
- **Back Pain:-** By increasing muscle strength and endurance and improving flexibility and posture, regular exercise helps to prevent back pain.
- **Osteoporosis:-** Regular weight-bearing exercise promotes bone formation and may prevent many forms of bone loss associated with ageing.
- **Psychological effect:-** Regular exercise can improve our mood and the way we feel about ourself. Researchers also have found that exercise is likely to reduce depression and anxiety and help to better manage stress.

Uses of Exercise (Riyazat) in different diseases

According to Unani Physician exercise (riyazat) is beneficial in many diseases and they used exercise (riyazat) as the treatment of following diseases:

Diseases of brain: Sara (Epilepsy), Falij (Paralysis), Melancholia, sehar (insomnia) etc.

Diseases of GIT: Stomatitis, Colitis, Indigestion, food poisoning, Vomiting, Loss of appetite, Flatulence, Ascites, etc.

Diseases of urinary system: Renal stone

Diseases of Reproductory system: Leucorrhoea, Hysteria

Diseases of Joints: Gout, Sciatica, Arthritis, etc.

Other diseases: Obesity, Fever etc.

How Exercise Prevent Diseases:

In order to understand how exercise helps to maintain health, it becomes essential to know first the cause of diseases. Ibn Sina writes about the causation of diseases as – we already know that we need food and our health may be preserved by soft diet which is balanced both in quantity

and quality. No part of the diet, which is capable of nourishing the body is converted into actual nutrient in it's entirely in every case of digestion some superfluity is left behind and physis (Tabiat) tries to eliminate it. Nevertheless, the evacuation which physis accomplished is not a complete one. Hence at the end of each digestion there is necessarily superfluity left over. This process is continued and repeated and a considerable quantity is accumulated. As a result this accumulation of superfluous matters prove harmful to the body in various ways when they undergo putrefaction, putrefactive diseases arise. If they act strongly, they give rise to diseases of imtemperament. If they increase in quantity they cause repletion. If they descend upon some organ, they cause swellings. Their vapours vitiate the temperament of the pneuma" (Al Qanoon).

Thus according to Unani System of Medicine it is the accumulation of superfluous matter inside the body which leads to the causation of various diseases and therefore it becomes necessary to eliminate these matters and according to Ibn Sina, exercise is the most effective cause to stop repletion. Exercise stimulates innate heat (Harart-e-Aslia) and makes body feel lighter. As exercise generates mild heat it disperses whatever superfluity is accumulated.

In brief, besides balanced diet and clear air, daily exercise is essential to maintain good health.

Conclusion:

In order to get maximum benefit from exercising, one should choose an exercise that activates the entire body and enhances the efficiency of the lungs and heart. A good exercise should be readily and freely accessible and should not take too much time. According to the Unani Physician's the best exercises are running, swimming, cycling, walking, handball, basket ball and squash in the descending order.

Proper understanding of the theories of Unani Tibb regarding causation of diseases and adapting the holistic approach of Unani Medicine towards prevention and treatment of diseases may prove to be very helpful in solving many health problems and attaining the goal of a healthy living.

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Physiotherapy Profession in Turkey: From a Historical Perspective

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Summary

The physiotherapy profession has been arisen from the need to rehabilitate the individuals with functional loss especially in emerging during wars and poliomyelitis epidemics.

In Turkey, the profession of physiotherapy is traced back to 1961 and its formal education started at Hacettepe University School of Physical Therapy and Rehabilitation in Ankara for the first time. Even though it has a 50-year history and medical applications at world standard, this occupation is not given enough importance in our country. Specific professional legislation related to physiotherapy has just been started to be restructured.

The aim of this study is to enlighten development of physiotherapy all over the world and specifically to focus on professional improvement of this discipline in Turkey.

Key Words: Physiotherapy, profession, history, Turkey

INTRODUCTION

The physiotherapy profession has been arisen from the need to rehabilitate the individuals with functional loss especially in emerging during wars and poliomyelitis epidemics (1).

The needs of society are essential in determining the demand or need for physical therapy services as well as the social status of physical therapy as a profession. (2).

According to the World Confederation for Physical Therapy, "Physical Therapy is providing services to individuals and populations to develop, maintain and restore maximum movement and functional ability throughout the lifespan. This includes providing services in circumstances where movement and function are threatened by ageing, injury, disease or environmental factors.'(3).

Physiotherapy is primarily concerned with improvement in the quality of life (4). As advances in medical technology and new and more aggressive treatments succeeded in increasing survival rates, attention increasingly turned towards the quality of life of patients rather than longevity alone (5). In this content, the term of "being healthy" has been viewed from a more comprehensive aspect and the need for physiotherapists, who have an active role in making the lives of patients more qualified, have increased day by day.

Functional movement is central to what it means to be healthy. Physical therapy is concerned with identifying and

maximising quality of life and movement potential within the spheres of promotion, prevention, treatment/intervention, habilitation and rehabilitation. This encompasses physical, psychological, emotional, and social well being. (3)

As also stated in the history of medicine sources, physical therapy applications were being practiced within different health professions until the end of 19th century, and although the development of physiotherapy profession differ from one country to another, in the modern sense generally it occurred in the 20th century.

In this study we generally evaluated the development of physiotherapy all over the world and specifically focused on professional improvement of this discipline in Turkey.

DEVELOPMENT OF THE PHYSIOTHERAPY PROFESSION IN THE WORLD

Orthopedists were aware that heat was needed for easing the pain, massage was needed for removing muscle spasm, and exercise was needed for strengthening the weak muscles, removing the limitations in joints and muscles. But such of these therapies in which over heat, massage and exercise were applied together were very time consuming for doctors. For this reason, towards the end of the 19th century, orthopedists in UK started to train young women as apprentices, who were graduates of school of physical education and had knowledge on anatomy, physiology, and kinesiology for the applications of physiotherapy (6).

In US physiotherapy profession first gained recognition through the efforts of the Reconstruction Aides of World War I. (7). The development of those Reconstruction Aides during the period 1914 to 1917 for the increasing need of war veterans for orthopedic rehabilitation, laid the basis for the profession we now know as physical therapy (8). Most of the women who signed up to become physiotherapy reconstruction aides to rehabilitate the county's injured soldiers had little previous experience working in the medical field. The majority of these women came from schools of physical education, where they were groomed to become gym teachers at all-women's schools. (9).

During World War II, physical therapists made important contributions to the war effort, providing rehabilitation to wounded soldiers, often in less than ideal conditions. At the same time, they fought for, and gained, increased recognition as a profession (10).

In 1921, the first profession union of physiotherapists "American Women's Physical Therapeutic Association" was founded. Towards the end of 1930s, the qualification term "women's" addressing only the women was removed and the name of the association was changed to be "American Physiotherapy Association" (APTA) (11).

In Canada, the profession of physiotherapy was initiated and developed in the leadership of a small group consisting of English nurses-masseuses named "Incorporated Society of Trained Masseuses" (ISTM). At the beginning of the 20th century, certified massage applicators and physical educators were gathered in order to form an association aiming to protect and introduce the profession. The two world wars undergone increased the need for physiotherapy services which became a factor in making physiotherapy a profession and increasing the development speed of physiotherapy in the country (12).

DEVELOPMENT OF THE PHYSIOTHERAPY PROFESSION IN TURKEY

Unfortunately, the emergence of physiotherapy on the historical scene in Turkey is late compared to the other countries. The profession of "physical therapy and rehabilitation physician" has a longer history in Turkey than physiotherapy. According to the sources dealing with the history of "physical therapy and rehabilitation physician", electrotherapy and massage applications were firstly practiced at clinics founded by trainers brought from Germany in 1898 by the doctors of the Ottoman Government (13, 14).

As for the rehabilitation as an indispensable part of physical therapy, it is said to be started during 1950-1954 years in our country in order to teach handicrafts to people suffering from such chronic diseases as tuberculosis and make them sell those works and get incomes. However, absence of rehabilitation experts at that service to teach breathing and posture exercises to patients suffering from tuberculosis, and instead the application of massage, electrotherapy and exercise to patients by masseurs having practical knowledge at physical therapy department of school of medicine were recorded in the sources of medical history (15).

In Turkey, the profession of physiotherapy is traced back to 1961 and formal education in this field started at Hacettepe University, School of Physical Therapy and Rehabilitation in Ankara for the first time (16). The number of Physical Therapy and Rehabilitation schools increased to fifteen today (17).

Formal Education in Physiotherapy

In Turkey, the education program of schools of Physical Therapy and Rehabilitation has been prepared basing

on the schools in developed countries and includes four years' college education after one year's preparation class. The education program includes basic and clinical sciences, professional lessons, seminars and clinic practices oriented for planning and implementing the therapy program in musculoskeletal problems (16).

The education in Turkey was being carried out by physiotherapists coming from other countries until 1964, but it was reconstructed after Turkish physiotherapists have advanced their studies and formed their own education staff at school (18). Hacettepe University, School of Physical Therapy and Rehabilitation, which has been producing science and sharing its productions with the public since the date of its foundation, indicated a speedy and effective change and development with the beginning of certification of the diplomas by Ministry of Health in 1976. Within the structure of the school and at various departments of Hacettepe University Hospital, some education, application and research units were founded which gave the opportunity of practicing in cooperation with doctors and different disciplines of health (16).

To be called a profession, an occupational group and its members need to demonstrate the ability to engage successfully in selfdirected and lifelong learning, to contribute through research and scholarship to the development of the knowledge base of the profession and to practise in a manner which demonstrates professional autonomy, competence and accountability (19). In Turkey it is possible that physiotherapists can build academic career and work as lecturers at schools of physiotherapy and rehabilitation.

Journals are acknowledged as crucial sources of evidence-based information relevant to physiotherapy practice (20). Also in this professional field in Turkey there is a journal named "Turkish Journal of Physiotherapy Rehabilitation" having been issued periodically since the beginning of 1970s (17). It is published by the Turkish Physical Therapy Association and is an important platform where the physiotherapists share their experiences. The journal publishes research and review articles and case studies in the fields of physical therapy, rehabilitation and allied health.

However, it is sad to know that high educational standards of physiotherapists were neglected from time to time in Turkey and about the issue of lack of physiotherapists, the Ministry of Health suggested that laymen could be trained through short-term in-service training on physiotherapy and look after patients like a "physiotherapist". The Ministry considered the education and capabilities of a profession group, who specialized on physical therapy and rehabilitation by undergoing theoretic and clinic education for four years, to be equal with a totally different profession group; and tried to bridge the need for professional staff in this field through in-service trainings.

Today it is pleasant to see that this negative approach is beginning to change with new regulations.

Professional Unions in Physiotherapy

According to a standard definition, professions are those forms of work that meet at least four criteria: commitment to the public good, advanced expertise and education, independent judgment, and social organization and recognition. Accordingly, physical therapy is a profession if it meets these criteria. *Social organization* typically includes one national professional society—such as the American Physical Therapy Association—together with organizations within each state. *Social recognition* means that the profession, through its Professional organization, wins support from state and national governments to educate, license, discipline, and in other ways regulate their membership. In well-established professions, the profession wins not only the permission to engage in certain tasks but also a monopoly over services. (21).

Physiotherapists, among the health professions, have formed their own unions at various countries in the world. In Turkey, Turkish Physiotherapy Association (TPA) was founded in 1969 in order to establish a communication net, performing activities oriented for the working conditions, personal rights, duties and responsibilities of their colleagues, organize scientific and social activities and in-service training programs (17).

In 1994, the name of the Association of Physiotherapists was approved to be "Turkish Physiotherapy Association" by Cabinet Decision and ethical principles of the profession were published. And in 1995, Turkish Physiotherapy Association, Science-Education-Research Commission was founded, in 2006, the first National Physiotherapy and Rehabilitation Congress was held (17).

Vision of Turkish Physiotherapy Association is to improve national health policies and make people all over the country benefit from physiotherapy services. Another target is to make it possible for the physiotherapists to practice their professions independently. And the mission of the Turkish Physiotherapy Association is to improve the education quality of physiotherapists in order to make them effective on national and international platforms; and provide the realization of physiotherapy and rehabilitation applications depending on scientific data and proof within ethical principles. In addition to these, encouraging the

studies of physiotherapists related to the public health and protecting and improving legal aspects of physiotherapy profession are among the important articles of the mission of the association (17).

TPA is a constant member of World Confederation of Physiotherapists (WCPT) and European Physiotherapy Association.

Professional Law in Physiotherapy

Health professionals are expected to be included in the defined profession group in the first place in order for practicing their professions in a proper sense. The borders of the profession shall be absolutely determined and the profession shall be defined comprehensively as the occurrence of human right violations is possible in such cases as duty, right and responsibilities are ambiguous.

In most of the countries over the world, physiotherapists have professional laws. Duties and authorities of physiotherapists are clearly defined by these laws, and in that way unjust treatments caused by legal loopholes are prevented and the patients and therapists are protected.

In Turkey, the first law on health was issued in 1928, education in physiotherapy started in 1961; and the first students of the school graduated in 1965. In other words, Turkey met with the profession of physiotherapy thirtyseven years after the issue of the law on health.

Although they have been practising within the health sector for more than fourty years, specific professional legislation related to physiotherapy has just been started to be restructured. Besides the professions like clinical psychologist, audiologist, dietitian, anesthesiologist assistant, etc. the draft code which consists also the definition of mission and duties of physiotherapists was ratified on 06/04/2011 in the parliament. Till that time, physiotherapists had worked without any law relating to their profession (22).

CONCLUSION

The emergence of physiotherapy on the historical scene in Turkey is late compared to other countries. But nevertheless in Turkey physiotherapists have an educational background presented at schools of physiotherapy-rehabilitation which are equivalents of the high standardized schools in the world and in European countries and a modern background in scientific and professional terms. As in the world, physiotherapists in Turkey have also formed their own profession unions and defend their rights.

In despite of the positive improvement in the physiotherapy profession, physiotherapists had to work without a professional law for over forty years. But it is glad to see that this negative situation will change now.

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The Philosophy of Fasting in Preservation of Health: an Islamic Perspective

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Summary

Preservation of health (hifz al-sihhah) is the most important branch of Islamic medicine. It is primarily concerned with the prevention of illness rather than cure. It is of the utmost important to realize that perfect health is a wish that humans crave for and there is no disagreement that health is one of the Creator's greatest blessings after faith. Prophet Muhammad (s.a.w), in order to show the importance of robust health amongst his followers, once said: "There are two gifts of which many men are cheated: health (al-Sihhah) and leisure (al-faragh)." This hadith stresses the fact that Muslims should take good care of their health and always strive to remain in a healthy state, the state in which human beings function normally and in sound perfect condition: in healthy body, mind and spirit. In this paper, attempts will be made to study the philosophy and role of fasting in Islam mainly in the preservation of spiritual health. Fasting, during the month of Ramadan, is spiritual training which is compulsory for all mature and healthy male and female Muslims. Nevertheless, the sick and the travelers are exempted from fasting. Travelers have to observe fasting after the end of their journey and the sick when they become well. For the preservation of health, the four Sunni schools state that if one is fasting and falls ill, or fears the aggravation of his illness, or delays in recovery of his illness, he has the option to continue or refrain from fasting. It is found that fasting in Islam is regarded as having two aspects--internal and external--and its perfect performance depends on the fulfillment of both aspects. The latter is, as it were, the body of the act, while the former is its spirit. Should the internal aspect not be performed, the act is merely a bodily motion and it is incapable of producing the desired effect on the soul.

Key Words: Fasting, Islam, Preservation of Health

I. Prevention/Preservation of Health is Better than Cure

Islamic medicine in general and Prophet medicine *(al-tibb al-nabawi)*, in particular, emphasized prevention of disease rather than therapeutic medicine. In many occasions, the Prophet (s.a.w) kept advising his *Ummah* to ask God to grant her certitude and well being. The Prophet (s.a.w) admitted that, after certitude, no one has ever received a blessing greater than health and well-being. This indicates that Islam honors good health, strength, and well being and considered it as the most prized, precious, and generously gifts from Allah (s.w.t). The Prophet (s.a.w) who was well aware that peoples might waste their times when they are healthy, reminded them by saying: "There are two gifts of which many men are cheated: health and leisure."(1) This saying became true when we found that peoples would not give full attention to preventive medicine as they would given to diagnosis and treatment of disease. The Prophet (s.a.w) emphasizes the importance of preventive medicine because of many reasons. First, `*Ibadat* (worship) cannot be concentrically performed without good health and well-being as Abu al-Darda' (r.a) had once voiced to the Prophet (s.a.w): "To be healthy and grateful is better than to be ill and endure patiently." The Prophet (s.a.w) replied him by saying: "Allah (s.w.t) loves healthy people, as you do." With this in mind, an Arab came and asked God's Messenger (s.a.w): "What should I ask Allah (s.w.t) upon concluding each of the five daily prayers?". God's Messenger (s.a.w) replied: "Pray for good health." The man further asked: "Then what"? God's Messenger (s.a.w) reiterated: "Pray for good health." The man asked again: Then what? God's Messenger (s.a.w) replied again: "Pray for good health and well being in this world and in the hereafter."(2)

Secondly, on the basis that healthy is the most prized, precious, and generously gifts from Allah (s.w.t), therefore, preventive medicine should be given the same degree of

attention, and even more, as diagnosis and treatment of disease, because maintaining good health is something for which Muslims are accountable to Allah (s.w.t). Consequently, it is incumbent upon the grateful servant, to safeguard this blessing and not allow any change to overcome it through ill usage. In the light of this command, al-Harith b. Kaladah, graduate of the medical school of *Jundishabur* and a contemporary of the Prophet Muhammad (s.a.w), in reply to a question as to what was the essence of medicine, had said: "prevention".(3) This is in conformity with Arabian tradition: *"dirham wiqayah khairun min qintar al-'ilaj:* the guardian, protecting and preserving personal well being was considered better than medical treatment. In other words, a *dirham* (little amount) of preservation, prevention and precaution are far better than a *qintar* (big amount) of treatment. Therefore, as Muslim, he should care for his health and always strive to remain in a healthy state.

Based on the above, it would be interesting to mention the role of Islamic law (S*hariah*) on preservation of health as explained by Ibn Hajar alAsqalani on medical care and preservation of health. When he had studied the verses of the Qur'an relating to fasting and al-ihram, he revealed to us that God had guided believers towards preventive medicine when He gave permission for a patient to break the fasting during the month of Ramadan. Similarly, the permission for *Muhrim* (the one who is in the state of ihram) to shave his hair during al-hajj, is also for the purpose of preservation of health.(4) From these two examples, it is not surprising to note that the Islamic law has given instruction not only for spiritual health but it has a large number of rules concerning preservation of physical health. The various rules and sanctions of the *Shari`ah* concerning, for example, *salah, zakah, sawm, hajj,* ritual cleanliness, foods, and drinks, sex and work habits and the organization of the environment can be viewed as forms of preventive medicine.

II. Islamic Fasting and Preservation of Health

Religious fasting in accordance to the concept of *din*, which derived from the Arabic root DYN, semantically means indebtedness, contributes significantly to the preservation of health. Man is indebted to God, his Creator and Provider, for bringing him into existence and maintaining him in his existence. Man is the dept to be returned to the Owne. By "returning the debt", it means to give himself up in service, or *khidmah,* to his Lord and Master; to abase himself before Him by fulfill His Commands and Prohibitions and Ordinances, and thus to live out the dictates of His Law. Corresponding to the demand of God, fasting in accordance to the concept of being in debts and under obligation to God to fast during the month of Ramadan, is one of many example of 'repay" God's debt. Fasting, in this regard, has many primary significations for the preservation of health. Fasting is a spiritual training which is compulsory for all mature and healthy male and female Muslims. Nevertheless, the sick and the travelers are exempted from fasting.(5) Travelers have to observe fasting after the end of their journey and the sick when they become well. For the preservation of health, the four *Sunni* schools state that if one is fasting and falls ill, or fears the aggravation of his illness, or delays in recovery of his illness, he has the option to continue or refrain from fasting.(6) In this condition, *Iftar* is not incumbent upon him. But when there is likelihood of death or loss of any of the senses, *iftar* is obligatory upon him and his fasting is not valid. In light of this view, the *fatwa* committee of al-Azhar issued the *fatwa* that a person suffering from a heart problem, whom the physicians have recommended not to fast, is encouraged to follow the doctors advice and to fast only after recovery, or give two meals to one poor person for each day of the fast he misses. (7) The justification of this is based on the following verse:

Fasting is for a fixed number of days, but if any of you is ill, or on a journey, the prescribed number should be made up from the days later. For those who can do it with hardship is a ransom, the feeding of one that is indigent. But he that will give more of his own free will, it is better for him. And it is better for you that you fast.(8)

III. Fasting For the Sake of God May Control Devil Desires

The preservation of health may understand if we ponder the philosophy of fasting by abstaining from all kinds of food and drink from down to sunset. When a Muslim is hungry and food is in front of the eyes and within his reach, but he does not eat because he is fasting in obedience to Allah (s.w.t). Similarly, a Muslim is thirsty and water is everywhere, but refrains from drinking because of fasting in obedience to Allah (s.w.t). Logically speaking, once a Muslim is trained to control his desire for food, water and sex, which in fact are the strongest desires of man, he can easily control other desires.(9) If man is trained through fasting to control his strong desires, he can surely succeed in controlling minor desires, such as the desire for consuming drugs, intoxicating drink and unlawful sexual intercourse, etc.(10) Malik Badri, like other prominent Muslim scholars, in principle, agree on this issue:

> It is during this month that many Muslims generate the necessary will and motivation to change their

lives by stopping to take alcohol, drugs or smoking or to abstain from promiscuity and opt for tranquil life of marriage. In a study on the efficacy of spiritual healing to Sudanese alcohol abusers which I carried out for the first WHO meeting on "The promotion and development of traditional medicine" which was held in Geneva (Technical Report, Series 622, WHO, 1978), I found that almost all the alcohol abusers of my sample were able to totally abstain during the fasting month of Ramadan. Very few of them took a little alcohol during the early nights of the month to avert withdrawal symptoms. Many of those who have eventually achieved total sobriety were those who had sustained this Ramadan abstinence for good. Towards the end of the month, many of them felt so determinate not to lose their new divine enlightenment and improved health that they found it necessary to perform a solemn *Qur'anic* oath not to relapse. The writer found that an appreciable number were able to resist relapsing a number of years after they decided to stop alcohol intake.(11)

Again Malik Badri observes that fasting is one of the important means to minimize the crime rate in Muslim countries during the month of Ramadan. He writes:

Police records of theft and house breaking, rape, car accidents, drunken aggression, and similar crimes show an obvious decline during this month in all countries of the Islamic world.(12)

IV. Three Grades of Fasting & Protection of the illness of Spirit and Body

In order to explain the philosophy of fasting in preservation of spiritual health, al-Ghazali (504/1111) states that there are three grades of fasting namely lower, higher, and highest grades of fasting. The lower grade is to refrain from food, drink and gratification of sex, from *fajr* (down) till sunset. This is the common man's fasting *(sawm al-'awam).* A higher grade consists in keeping the members of the body from that of which God disapproves. This is the fasting of the elect *(khawas),* i.e., the pious *(salihin).* The highest grade of fasting the mind also fasts i.e., it refrains from all worldly thoughts and cares and remains engrossed in God and the hereafter.(13) In analyzing all these grades of fasting, it leads us to say that fasting enables us to protect the illness of spirit and body. This is because, besides abstention from food and drink, a Muslim also abstains from doing evils in order to attain higher standards of virtue. In this regard, the mouth, the eyes, the ears have to fast, in the sense that man should not utter falsehood or any other indecent talk, not to see any lewdness and avoid hearing anything wrong. Above all, to fast from any evil thoughts or ill feelings that might come across his mind. Those who do not fulfill this minimum condition and indulge in morally evil acts are the people about whom the Prophet (s.a.w) has said: "Whoever does not give up false speech and evil action, Allah is not in need of his leaving his food and water."(14) Again, Abu Hurayrah (r.a) reports that Allah's Messenger said: "Fasting is a shield (or a screen or a shelter). So, the person observing fasting should avoid sexual relation with his wife and should not behave foolishly and impudently, and if somebody fights with him or argues him, he should say twice: "I am fasting."(15) This hadith indicates that psychologically, the people who fast will obtain a feeling of inner peace and tranquility.

V. Islamic Fasting Produces Wonderful Results in Preventive Medicine

It has long been known that great medical benefits, as a result of fasting, are widely accepted beyond any doubt. Among these benefits is elimination of harmful fatty substance from the blood, helping to cure of certain types of stomach ailments and the renewal of body tissues as well as weight management. All these are achieved when the stomach, which is the root cause of diseases, takes a rest during the day when nothing is consumed. This enables the stomach to do annual cleaning and repairing of the body system. Medical researches have found that when the stomach is empty, as a result of fasting, many kinds of toxic matters and other unwanted chemicals likely to cause damage to the digestive system and thereby contributing to various kinds of diseases and sickness are dissolved, burnt or removed from the stomach.(16) Furthermore, although fasting is medically recommended for weight management, Islamic fasting is not totally similar to diet plans because the type of food consumed during *Ramadan* can be of any type, as long as it is *halal*. Everything that is permissible is taken in moderate quantities during the breaking of the fast. Allah (s.w.t) states: "...eat and drink, but waste not by excess, for Allah loves not wasters."(17) For this and other reasons, many Muslim physicians observe that Islamic fasting produces wonderful results in preventive medicine and in softening and dissolving excesses which become obstructive to intestines, which cannot be absorbed, or which the body does not expel easily. Shahid Athar, a clinical Associate Professor of Internal Medical and Endocrinology at the Indiana School of Medicine, says:

> The physicians elaborate that food is needed by the body to provide energy for immediate use. This is done by burning up carbohydrates, that is, sugar. Excess of carbohydrates which cannot be used is stored up as fat tissue in muscles and as glycogen in the liver for future use. Insulin, a hormone from the pancreas, lowers blood sugar and changes it to other forms of energy storage, that is, glycogen. To be effective, insulin has to be bound to binding sites called receptor. Obese people lack receptors. Therefore, they cannot utilize their insulin. This may lead to glucose intolerance. When one fasts, it lowers one's blood glucose and insulin level. This causes the breakdown of glycogen from the liver to provide glucose for energy needs and breakdown of fat from adipose tissue to provide for energy needs. In light of this fact, fasting has been advised for effective weight control, but because of its side effects, it must be used only under supervision of physicians. (18)

VI. Conclusion

It is found that fasting in Islam is regarded as having two aspects--internal and external--and its perfect performance depends on the fulfillment of both aspects. The latter is, as it were, the body of the act, while the former is its spirit. Should the internal aspect not be performed, the act is merely a bodily motion and it is incapable of producing the desired effect on the soul. Thus, a healthy person in Islamic medical law is not only by considering the balance of each parts of body, but also spiritual and moral balance. Even if he is physically healthy, his health is incomplete if he is spiritually and emotionally unstable. That is why so many classical works on Islamic spirituality have major sections devoted to what is called the secrets of worship, *asrar al-'ibadat,* that is: the inner meanings of the Islamic worship. This indicates that bodily health and spiritual health go arm in arm in Islamic teaching and the case may be made that psycho-spiritual balance and health is primary while physical health is a secondary consideration.

Notes

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Was the Plague Disease a Motivating or an Inhibiting Factor in the Early Muslim Community?

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Summary

In spite of the fact that the Muslim community in the period of orthodox caliphs and the Umayyad caliphs was raped by recurrent episodes of plague, this phenomenon was not studied on a large scale and through its comprehensive prospective.

Plague in the early Islamic era was a part of pandemic invaded the Mediterranean region for more than two centuries, but it owned special local characteristics derived from the interaction of the virulence of the disease and the teachings of Islam.

Besides the deaths of important Muslim men by plague, it is suggested that the endemic nature of plague during the early Islamic Empire may have significantly retarded population growth and debilitated Muslim society in Syria and Iraq during the Umayyad Period. Thus, it played an important role in the history of the Islamic Empire.

In addition, these epidemics provoked medical and religious explanations and prescriptions, which strongly influenced the attitudes and behavior of the Muslim community toward the disease.

In our treatise, we tried to conduct a comprehensive study of this phenomenon, trying to pay attention to its diverse sides, and its significant consequences on the Islamic community.

Key Words: Plague of Amwas, Plague in Islam, History of Epidemics in Islam.

Introduction:

According to the Greek historian Procopius, in the summer of 541 AD a deadly infectious disease broke out in the Egyptian port city of Pelusium, located on the eastern edge of the Nile delta. It quickly spread eastward along the coast to Gaza and westward to Alexandria. By the following spring it had found its way to Constantinople, capital of the Roman Empire. Syria, Anatolia, Greece, Italy, Gaul, Iberia, Persia and North Africa: none of the lands bordering the Mediterranean escaped it. And in 542 AD it reached Byzantium in the middle of spring where it happened that Procopius was staying at that time in Constantinople.[1]Actually, the merchant ships and troops carried it throughout the world. About 300,000 people were said to have died in Constantinople alone during the first year. Even the Eastern Roman (Byzantine) emperor Justinian fell ill; though he recovered, his imperial ambitions did not. The mortality and disruption caused by the plague prevented him from recapturing the western provinces and restoring the former extent of the Roman Empire.[2] This pandemic is widely known as the plague of Justinian.

The disease remained virulent in these lands for slightly more than two centuries, although it never settled anywhere for long. Instead, it came and went. One of the most prominent lands which were stricken by plague was the Arabian world.

Thus, the appearance of epidemics in early Islamic history may be attributed to the cyclical recurrences of plague in the Middle East following the plague of Justinian, beginning in 541A.D.

There is a cyclical pattern to the reappearances, excepting a long span of time (approximately 30 years) following the plague of Amwas. Syria and Palestine experienced plague epidemics about every ten years from 69/688-689 to 127/744-745, while the epidemics in the garrison's cities of Kufah and Basrah were more frequent.

The question whether this epidemic was caused by Yersinia pestis, the causative agent of plague, is a controversial issue. But, the features we can piece together from the written texts suggest that the pathogen was indeed Y. pestis: the symptoms, especially the buboes, the timing, the rodent mortality, the apparent correlation with classic modes of seaborne transmission, and the mortality levels all seem to point in the same direction.[3] A new study, used Molecular Biology techniques, assured this assumption; in 2004, Drancourt M., Raoult D. and others used multispacer sequence typing (MST) and they successfully genotyped Yersinia pestis in individuals suspected to have died from the Justinian plague.[4] They found that the biovar Orientalis (now designated 1.ORI)[5] of Yersinia pestis was the biovar responsible.

First Possible Mention of Plague in the Quran:

There are two candidate locations in Quran that maybe refer to plague:

1. Sura al-fil (chapter of the elephant):

"[105.1] Have you not considered how your Lord dealt with the possessors of the elephant?

[105.2] Did He not cause their war to end in confusion,

[105.3] And send down (to prey) upon them birds in flocks,

[105.4] Casting against them stones of baked clay,

[105.5] So, He rendered them like straw eaten up?"[6]

The Sura relates the attack against Mecca by Abrahah, the Christian viceroy in the Yemen province of the king of Ethiopia, and the destruction of his army.

The interpretation of the birds casting the army with stones of "baked clay" is problematic. The date of the expedition is known as the year of the elephant, which is commonly identified with the date of the Prophet Muhammad's birth, 570 A.D.

M. Dols thought that such a date and location for a plague outbreak are entirely possible because plague is considered to have originally come from Ethiopia and may, therefore, have been carried to Arabia by Ethiopian army.[7] W. Montgomery Watt thought that Western Arabia, especially the high plateau of Asir, has long been considered an endemic focus of plague. This isolated focus may have been established during the recurrences of plague following the plague of Justinian.[8]

Furthermore, there were plague epidemics in the Mediterranean region at the same time. However, the later Muslim authors never mentioned or discussed this important event in relation to a clearly determined instance of plague.

2. Sura al-Bakarah (chapter of the cow):

"[2.243] Have you not considered those who went forth from their homes, for fear of death, and they were thousands, then Allah said to them, Die; again He gave them life; most surely Allah is Gracious to people, but most people are not grateful."[9]

The old explainers of Quran, like ibn Kathir, thought that those people were Jews, living in Dawerdan, an old village in Waset in Iraq. They left their homes because they thought this might save them from the plague which had struck their village. When they reached their destination, the God ordered them to die. Then, after some days, the God revive them. This story explains that people can't escape the decree of God, and it considers plague as a divine punishment.[10]

Chronology of Plagues:

Those earliest Arabic testimonies concerning plague have not come to us directly from the seventh century. Later scholars, like ibn Hajar al-Askalani, refashioned them and incorporated them into larger, more systematic works.

A doubt remains whether all of the epidemics which have been enumerated were actually plague, because the precise symptoms of plague are not fully described in the early period.

The later chroniclers quoted al-Mada'ini that the number of the great and famous plagues in Islam were five (before the Black Death which was considered the sixth), but other historians added more attacks. Ibn Hajar mentioned about sixteen plagues until the end of the reign of Umayyad dynasty.[11] In general, we can consider eight great episodes of plague until the beginning of the Abbasid's reign.

1. Plague of Shirawayh:

This plague is considered the first plague epidemic in the Muslim era. It occurred in 6AH/ 627-628 AD at Ctesiphon (al-Mada'in), the capital city in Persia, during the life of the prophet Muhammad. Its name is derived from the Sassanian king of Persia, Siroes, who died of plague in

7AH/629AD.[12] Al-Tabari mentioned that so many Persians died during this epidemic.[13] There isn't any record assures the presence of some victims among the Muslims. Anyway, written Arabic was still very rare in the sixth century. Moreover, the Arabian Peninsula itself seems to have escaped this plague pandemic.

2. Plague of Amwas:

It severely struck the Arab army at Amwas in Muharram and Safar/January and February 17AH/638AD and again in 18AH/639AD. Jacob of Edessa (died 708AD) records a severe pestilence that broke out in all the regions of Syria in 18 AH/639 AD, which coincides with the plague of Amwas in the Arabic sources, and that one was certainly bubonic plague.[14]Amwas, which is a small village located in Palestine between Jerusalem and al-Ramlah, was severely affected.

The historical accounts of the plague of Amwas state that about 25000 Muslim soldiers died. Among the companions of the Prophet who died in plague were Abu Ubaydah, Yazid ibn abi Sufyan, Muadh ibn Jabal and his son, Shurahbil ibn Hasanah, al-Fadl ibn al-Abbas, Abu Malik al-Ashari, al-Hareth ibn Hisham, Abu Jandal, Uwais al-Korani and Suhayl ibn Amr.[15] Al-Tabari said that plague was so severe to the extent that the enemy looked forward to conquest the Muslims and the panic spread through Muslims' hearts.[16]

The plague epidemic had been preceded by a severe famine, which was called the year of "al-Ramadah", in Syria and Palestine which may have predisposed the population to the disease. This predisposition is due to lowered human resistance and the attraction of the plague-infected rats to the food reserves in human settlements and as a result rats, the reservoirs of Yersinia pestis bacillus, became into a closer contact with men. The disease then spread very rapidly through most of Syria, which had only recently been devastated by famine, before it spread to Iraq and Egypt.[17]

Therefore, Omar decided to travel to Syria to personally examine the situation. When he reached the town of Sargh, he heard that plague had spread in Syria-Palestine and killed so many people. Therefore, he called a council of the Muhajirun (the people of Mecca) and Ansar (the people of Medina) for discussion.[18] After a lot of debate, Omar decided to move the people, who accompanied him, back to Medina, and when Abu Ubaydah protested that they were fleeing the decree of the God, the Caliph Omar argued that they were fleeing the decree of the God to the decree of the God. He meant that the man must do his best to avoid the disease and whether he would be infected or not, that's the decree of the God.[19]

Later, during the second attack, the caliph Omar summoned Abu Ubaydah, the military commander in Syria, from Amwas to Medina to prevent his death from the plague epidemic. Abu Ubaydah realized the caliph's inten-

The village of Amwas in the 20th century. Abu Ubaydah's shrine is located in front

tion and refused, preferring to stay with his army in Syria. Therefore, Omar ordered Abu Ubaydah to move the army out of the infected area in Jordan to a new safer and higher area "al-Jabiah" in Hauran. But before leaving, Abu Ubaydah himself succumbed to the disease.[20]

These events surrounding the plague of Amwas are very significant because they demonstrated contemporary Muslim attitudes and directly affected later religious and legal interpretations of plague.

3. Plague of Kufah:

The plague struck next in Kufah in 49A.H/669AD during the reign of the Umayyad caliph Muawiyah. His governor, al-Mughirah ibn Shubah is reported to have fled from this epidemic. When the epidemic had subsided, he returned to Kufah and died of plague in 50/670.[21] This plague coincided by the arrival of Arabs to the Asian shore of the Bosphorous for the first time in 48AH/668AD, but the cold winter, their lack of warm clothing and provisions, dysentery and plague soon decimated their camp.[22]

4. Plague of al-Jarif (the violent plague):

It was named because it swept through Basrah in southern Iraq like a flood about the year 69-70/688-689. John bar Penkaye described it but he thought that it affected northern Iraq in 67/687.[23] In Shawwal 69/April 689, the plague epidemic was so severe that in three successive days 70000, 71000, and 73000 died in the city; most men died on the morning of the fourth day after being infected. Ibn Khatima mentioned that Anas ibn Malek lost 83 of his offspring.[24] There was a considerable difficulty in burying the dead; and to prevent looting and the entrance of predatory animals. For example, the mother of Obaid El-lah, the governor of Basrah, died and there was a great difficulty in burying her.[25] They even lock up the houses where all the inhabitants had died. There is confusion of dates and places for this plague epidemic. The confusion may be due to its repeated appearance in a number of adjacent regions within a short period. John bar Penkaye says that "there had been nothing like it, and I hope that there will be nothing like it again".[26] John bar Penkaye said that during the plague of 67AH/686–687 in upper Iraq, the survivors scattered like sheep over the mountains to escape it only to be followed and robbed by looters.[27]

5. The plague of al-Fatayat (Maidens):

It struck Basrah, Kufah, Waset and Damascus in 87AH/706AD. It was called this because most of those who died were young women and maids, according to ibn Hajar's explanation.[28] The excessive mortality on this occasion suggests that this was also bubonic plague.[29]

6. The plague of al-Ashraf (the Notables):

It was named so because there were so many deaths among the high class men. It struck Iraq and Syria in 97/716 during the oppression of al-Hajjaj, the famous Umayyad governor of Iraq. In Syria, the crown prince, Sulaiman ibn Abd al-Malik, died in this epidemic.[30]

7. The plague of 125AH/743-744AD:

It occurred in the same year that the caliph Hisham died. Dionysius Stathokouplos, in his Chronicle of Tel Mahre, the Syrian Orthodox Patriarch (815–845), also said that the caliph, Yazıd III, died of a tumor that erupted on his head in 125AH/743–744 AD. The plague occurred in the territory stretching from the Euphrates to the West, the cities of Palestine, the North and South as far as the Red Sea, and in Cilicia, Iconia, Asia, Bithynia, Lusonia (probably Moesia), Galatia, and Cappadocia.[31]

This outbreak of bubonic plague accompanied by famine in 743–744 described in the Zuqnin Chronicle serves to illustrate the process. During the winter of 743–744 people were first stricken by the disease of the sore or "swelling" and abscess, and most of the heads of households died, but, because it was winter, the dead could not be buried. People were discarded in streets, porches, towers, shrines, and all the houses, suffering both from the severe disease and the harsh famine. Those who had food suffered from the disease more than anyone else, obviously due to the attraction of infected rats to the food. When it began to warm up, bubonic plague was discovered in those who were ill. They began to collapse in the street, and there was no one to bury them.[32]

During the plague of 743–744, Dionysius of Tel Mahre says that 100,000 people died in Mesopotamia alone, while 20,000 died each day for a month at Bosrah and in the Hawran.[33] Many large, wealthy families and many tribes were left without a single heir, so that the possessions, fields, and houses of the wealthy were inherited by their friends.[34]

8. The Plague of Salam:

It spread in Basrah in 131 AH/750 AD and in Damascus in 135/754. It was severe in Ramadan. The deaths' rate was about 1000 daily.[35] About 70000 people died in the first day and more than 70000 died in the second day.[36]

According to Conrad and Dols, the first pandemic of bubonic plague ended in 749 AD and the disease disappeared. Michael G. Morony thinks that it is also possible that the plague bacillus affected its victims in non-bubonic forms such as the pneumonic plague and the meningeal plague after the middle of eighth century[37], but it seems too far possibility.

Religious Explanations for Plague:

Actually, plague disease was a major concern during the medieval ages in Islamic world. Prophet Muhammad dedicated many Hadiths (sayings) to discuss plague. Most of the Hadith books, which collected and classified most of the Hadiths, contain a special chapter or more related to plague. For example, al-Bukhari dedicated two chapters in the book of Medicine for plague.[38] Moreover, Muslim writers composed, in Arabic, more than 35 specified treatises and books about plague. Most of them approached the subject through religious point of view.

Three religious principles, which were derived from the teachings of the Prophet Muhammad "al-Hadith", influenced the early Muslim community and set the framework for communal behavior when they confronted the disease:

1. Plague was considered a mercy and martyrdom from God for the faithful Muslim and a punishment for the infidel.[39]
2. A Muslim should neither enter nor flee a plague-stricken land.[40]
3. There was no contagion of plague because disease came directly from God.[41]

These three religious roles provoked sustained controversy due to the reappearances of plague epidemics. This controversy persisted for a long period. Most Islamic jurists and many physicians entirely denied the contagion.

But, some physicians, like Lisan al-Din ibn al-Khatib doubted the literal explanation of the Hadith "No Contagion". He considered that the Prophet meant that plague isn't contagioned just by its nature, as the people of pre-Islam was thinking, but by the decree of God. He also reclaimed that although the Prophet had denied the pre-Islamic beliefs in contagion, it's obvious that the pragmatic intention of the prohibition against flight may have initially been to prevent the spread of contagious diseases. He affirmed the presence of contagion on the basis of the experience, induction, observation and the recurrent news.[42] Such a physician faced a massive opposition because he dared to challenge the prevailing trend in the community.

Moreover, some people escaped the infected cities and lands to safer places. This was considered by jurists like the escape of the attacking enemy, while others considered it the only means to avoid infection.

Seeking for the Medical Knowledge:

In one Hadith narrated by Aisha, his wife, the Prophet was asked about plague; he answered and described it by saying: "The Plague is a gland, like the gland of the camel, arises in the soft tissues of the abdomen and the armpits".[43] This description corresponds with the bubonic plague. Therefore, we can assume that plague was widely unknown by Arabs before Islam because they asked about what is plague, and after Islam they differentiate between plague and any other epidemic. This gives greater weight to the hypothesis which claims that most, if not all, of the plagues that stroked the Muslim communities were really plague disease, and that Muslims, since the beginning of Islam, differentiated between plague and other epidemics.

The plague recurrences and the large amount of mortality which he caused evoked a medical interest in the disease which resulted in the investigation and discussion of pre-Islamic medical works, especially the writings of Hippocrates and Galen, as well as in personal observation. In this manner, M. Dols thought that the massive translation of classical medical works into Arabic in early Islam should be considered as a part of the endeavor to understand the nature of recurrent disease and not as a purely academic exercise.[44] Thus, the process of translation which began in the Umayyad period and flourished in the Abbasid period was a real search for solutions to the diverse problems, included plague, which faced the Muslim community, and was not a pure and romantic academic work.

These efforts furnished the later medieval writers not only with religious and legal precedents, but also with an etiological explanation of plague, methods of prevention and treatment and a precise Arabic terminology.[45]

The Political Consequences of Plague:

It's generally accepted nowadays that the plague effectively affected the movement of history especially in the ancient and medieval ages. This effect of Justinian plague and its recurrent epidemics could be noticed through different examples.

1. One major question concerning military matters is how to evaluate the role of plague mortality among the vari-

ous factors that contributed to the weakness of the Byzantine army in the face of the Arab advances.

Archaeological evidences founded that the expansion of settlements that had characterized much of rural and urban Syria in the fifth and early sixth centuries, during the byzantine era, came to an abrupt end after the middle of the sixth century, and that is entirely consistent with a pandemic that caused massive loss of life on repeated occasions.[46]

A large migration of Arabs into Syria was similarly facilitated by the high plague mortality in that land.[47] Moreover, the lesser losses of plague among Arabs made them potentially dangerous to the Byzantine Empire even before their unification in Islam.[48]

Prof. Josiah Russell estimates that the initial plague epidemic of 541-544 reduced the European-Mediterranean population by 20-25% and there was a total decline of about 50-60% from the pre-plague population in the period 541-700 AD.[49] This would contribute to the general weakness in the Byzantine Empire and facilitated the conquest of Syria, Palestine, Egypt and the southern Turkey by Arabs.

2. In contrast to the relative recovery in European-Mediterranean population during the period 650-750 A.D from its previous level, Russell has proposed the gradual and steady decline of population in the Islamic world. This was partially responsible for the survival of the Byzantine Empire, and the seeking for truces between Arabs and Byzantine. The historians mentioned the cease of jihad during the episodes of plague. For instance, al-Tabari recorded a similar event during the plague of 79A.H when so many Syrians died because of it.[50]

Because Arabs encountered plague only outside of their homeland, this was at least at first mainly a problem for their armies. Moreover, the Arab commanders would remove their troops from their garrisons to the mountains or the desert until the epidemic ceased. All of this contributed to the relative weakness in Arabic military forces during the plague epidemics.

3. The plague was an important factor in the decline of the Umayyad reign and the appearance of Abbasids for the following reasons:

The Umayyad dynasty was literally plagued by this disease. Muawiyah II died from plague in 64/683, only a few months after his reign began.[51] Some informants claimed that the caliph Marwan died of plague. Plague struck others among the governing elite, such as Ziyad ibn Abi Sufyan, who died in Kufah in 52/673. For this reason, when the plague season came during the summer, the Umayyad caliphs tend to leave the cities for their desert palaces and dwelt close to the Bedouins. Therefore, they were for a considerable time far away from the capital and the headquarters of the country. For instance, Caliph Hisham ibn Abdul-Malik (105-125/724-743) moved from Damascus to al-Rasafah.[52] Dionysius also says that the caliph, Yazıd III, died of a tumor that erupted on his head in 743–744 CE. This partially explains why the power of Umayyad Caliphs was debilitating year after year.

The chroniclers report that plague lightened with the advent of the Abbasid regime. Al-Thaalibi said that "when the Abbasids came to power, there were no more plagues until the reign of al-Muqtadir (295-320/908-932). There is a famous anecdote about an Abbasid commander, who came to Damascus, the former capital of the Umayyads, to make speeches on behalf of the new dynasty. The Amir told the inhabitants of Damascus that they should praise God, who had raised plague from them since the Abbasids had come to power. One courageous man in the crowd stood up and replied: "God is more just than to give you power over us and the plague at the same time".[53] Obviously, plague was spun into political propaganda by Abbasids. After a lengthy and all-out war against Umayyad rule resulted in a complete Abbasid victory in 750 AD, the new regime's leaders claimed that God put an end to the plague pandemic because of their overthrow of the Umayyads.[54]

Plague was more active in Syria-Palestine and Iraq than in Egypt and Persia. The recurrences of plague may have thus continuously retarded natural population growth and served as a major factor in debilitating Umayyad strength. The constant infusion of Arab population into the formerly Sassanian region of the Empire during the Umayyad Period and its apparent exemption from plague epidemics (outside of Iraq) would suggest an unbalanced growth of population in the empire which was reflected in the predominance of the Abbasid regime, with respect to fact that the missionary activities of Abbasids concentrated in formerly Persian territories at first.

4. Plague had facilitated the conquest of Spain by Arabs. An Arabic source, the Akhbar Majmu'a, records that plague and famine destroyed half the population of Spain between 707 and 709, just two years before the Arab conquest of 711.[55]
5. The trials of the Umayyads to conquest Constantinople failed. Plague played an important role in both the first trial in 48AH/668AD, and the second trial, when Maslamah besieged the important city in 98/717 with no success, after the spread of plague among Arab troops.[56]

Conclusion:

The epidemics of Plague in the early Islamic world were part of a pandemic, Justinian plague, but they owned special local characteristics derived from its periodic nature and the teachings of Islam. The plague stimulated the efforts which searched for a medical cure and motivated the Muslim religious scholars to reach an acceptable interpretation of the meaning of this periodic scourge. In addition, the religious-legal principles related to plague which were derived, sometimes incorrectly, from the Hadith literature established a system of theological beliefs and influenced the thinking of the early Muslim community and continued to be operative in Muslim religious life until the twentieth century, and at last it set limits to the intellectual discussion and to the communal behavior.

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Dr. Hasan Reşat's Monograph on Syphilis and Gonorrhea

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Summary

The disease syphilis caused devastation in Asia and Europe in the 16th century. That social and venereal disease began to be seen in our country after the Ottoman-Russian Wars, and reached epidemic proportions. In our country, the fight against the disease started in 1879. The Ministry of Health and Social Welfare established in the republic period properly dealt with the struggle against syphilis and put up a good fight against it. With intent to prevent the spread of the disease, enlightenment of the people on its danger, transmission ways and treatment possibilities continued in the Republic period. In his monograph titled "Syphilis, Gonorrhea" written in 1924 (1340, according to the Islamic calendar), Dr. Hasan Reşat, who was a Dermatology Teacher in the Faculty of Medicine, focused on the subjects of the ways of the disease's emergence and transmission as well as whether its healing is possible with treatment or not.

Key Words: Hasan Reşat, Syphilis, Gonorrhea

Introduction

Syphilis is a bacterial disease caused by a bacteria called Treponema pallidum, which is sexually transmitted but may also be transmitted in some other ways. Gonorrhea is another sexually transmitted disease. Polygamous relationship is one of the primary reasons for gonorrhea caused by the bacteria Neisseria gonorrhea a major cause of polygamy (1). Since they are infectious, syphilis and gonorrhea are social diseases.

The disease syphilis caused devastation in Asia and Europe in the 16th century. As a Social and venereal disease, syphilis transmitted to Morocco by the Jewish women, who were expelled from Europe and took refuge in the Ottoman Countries in a period when the disease was highly widespread in Europe; and then it spread to the eastern ports from there. Therefore, cases began to be observed in our country, even if in a limited number (2). The disease syphilis has not affected our country so much due to the fact that prostitution was considered to be a serious crime by the people and that our relations with Europe was weak. In our country, syphilis began to be observed after the 1806-1812 and 1828-1829 Ottoman-Russian wars, in the occupied areas. It emerged as epidemics, after the 1854 Crimea and 1877-1878 Ottoman-Russian Wars. The disease that began in Istanbul increased and spread to Bolu and Kastamonu (3).

In our country, the fight against the disease started in 1879. Spread of venereal diseases was prevented by struggling against prostitution (4). Control and treatment of patients were ensured by opening hospitals, doctor's offices, and dispensaries. Established in the Ministry of Health and Social Welfare of the Republic of syphilis has been fighting the battle with the disease by addressing the business substantially (5).

The enlightenment of the people on the danger, transmission ways and treatment possibilities of the disease began in the Ottoman period, with intent to prevent the spread of the disease, and continued in the Republic period as well.

Hasan Reşat's Opinions About Syphilis and Gonorrhea

In his monograph titled "Syphilis, Gonorrhea" written in 1924 (1340, according to the Islamic calendar), Dr. Hasan Reşat, who was a Teacher in the Dermatology and Syphilis Clinic of the Faculty of Medicine, focused on the subjects of the ways of the disease's emergence and transmission as well as whether its healing is possible with treatment or not.

According to Hasan Reşat, anyone who catch a venereal disease should not be ashamed. Such a person looks

like someone who loses at gambling. The patient's duty is to strive or preventing the spread of the disease.

Syphilis spread to Europe, after the discovery of America by Christopher Columbus. The disease that has brought damage initially to the Kingdoms of France and Prussia caused the destruction of many families.

In our country, the disease had been known all along but syphilis spread and reached remarkable levels during and after World War II, through the contact of the soldiers from various countries with our country, and the transmission of the disease from them to prostitutes.

Another reason of the spread of the disease to that extent is the fact that a healing is observed after a little treatment and patient feels healed and gives up the treatment. Although medicines completely heal those afflicted with the disease, they have their own unique requirements. First off all, it should be determined whether the disease is syphilis or not. Before the definitive diagnosis, it would be wrong to define the disease as syphilis and start the application accordingly. Mercury, iodine, salvarsan and bismuth are among the medicines used in today's conditions. However, the treatment of syphilis does not consist of only the syringes, which are easily applied to the vessel. The disease has many specific niceties. Mostly a physician is invited for the patient only after the application of folk remedies and when the patient is sick in bed. There are open doors enabling the germs to enter the body and mix with blood, which consequently cause someone to catch the disease. Syphilis germ called treponema pallidum, certainly needs an open door for being able to be included in the body. The disease is not transmitted only through sexual relation. The disease is transmitted to an innocent child when the mother kiss him/her, and there are also some cases, in which syphilis is transmitted from the wound in the mouth of a syphilitic child to the breast of the milk-mother. Lip, gum, cigarettes, toothbrushes, barber razors, water glasses, dentists and vendors not complying with the rules plays an important role in the spread of the disease. The disease may be transmitted from a syphilitic child or mother to a midwife, or from a midwife to a child and mother. For this reason, families should be careful when choosing midwives. In the past, it was thought that a child might be syphilitic in three ways: The mother and father are syphilitic, and consequently, the child might be born as syphilitic; the disease might be transmitted to the child from the mother; a syphilitic child might be born as a result of the disease of the father. However, then a syphilitic mother has been considered to be essential for a syphilitic child.

The first sign of the disease appears at the point, where it has entered the body. In minimum twenty-five and maximum seventy days, a little pink papule appears in that area of the person who caught the disease. There is no water, blood or pus in that papule. The papule takes the shape of a lentil in a couple of days and is scraped by the friction of the clothes or irritation; and then a pink surface under it comes out. In course of time, these rashes spread throughout the body. Those who keep themselves apart from the group of prostitutes being subjected to examination, by their smartness or pretending to be prude, transmit the disease to each person who contact with them. The patient begins to weaken from day to day, by losing appetite. Sometimes he/she becomes jaundice. He/she gets a hoarse voice, and hair and eyebrow losses are observed. Scabs on the scalp, nail wounds, and spots on various parts of the skin are observed in the second stage of the disease. These symptoms of the second stage frequently reappear and ugliness on the skin increases. The following period, hoarse voice, and hair and eyebrow losses are observed. Headaches prevent sleep. Since the liquid leaking out of the wounds has a specific bad smell, the patient imposes himself/herself excommunication. Despite the recrudescence in the second stage, disappearance of the disease, even in the cases without any treatment, is not uncommon. A physician does not treat his/her patient with intent to eliminate the symptoms of the first and second stages; but instead, treats the patient in order to prevent the symptoms of the third stage, and protect the health and lives of the patient as well as his/her family and expected child. 3-4 years after the end of the second stage of the disease, some formations may reappear on the skin. This time the formations on the skin are not widespread but are deep. When it affects the bones, the nose collapses and the palate becomes punctured. When it catches long bones such as arm and leg bones, it may cause the arms and legs to be broken. Anyone who looks at the patient feels the need to turn his head, due to the collapses and wounds appeared on the skin by the effect of syphilis. Syphilis is also one of the causes of liver, heart, blood vessel, lung, and kidney disorders. The patient falls down suddenly when walking, due to paralysis caused by the disease, which may also lead to blindness. The patient becomes unable to hold his/her urine and feces.

Syphilis also undermines the population. Children of syphilitic parents become lost as disabled persons when they are three or five months old, or they may be born dead in the eighth month of pregnancy, or when they are born with wound and bruise, they may lose their lives within a couple of days. In some cases, they pass

away within six months following the birth, due to eye pains, mouth and nose sores, wounds in various parts of the body, while the survivors live as a person that can be defined as freak having the weight of the world on his/her shoulders. Children have irregular teeth, very small noses that draw attention, potatoes-like lumpy heads, and crooked long bones. Since the body cannot take nourishment dwarfism occurs. Those who caught the disease genetically present their diseases to their children. The disease does not affect only the first generation, but also the second, third, or even fourth generation.

In his writing, Hasan Reşat mentions about a case. A man holding his sick child in his arms visited him at his clinic. In consequence of the examination, he realized that the child was syphilitic. The man stated that in five years he had four children, the first and second ones of whom were borne dead in the sixth and seventh months of pregnancy respectively; the third one of whom became syphilitic four months after the birth; and the forth one of whom was two months old and had some symptoms of the disease on the face that appeared fifteen days before. The father who brought the patient added that they were twenty-five siblings from the same father and mother; some of them were born dead and some others dead after their birth; he was the twenty-first one; and he had not underwent any disease other than the disease which lasted for one month. The disease inherited to the twenty-first child caused the loss of three children.

One of the worst sides of syphilis is that it paves the way for cancer and tuberculosis, by weakening the body's resistance against infectious diseases. Syphilis dilapidates the body and is the cause of decrease in population. It is because eighty-five percent of the syphilitic children die. "My future has been ruined" is the first sentence of a person who caught syphilis. There is not a small number of people, who suicide after understanding that their disease is syphilis. However, syphilis is not different from other infectious diseases. "A patient should receive a treatment" At this point, the difference between treatment and healing should be considered. Treatment is the elimination of the symptom created by a disease. And healing is the act of preventing recurrence of the disease. Syphilis is a disease that has a possible treatment and cure. Continuance of the treatment of the patients is important in terms of healing. When patients do not continue to comply with the treatment, when they see that the disease can be treated with a couple of syringes. Hasan Reşat stated that only one percent of the 1477 syphilitics in Istanbul Red Crescent dispensary complied with the treatment, and sixty-five percent of them escaped without completing even the first stage. Healed syphilitics think that they will not catch this disease again, they will live healthy throughout their life, and they are exempted from syphilis. Discovery of the cause of the disease, Vaserman's practice, and statistics gave precious results, and taught that re-vaccination against syphilis is possible.

In the writing, Hasan Reşat mentions about a middle-aged woman who visited him in his clinic. He understood that she was at the second stage of syphilis, and her ruined uvula as well as other symptoms confirmed that she had caught syphilis in the past. With intent to have his diagnosis confirmed by the patient, he asked her the time, when she had caught syphilis. She said "Oh sir, this trouble has been afflicting me for a long time. Twenty years ago I was a milk-mother at the home of a family. The child had wounds in his mouth. Initially I had wounds in my breast and then they spread to my throat. The physicians diagnosed it to be syphilis and made some drugs that healed the wounds". When reaching the second month of her marriage, a wound appeared in her genital organ, and in the third month, the second stage occurred, upon which she went there for examination. That case is the most obvious example of the fact that syphilis recurs again and again. Syphilis is a disease always subject to recurrence. The disease is eliminated with a little treatment; however, residues of the disease remain in the body. If the treatment has been carried out completely and perfectly, syphilis is healed and does not recur. However, the syphilitic should not worry about the success of the treatment, and should properly continue it as long as required.

Another one of the most important social problems has been gonorrhea. When a young person who encounters the symptoms of the disease in the most active period of his/her life, he/she hesitates to consult a physician due to his/her decency. If he/she does not receive a treatment or starts improper treatments according to unknown cursory recommendations, the real catastrophe begins to appear. After a while later, the young patient makes himself/herself sick in bed. The disease has a specific cause. The disease is transmitted by contact. The disease can be transmitted from woman to man or from man to women, and in addition, the cloths and cottons contaminated with discharges containing germs, which are thrown around negligently are the other risks. Their direct usage or transmission of the disease by contaminated hands cause the establishment of the germs. Victims of such transmissions consist of little children. Miserable kiddies take the germs when they touch their eyes with their hands. A maid who goes to the home of a family without being examined may cause very bad things, when she uses cleaning cloths. The

physician examined the newly-wed couple who visited him on the third day of their marriage, and diagnosed gonorrhea. However, he considered the uneasiness in the family that he might cause if he would tell the true to the man and woman who were impatient to understand what their disease was, and then thought that stalling them for a short time would be suitable. When the physician examines the fact, he realized that the disease was transmitted to the lady of the house, who used the irrigator of the woman serving them at their home, and then her husband was infected with the disease. In any case, an environment suitable for the existence of the germ is needed for the development of the disease. If there is a gonorrhea discharge, those who are in their right mind do not knowingly throw themselves in the fire. Germs transmitted from woman to man show themselves with itching, tingle, and a discharge. Microbes grow very quickly that the disease spreads in a short time. The discharge, which is transparent at the beginning, becomes yellowish and its consistency increases. It turns into greenish in the second week, and the disease called gonorrhea begins. Sometimes it begins as a chronic disease. However, the patient visits a doctor with the complaint of contaminating his/her underpants. But However, can gonorrhea be diagnosed immediately with such a picture being seen? Similar pictures are possible to be created by some other germs such as streptococcus and staphylococcus. However, these are not real gonorrhea, and show themselves with a simple inflammation. But gonorrhea is caused by the called gonococcus. Therefore, the physician immediately determines the definitive diagnosis by means of microscope examination, and applies his/her treatment.

A patient consulting a doctor for a discharge tries to demonstrate innocence, by telling that one night his/her waist was cold after remained out of the quilt, in the following day he/she did not know what happened, and he/she is not guilty of that situation. The physician listening to the patient carefully laughs inwardly and tell him/her with suitable words the fact that the stories about the possibility that gonorrhea may be caused by waist cold is one of the stories that remained in the past. Some patients feel themselves before the court and add an oath to their words. Physicians complying with the professional rules never pay attention to such words. They only think of his/her patient's treatment and health. Any person who caught a venereal disease should not be ashamed.

In another case reported by Hasan Reşat, the person complaining about his inability of having a child wanted to know whether he or his wife was imperfect. That person who spent his youth with always womanizing and underwent second, third, fifth and maybe more gonorrhea diseases stated that he visited a folk healer, with intent to put an end to that situation. The patient who heard some words such as "you will urinate blood for twenty-four hours after using what you were given, but do not be afraid of that, it will end on time" and then applied what he heard. The next day, the patient was found drenched in blood in his bed. Form that explanation, the physician immediately guessed the medicine that created such a devastation, and the fact that the patient cannot have a child in that situation. The medicine used cut everything from the root. The physician had no choice but to say some words of consolation, by thinking that he might gain virility in the future. Germs are reduced, discharge ends and the disease is eliminated in the treatment of gonorrhea. "Nice work if every case ends like that!" A chronic discharge remains endless, and on the other hand, urinary tract obstruction is observed.

In his writing, Hasan Reşat says: "Young people! I am speaking to you: There cannot be any fault bigger than the fault of underrating gonorrhea." Young people comprehending their eighteen and seventeen years in their lives are eager to satisfy the sexual needs, no matter how a well-bred they are. Even if one or two risk-free relationships can be experienced, one day they definitely encounter germs.

Hasan Reşat stated that both males and females in most neighbors of our country become eager to get married when they reach the age of puberty, even if their parents do not force them to do so. However, both the lack of financial strength and the fact that this period coincides with the education period cause every young person to be discouraged. Illegitimate performance of the act raises many disasters. They should not cause the germs in women to get out of their hidden places, in order not to catch the disease. They should immediately withdraw, and be careful during the next sexual relation. As a precaution against gonorrhea germs, the genital organs and their surroundings should be washed with soap and then be cleaned with alcohol after the sexual intercourse. Manganese- potassium produced in the proportion of 1/200 and protargol produced in the proportion of 5-10% are used for disinfecting the germs. Similarly, discarding the condom used during the sexual intercourse and being washed with soap and spirit is a reliable method. Besides these recommendations, there are also two points to take into consideration, one of which is drunkenness and the other is prostitutes. Hasan Reşat concluded that eighty-five percent of the patients have a sexual intercourse when they were drunk. Some women dressing well with intent

to look attractive do not feel a twinge of guilt about transmitting disease to the young people that they come across. The risk of catching the disease is wholly eliminated when measures are taken against the possibility of poisoning whoever they come across, just in the same way as they had been poisoned without consideration of their health. After being seen, the disease should not be allowed to settle into the body, and for its treatment, the patient should consult a physician immediately (6).

Enlightening the people about the ways of transmission of the disease as well as its symptoms, treatment, and danger caused by it has been very important for combating infectious diseases, just like this article written by Hasan Reşat.

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Prof. Dr. Besim Omer Akalin's Views of Sea Water Therapies and Their Place in Public Health in the Early Twentieth Century

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Summary

Besim Ömer Pasha (1863-1940), is a scientific man of the Turkish medicine and he served in the field of obstetrics and gynaecology. Moreover, he was the founder of modern paediatrics. Dr. Besim Ömer also founded Çocuk Esirgeme Kurumu (Child Protection Institution in English) and developed Midwifery School in Turkey. Prof. Dr. Besim Ömer Akalın who studied on tuberculosis became the president of the Society of Fight Against Tuberculosis in 1918.

Besim Ömer Akalın who died in 1940 published 61 books and 400 papers. Three of them is in French. He was a popular author of the health topics. Nevsali Afiyet is his encyclopaedic book and is 4 volumes. Nevsali Afiyet means Health Yearbook in English. Akalın's paper with the name of Sea Weather-Sea Bath (Deniz Havası-Deniz Banyosu in Turkish) in the second volume of Nevsali Afiyet contains the knowledge on the importance and uses of sea baths and sea water at the beginnings of the twentieth century from the point of public health.

In this paper, the comments of Prof. Dr. Besim Ömer Akalın on sea baths have been pointed out and some original results have been obtained.

Key Words: History of Medicine, Sea Baths, Public Health

Introduction

Born in 1863 in Istanbul, **Dr. Besim Omer (Akalın) Pasha** (1863-1940), the son of **Nardalı Omer Sevki Pasha, went to** Rustiye (Secondary School) **for a while in** Kosovo. Later, he finished Gulhane Military Rustiye (Secondary School) and went to Kuleli Military Medical High School and finished it in 1879. Receiving a diploma from the Military medical school as a lieutenant between 1884-1885, **Besim Omer Pasha**, was assigned as a deputy teacher to Fenn-i Kıbâle (medicine of midwifery) lessons in Military medical school in 1885. In 1887, he was sent to France to get education in the field of obstetrics and gynecology. Returning to Istanbul in 1891, Besim Ömer Pasha became a professor of Fenn-i Velâde (obstetrics and gynecology) in the military medical school. Later in 1892, he opened the first clinic of obstetrics and gynecology. Then in 1895, he was appointed as the head of Midwifery School and started to modernize this school. In 1896, he became a professor of Seririyatı Vilâdiye (he was appointed as Head). Getting the rank of pasha in those times, **Dr. Besim Omer** functioned as the directors of both the clinic of obstetrics and gynecology and Midwifery School together. In 1909, after the establishment of Haydarpasa Medicine Faculty, a new clinic of obstetrics and gynecology and a midwifery school were established in the empty buildings left by civil medicine school in Kadırga and **Dr. Besim Omer (Akalın)** became the head of them. Moreover, in 1928, **Besim Omer Pasha** moved the whole clinic to Haydarpasa.

Retired in 1933 University reform, **Dr. Besim Omer** took the surname of Akalın after the surname law. Working as a free-lance doctor in his house in Cagaloglu after having retired, **Dr. Besim Omer** later became the Deputy of Bilecik and died on 19 March 1940 in Ankara.

Besim Omer Pasha was an estimable science person who made valuable contributions to Turkish medicine. Not only did he help modern obstetrics develop in Turkey, but he was

also the founder of modern pediatrics in our country. What's more, **Dr. Besim Omer** laid the foundations of the institution now known as child protection as well. Again, realizing the establishment of the midwifery school for the first time, **Dr. Besim Omer** also developed the profession of nursing. Moreover, **Besim Omer Pasha** worked on tuberculosis and became the head of the association called "Association for Fight against Tuberculosis" established in 1918.

Charged with different administrative duties, **Dr. Besim Omer Pasha** published 61 books and monographies and about 400 articles. 3 of 61 books and monographies were published in French and the rest were published in Turkish. **Dr. Besim Omer (Akalın) Pasha** is known as the popular author of health-related issues. His 4-volume encyclopedic work, Nevsâli Afiyet is a good example of this.

The article entitled **Deniz Havası (Sea Air), Denizde Banyo** (**Bath in the Sea**) included in the 2nd volume of **Besim Omer Akalın's** this work published in 1900 gives information about seawater therapies in Turkey in the early 20th century and the importance and benefits of sea water. The author's article begins with "Therapy with water isn't unnecessary". According to **Akalın,** people bath in the sea needlessly. The author reports that there were maritime hospitals all around Europe in the early 20th century and people benefited from those especially on the coasts of Italy, England and France. Both sea air and sea water are beneficial. Children with rachitis need to take only sea air. **Besim Omer** reports that especially children with osteological diseases were treated in maritime hospitals in France.

After the introduction above, the author explains that taking a bath with cold water calms nerves, but it is important that one should not dive into water suddenly, and if a chill is felt, he or she should go out of water immediately. When skin is chilled, it turns pale and hands, feet and chin shiver and get spasmed. In this respect, one should be accustomed to cold water and not feel cold. For this reason, when one enters cold water, he or she should move. The author mentions about the importance of performing actions such as rubbing and wringing. Cold water bathing cools the body and livens up the skin. It whets one's appetite and works the skin. Especially those working by sitting are recommended to do it. Moreover, cold water increases body strength and decreases common cold.

Meanwhile, in the article, a word of **Akalın's** is related to the skin and very important: "Skin is the mirror of blood. " That is to say, a healthy skin indicates that our body is in a very good condition.

Besim Omer Pasha explains that sea water is in touch with various mines existing in the nature and its nature is in the composition of some mineral water, which is beneficial for body. Travelling to seasides and staying there is very beneficial. Meanwhile, sea water is both beneficial for one's psychology and a curing means for many diseases.

Dr. Besim Omer also mentions about temperature and composition of sea water. The temperature of sea water is generally 18-30°C. However, sea water is also very beneficial because of salts in its composition. Almost one third of sea water is sodium chlorine. Meanwhile, because sea water includes other salts in its composition, it stimulates the skin and affects from outside. Moreover, it strengthens digestive system. It helps those with tired minds and students who are about to enter an exam feel relaxed. Meanwhile, sea water affects the skin like a plaster and is beneficial for rheumatism.

According to **Akalın**, upon entering the sea, one can feel cold and shiver. The skin might turn pale and quiver and there might be a feeling of drowning. However, later the skin gets its own color back and a feeling of comfort occurs in a person. The very first way of treatment in problems during children's developmental periods is sea-bathing and sea air. Moreover, it is also affective against rachitis and polio.

Prof. Dr. Besim Omer Pasha, in his article, specifies conditions when sea water is harmful as well. People should not enter the sea in the early periods of pregnancy, in cases of uterus bleedings, some heart diseases, some skin diseases, renal problems and eye diseases. Meanwhile, there might be a hand or foot bathing with lukewarm sea water for children under two years of age. Children over three years of age can enter the sea. Meanwhile, heated sea water bathing can be benefited as well. Bathing with lukewarm sea water is beneficial for the aged, children, those who have newly recovered from their illnesses and those with neuropathy.

Dr. Besim Omer reports that sea water can be used to take a shower. According to the author, normal shower water is used due to its being cold. However, shower with sea water is used because of minerals which it includes. In maritime hospitals, there are also places to take a shower.

Akalın, in his article, mentions about maritime baths as well. However, he reports the necessity of building them at clean places. Time of entering the sea is also important and it is appropriate to enter the sea in the morning, before the noon or toward evening, between 4 and 5. People should enter the sea just after meals. One should benefit from the sea after digesting meals. Before entering the sea, light meals such as broth of meat, tea, coffee or chocolate can be taken.

The author also mentions about the way of entering the sea. One should enter the sea by running and strewing water around and, after taking a few steps, dive twice or three times and then massage his or her chest with his or her hands and fists. **Akalın** reports that, in Turkey in the early 20th century, maritime baths were built in narrow places and were not suitable for this kind of sportive activities. For this reason, those who know how to swim should jump on feet, but those who do not know how to swim should enter down a ladder. One can jump into the sea head down and, after staying for five minutes, should get out of water and put his or her feet into hot water. Those with dentures in their mouths should enter the sea after taking these out. For these might be swallowed and lead to choking.

Besim Omer Pasha writes that time of remaining in the sea varies depending on structure, temperature of water and air and personal health. Weak children can remain in the sea for two-three minutes at most, but adults can remain in the sea for fifteen-thirty. If chilling occurs in the sea, one should get out of the sea. Those who know how to swim should swim in the sea, but those who do not should move continuously. However, one should not get tired. If shivering occurs after getting out of the sea, such liquids as lime tea and the like should be drunk.

Dr. Akalın, in his article, gives the benefits and harms of sea bathing and sea air in the form of tabulation. As understood from this tabulation, sea air is beneficial especially in tuberculosis and whooping cough. However, it is harmful in some uterus diseases, pneumonia etc. However, sea bathing is beneficial in indigestion, nervosity etc. Again, sea bathing is harmful in rheumatism, heart diseases, urologic diseases, epilepsy and uterus diseases.

In conclusion, **Dr. Akalın** writes that sea bathing and sea air is beneficial in many diseases. However, one should enter the sea under the supervision of a doctor. Healthy people should resort to a doctor, too. It is important that sea air and sea bathing should be benefited according to one's health problem and structure.

As seen, referring to the importance of sea bathing and sea air, the author states that he attaches importance to this matter. In this respect, in Turkey, especially from the 19th century on, sea baths and later beaches have become important.

As **Besim Omer Akalın** mentions, in the early 20th century, sea baths in Turkey were the institutions where people entered the sea. Ottomans only liked to cruise in the sea via sea vehicles for a long time. Sunbathing and entering the sea were observed in the 18th and the 19th centuries. In the first half of the the 19th century, there were eople entering the sea in Salacak and Uskudar. In those periods, entering the sea was the work of only fishermen, boatmen, fire brigade members, ship's crewmen and sailors. Sea shores were only for walking around. For people believed that sea water was harmful to health. However, famous Turkish traveler, **Evliya Çelebi**, in his seyahatname, writes that people entered the sea in Kumkapı in Istanbul in the 17th century. Again, in a 1781-dated document belonging to the 18th century, it is mentioned that there was a sea bath fountain near Davud wharf in Istanbul. Sea bath is a novelty which the 19th century brought to Istanbul. In those years, sea baths were connected to **Tersane-i Âmire**. Whereabouts in Bosphorus and Marmara public sea baths were to be built were determined by Sehramaneti. It is known that **Cardak Iskelesi Bath** was the first sea bath of Istanbul, which was established between 1826 and 1850. The second sea bath was established on the coast of Salipazari and the third on the coast of Kumkapi. Starting from the first quarter of the 19th century, the number of sea baths increased especially in Istanbul. Mostly known of these were the sea baths established in such quarters of Istanbul as Yesilkoy, Bakirkoy, Kumkapi, Yenikapi, Salipazari, Ortakoy, Bebek, Tarabya, Cengelkoy, Moda, Fenerbahce, Salacak, Caddebostan, Bostanci, Kartal, Maltepe, Pendik, Tuzla.

Sea baths, which can be regarded as beaches of that period, were formerly composed of small shacks which the wealthy people of Istanbul built in front of their residences by the sea. Later, public sea baths started to be opened. According to **Resat Ekrem Kocu**: "Between the years of 1826 and 1850, there were three sea baths in Istanbul. In 1875, the number of sea baths was 62. 34 of them were open to the use of men and 28 were open to the use of women. In that period, since it was forbidden to enter the sea from shores, sea baths had an important place in the life of the people of Istanbul. When the sea season came, sea baths were established and put into service for those who were distressed by the hot weather. There were also changing rooms in sea baths, which were re-established every year and composed of a pool measuring 35 x 20 meters and a shack on a wharf usually made of wood. Changing rooms were two types as public and private. Those who changed clothes in a public bench paid 1 kurush bath fee, but those who changed clothes in a box paid 2 kurush bath fee. The depth of baths was two cubits (60-70 cm). They were built on pales as wooden with using water-resistant, non-decaying lumbers in flowing waters. They were divided into three according to their size and construction. Sea baths were reached again

by passing over a wooden bridge. Two separate baths were set up for women and men. Inside baths, those who changed clothes in public boxes paid one kurush, but those who changed clothes in private boxes paid two kurush. A police rowboat patrolled continuously between the women's bath and the men's bath. " Author **Hikmet Feridun Es** mentions about the place of old sea baths in the daily lives of the people like this: "Two signboards at the beginning of the street: 'Sea Bath for Women' and 'Sea Bath for Men. " Old wooden booth sea baths, which were in a size of a small mansion covered all around with wooden planks and reminding of a huge orange box, were again reached by passing over a wooden bridge. Since baths were located next to one another, entrance streets were mostly the same. " Meanwhile, there was a sergeant appointed by Sehramaneti in every bath and he tried to achieve rules be obeyed. Salaries of sergeants were paid from baths' revenues.

However, private sea baths were built just next to big waterside residences, but if there was a field with a dock in front of a waterside residece, they were built in front of the residence. They were decorated, elegant, wooden rooms built on the sea. They were set up on pales driven in the sea. When looked inside, a pool was seen in the center; from sides, due to the sea, the top was covered with a board fence and nobody could see inside from outside. Men entered the sea from baths; they got out from under a board fence. Women remained in pools. The construction of private baths was according to the taste of owners of waterside residences.

It is known that sea baths started to be established in 1829 in Izmir. More than one sea baths were built in Izmir upon the permission of **Mutesellim Tahir Pasa**. They were run by Emin Efendi, Ex Secretary of Foreign Affairs, to provide revenue to a hospital in Izmir. However, later, it was pulled down upon the order of Miralay Haci Resit Bey in 1853. However, later, new sea baths were opened in this city.

Auditing of Sea Baths and Nizamnames (Regulations) related to This Matter

Sea baths were firstly connected to Tersane-i Âmire. This institution was also responsible for the arrangement of open places to enter the sea and drownings due to sea accidents. With the formation of local administrations, this duty was considered to be handed to Sehremaneti. With the 4th article of 6 October 1868 dated Dersaadet Idare-i Belediye Nizamname (Regulation), municipalities were authorized to "arrange and establish sea baths in suitable places". However, this had the opportunity to materialize with a bit of delay. On 10 May 1870, Sura-i Devlet Dairesi ordered public sea baths to be constructed upon projects to be given by the municipality by preparing a nizamiye explanatory document of 4 items related to sea baths. According to this nizamname (regulations); baths shall not be built in stony places or on cliffs, exceed a depth of four kadems (feet), have pools without grates and sheltered rooms; public and private baths shall not be built in places with flows; private baths of waterside residences shall be built with grates under them in places where the depth of private baths is more than two and a half kadems (feet). Moreover, according to the same nizamname (regulations), places on the coast of Istanbul and those around to build baths were to be announced by the municipality two months before their construction every year through special documents and newspapers. Those entering the sea on shores outside baths would be punished and the administration and manufacturng of sea baths would be made by the municipality.

However, sea baths in those periods were not in a good condition. Although conditions were specified clearly in nizamnames (regulations), they were not obeyed and jerry-built sea baths disregarding life-safety were built. Furthermore, the number of existing sea baths fell short of meeting the sea-bathing needs of increasing population.

To meet this need, Sehremaneti decided to build a total of 26 sea baths, 21 for men and 5 for women, on 28 September 1870 in Kadiköy, Adalar and Bogazici in Istanbul. Four sea baths, two for women and two for men, were to be opened in Kadikoy, Salacak, Buyukada, Catladikapi and Yenikapı and two men's sea baths were to be opened in Heybeliada, Uskudar, Mumhane Wharf, Beylerbeyi Havuzbasi Wharf, Pasabahce, Buyukdere, Tarabya, Bebek, Kurucesme, Ortakoy, Besiktas, Kabatas, Salipazari, Kopru, Eski Kopru, Oakrikoy and Ayasofya. Sehremaneti presented the project including all problems related to baths to the Ministry of Internal Affairs. However, the Ministry of Maritime Affairs made public that it accepted in principle the project which Sehremaneti had presented by requiring that revenue obtained from sea baths had to be covered by the treasury. For the Ministry of Maritime Affairs obtained revenue of 96. 650 kurush from sea baths as the price of licence in 1870. On 11 June 1871, the matter was referred to Sura-i Devlet for the transfer of sea baths completely to Sehremaneti. And, on 28 August 1872, sea baths were turned over to the responsibility of Sehremaneti. The nizamname (regulations) related to the establishment, auditing and features of public sea baths was published on 16 Safer 1292/1875.

1. The Cover of Besim Omer's Book

3. The First Page of This Paper

2. A Photograph from the Same Paper

4. One of the Special Sea Baths in Bosphorus

5. Burgaz Island Beach

6. A Sea Bath in Büyükdere

7. An Old Bathing Suit

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Diseases and Their Medical Treatments Mentioned in the Bursa Newspaper of Murad Emri Efendi in the 19 th Century

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Summary

In the 19th century, Murad Emri Efendi established a weekly newspaper called "Bursa". This newspaper published some articles on several common diseases and their treatments. In this article, we aim to examine some of the diseases taken in the mentioned newspaper and their treatments, namely the common cold, burn, rabies and toothache and together with their treatments.

Key Words: Bursa, paper, disease, news.

Murad Emri Efendi, a poet and a journalist from Bursa, was born in a village of Yenişehr-i Fenar, namely the town of Tırnava, in the year of 1850. Having lost his father at an early age, he could not get a formal education. However, his enthusiasm for learning and love for science motivated him to overcome his lack of education and improve himself. During his visits to Istanbul, he bought books and formed himself an excellent personal library. He had to migrate to Bursa in 1882 upon the terms of the Berlin Agreement. He carried his family and his whole-life experience to Bursa, and got accustomed to Bursa's culture and soon became a well-known and highly appreciated person. With the books he owned, he established a private library. His devotion to education motivated him to let local people benefit from his library and examine the books. He made great contributions to the cultural development of Bursa by opening a bookstore and then founding the "Printing House of Emri".

Known as the city's oldest journalist, Murad Efendi, opened a new area in his working life after migrating to Bursa: journalism. Emri Efendi firstly started a children's newspaper named "Feva'id" and then started a business magazine called "Industry". On November 18th, 1890 he started to run a weekly newspaper named "Bursa". The newspaper was published on a weekly basis on Thursdays.[1]

The three-volume collection of the newspaper, starting from the copy numbered 1, is well preserved in the Printing and Manuscripts Library of Bursa with the registration number 5578. Although it was found to be registered in SC 12 at the National Library in Ankara, during the search we made, we (have not been able to) were unable to reach the newspaper in the recording with the aforementioned registration number.

The Bursa Newspaper was printed in the printing house of Emri as of four sheets in the size of 23cm x 30cm, and as of 8 pages in total. The newspaper was organized in three columns and its language was quite heavy.[2]

Not only almost every sort of article on almost every sort of subject was published in the Bursa Newspaper, but also news from Bursa and its surrounding regions were published. In addition to all that, some decisions in the province, the designated officers, transfers and promotions as well as general news were also published in the newspaper. It is understood from the headlines that the management of the newspaper had reporters in almost all districts of Bursa and in the nearby provinces.

In the Bursa Newspaper, there were also some pieces of news mentioning several diseases widespread in that period. In this article, we examined some of the diseases mentioned in the pieces of news. The pieces of news were written with Arabic letters in the Ottoman Turkish language. In this article, we translated the pieces of news into the modern Turkish language. The sections regarding the diseases

are the direct translations from the original pieces of news published in the Bursa newspaper. The first article is about the pieces of news regarding the common cold treatment. It was published in the third year in the month of Shavval with issue number 121. The article on this disease also involved pieces of advice for those who could not get rid of the common cold due to the bad weather conditions. The title of the second piece of news is "Remedy for Burns". This piece of news published in the same issue of the newspaper gives information about the treatment for burns.

Treatment for the Common Cold

The weather has not improved yet. It is obvious that so long as the weather conditions remain as such no one will ever get rid of the common cold. Moreover, we expect that the flu that will come around towards summer will be far more severe than the present one. And now if we inform our respected readers with reference to a physician named Omniyos that there is no better cure for the flu than simply drinking lemon juice. They will not find it quite unnecessary to try it next winter but to try it right away in this winter.

It is not very difficult to experience it, although we had not tried it when we wrote these lines, how nice it will be for the person who benefits from the good outcome. Should the flu be severe then it is suggested that one has to inhale the lemon juice inwards to the nostrils just to have it fill in and get back out of it, returning back to the interior of the mouth. It is mentioned that doing it 2-3 times would be sufficient for the light cold. The French newspaper having mentioned about this cure of the physician also added that drinking the juice of a half lemon before going to bed is good for the severe cold and sore-throat.[3]

Treatment for Burns

It is well known that the pain of a burn is one of the worst pains. Although several cures for burns are offered to public use, using boiled-and then-cooled milk, if easy to provide in case of need, by washing the burnt area with milk or inserting the burnt area into it, if not possible to insert, wrapping the burnt area with a cloth soaked with the milk and not removing it until it goes dry are the experienced practices of the cure.

It has been observed that the burn wound treatment with red currant jelly results in a good way, in a very short time.

The article named as "The Dogs in Rabies", which took place in the newspaper that belonged to the issue number 84 in the Muharrem month of the year 1310, contains very striking information about the dangers in social life. It is mentioned that the dogs in rabies are wandering (roaming) about in the streets and market places salivating.

In the 4th issue of the newspaper belonging to the newspaper's first year's Rebiü'l ahır month, what things to do in case a person is being bitten by a rabid animal are mentioned. As can be understood from all these, it seems highly likely to encounter rabies cases in this era.[4]

Dogs in Rabies

It is an extreme sadness to us that there are rabid dogs in Bursa and a couple of people are bitten by them and sent to the healing centers immediately for treatment.

Although it is proudly observed that the infected-ones and their relatives are deeply grateful to the Sultan thanks to his presence for having a remedy now for this sickness unlike before, it is easier and very much necessary to avoid getting the disease rather than seeking for a remedy. The day before, a dog we had seen made me feel like it was in rabies for attacking other dogs, biting them and walking off his head hanging down, bitterly salivating. Even though many people considered the dog to be in rabies, it is rather strange that there were some people who were criticizing the others that hit the dog with the shutter sticks of their shops. Since it is very important and necessary to destroy the bodies of these dogs, it is essential and a clear command that the ones who encounter them must inform the nearest security points (police stations) that are there for your security.[5]

In Case of the Bite of a Rabid Animal

The area that is bitten by a rabid animal is cut by a razor and is bled and there is no other method that could be searched for but to sear it, and cut very deeply the bitten area with an iron stick that is heated up until it got white in fire.

There is a piece of news about toothaches in the 52nd issue of the newspaper that was published in the month of Rebiü'l ahır. A kind of medicine that should be applied to the aching tooth is mentioned here. Moreover, it mentions about the way of producing the medicine and the method of applying it to the aching- tooth. [6]

Medicine for the Aching-Teeth and Decayed Teeth

Alum must be put into the cavity of the decayed teeth after turning into a very thin powder. It is a good medicine to deal with the ache caused by the decaying tooth. The powder is put in the cavity and as it melts the ache fades

slowly. If the ache starts again the procedure is applied repeatedly until the pain is totally killed. The medicine mentioned above also serves to prevent the accumulation of food leftovers in cavities that give off a bad smell causing the decay of teeth and serves to hinder the deterioration of already decayed teeth.

Alum is the best notable medicine to remove the bad smell of the teeth. The newly invented paste to fill in the decayed teeth was:

Alum Powder 5 portions

Zamg-ı Arabi Powder 5 portions

Hallî 1 portion

These various substances and some water must be put into a porcelain bowl and mixed until soft dough is formed and then the dough must be put into the cavity of the decayed teeth. [7]

Conclusion

In sum, this research study examined the pieces of news about various diseases that were published in the Bursa newspaper in the 19th century. One of these diseases is the common cold. The treatment for the common cold is mentioned and the common cold that is seen in summer is perceived as more efficient than the one that is seen in winter.

Common cold is such a widespread disease that we can see it even in the Divan literature in different periods. Nabi, a poet in the 17th century, likens the sickness of cold to a distinctive position, in a eulogy he wrote and goes on as follows;

Çend-rûze gül-i ikbal-i çemen-zar-ı fenâ

Eder elbette dimâğ- ı dile iras-ı zükkam (Nabi Kaside 12/2)[8]

(The rose of the future of mortality's lawn lives for how many days? Surely a disease, in the heart as the cold, leave it may.)

Apart from the common cold, the pieces of news about burn treatment and making of a drug for the decayed teeth are included in this article. The newspaper defines the pain of burnt wounds as unlike any other pain and also gives us a formula for a medicine to use in the treatment of the decayed teeth cases.

However, the most interesting piece of news that provides us with the information regarding the public health is the one about the rabies disease as at that time the rabid dogs were wandering around unchecked. In relation with that, in another piece of news, the newspaper mentions how rabies should be medically treated. The knowledge obtained from all of these pieces of news gives us the information about the situation regarding the health cases of Bursa in the previous centuries.

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Treatment of Oral Ulcers In Al-Adwiah al-Mufrada Manuscript By Ibn Abi-l-Salt al-Andalusi

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Summary

The manuscript of al-Adwiah al-Mufrada by Ibn Abi-l-Salt al-Andalusi who died in (A.H.529/A.D.1134) is one of the most important manuscripts in the history of Islamic medicine. This is apparently evident from its translation into other languages such as Latin language by Arnald Villnova and to Hebrew by Yahuza Ibn Natan indicates its importance of the manuscript and its wide spread in that period.

This article concerns about medicines which treat the intraoral ulcers such as aphthous stomatitis, gingivitis, gingival retraction….etc, and highlights the validity of the ancient medical uses in the light of new discoveries of the modern medicine.

Key Words: Oral ulcers, Gingivitis, Abi-l-Salt al-Andalusi, History of medicine.

Introduction

Umayya Ibn Abi-l-Salt was one of the most famous scientists in the fifth century A.H.

He was born in A.H.460/ A.D.1068 in Dania, and studied with the famous cadi Abi-l-Waleed al-Waqqashi. After his master's death, he traveled to Egypt to pursue his education in about A.H.489/ A.D.1096. He lived in Cairo and Alexandria and in the latter city, he spent a long time in prison. Once he was released from prison, he decided to return to al-Aandalus. On his trip back, he was given a warm welcome at the court of Ali b. yahya and lived at the latter's capital Mahdiyya for the rest his life dying there on the first day of Muharram in A.H.529/ A.D.1134.

Umayya composed in various sciences such as mathematics, philosophy, engineering, music, astronomy, medicine, and poetry. The book of al-Adwiah al-Mufrada is considered one of the important books that Ibn Abi-l-Salt had composed.

This book is divided into twenty chapters, some chapters concern about the individual medicines that treat general diseases, others concentrate on individual medicines that treat diseases affecting specific organs.

This article concentrates on the individual medicines that have been used treat the intra oral ulcers in ancient medicine as it has been reported in al-Adwiah al-Mufrada and investigates the new findings in the modern complementary medicine in term of the bioactive ingredients in the ancient medicine and their medicinal benefits and uses. Finally, Results are discussed and conclusion is reached.

Treatment of oral ulcers by Ibn Abi-l-Salt

Ibn Abi-l-Salt has divided the medicines which cure oral ulcers in terms of nature into two classes: medicines of hot nature and medicines of cold nature.

Medicines of hot nature:

1. **Aloe:**

- **The medical use in the manuscript**:

The author refers to the benefit of plant in treatment of gingivitis, tongue inflammation, and most of the mouth ulcers.

- **Aloe and the complementary medicine**

- **Active ingredients**:

The medicinal part of this plant is its leaves which contain monopolysaccharides, tannins, sterols, organic acids, enzymes (including cyclooxygenase), saponins, vitamins and minerals, and other polysaccharides including arabinose, galactose and xylose, in addition to cholesterol, gamolenic acid and arachidonic acid(4).

- **The medical benefits and uses**:

The leaves of Aloe have anti-bacterial, anti-viral, anti-tumor properties.

The plant leaves are used as a stomach tonic, chloretic, vermifuge, and diarrheogenic effects with high doses.

The fresh juice of aloe is used for eye inflammation and for syphilis in south Africa.

Traditionally, Aloe Vera has been used in ointments and creams to promote healing wounds, burns, eczema, psoriasis and anal fissures.

Furthermore, Aloe Vera gel has been reported to be effective in the treatment of mouth ulcers (2),(3),(4).

2. Mastic tree:

- **The medical use in the manuscript**:

The author talks about the benefit of mastication of plant to strengthen gingiva, and perfuming the mouth smell, also mouth rinsing with aqueous extract treats gingivitis.

- **Mastic and the complementary medicine:**

- **Active ingredients:**

The medicinal part is the resin, it consists of triterpenes: mastic acid, isomastic acid, oleanolic acid and tirucallol.

Its seeds contains a volatile oil consisting of alpha-pinene, beta-pinene, beta-caryophyllene, myrcene, and linalool(3).

- **The medical benefits and uses:**

Mastic was used as nervous stimulant, diuretic, astringent, so the masticating of the herb strengths gingival and perfumes the mouth smell.

Also, it stops pain when it is placed on teeth.

Resin had been used in the restorations and stopping caries(3),(5).

3. Blackberry:

- **The medical use in the manuscript:**

The blackberry leaves are useful in treatment of aphthous stomatitis and most of mouth ulcers.

- **Blackberry and the complementary medicine**:

- **Active ingredients**:

The medicinal parts are leaves, roots and berries.

They contain: tannins, pectin, salicylat methyl, lactic acid and salicylic acid (2).

- **The medical benefits and uses**:

It has been reported that Blackberry possess astringent effect. Traditionally, it has been used for diarrhea, stomatitis, tonsillitis (as a mouth wash), laryngitis, ulcers, and inflammation of the mucosa of the oral cavity.

Recently, there is a great focus on the use of blackberry leaves to stimulate and facilitate labor and to shorten its duration because it has homeostatic properties, also the plant has been used for its hypoglycemic and diuretic effects (3),(4).

4. Dar Shishaghan:

- **The medical use in the manuscript:**

The mouth rinsing with aqueous extract of the herb treats aphthous stomatitis.

- **Dar Shishaghan and the complementary medicine:**

- **Active ingredients**:

Volatile oil, tannins and vitamins(6).

- **The medical benefits and uses:**

Resent research indicates that the plant is toxic, while its flowers have diuretic properties and dirrheogenic in small doses. The plant seeds have diarrheogenic properties (6).

5. Galingal:

- **The medical use in the manuscript:**

The plant had been used in treatment of gingival ulcers and perfuming the mouth smell.

- **Galingal and the complementary medicine:**

- **Active ingredients**:

The medicinal part is the rhizomes which contains volatile oil.

The Volatile oil*:* contains about all sesquiterpene hydrocarbons and sesquiterpene alcohols, including cyperenone (3).

- **The medical benefits and uses:**

Galingal has anti-emetic, carminative, diuretic and lithotripters properties.

The plant had been used in treatment of gingival ulcers and supporting the gingiva (3,5).

6. Coriander:

• **The medical use in the manuscript**:

The mouth rinsing with aqueous extract of coriander is used in treatment of oral ulcers, tongue ulcers and perfuming the mouth smell.

• **Coriander and the complementary medicine:**

- **Active ingredients**:

The medicinal parts of the plant are leaves and fruits which contain a volatile oil called a coriander's oil.

The coriander's oil consists of Coriandrol, Geranol and other compounds (1).

- **The medical benefits and uses:**

The essential oil of coriander stimulates the secretion of gastric juices and has a carminative and spasmolytic effects; in vitro studies showed that it has antibacterial and antifungal properties.

Externally: coriander has been used for management of headache, oral and pharyngeal disorders and halitosis (3).

- **Medicines of cold nature:**

1. Plantain:

• **The medical use in the manuscript**:

The mouth rinsing with aqueous extract of the plant treats gingival retraction and stops its bleeding.

• **Plantain and the complementary medicine:**

- **Active ingredients**:

The medicinal parts of that plant are leaves and seeds.

The leaves contain vitamins: K,C, tannins, aucubine (glycoside), plantagonine (alkaloids) and mucilages.

The seeds contain saponins and aucubine (glycoside) (1).

• **The medical benefits and uses:**

Plantain is stated to possess diuretic and antihemorrhagic properties.

Traditionally, it has been used for cystitis with haematuria, and specifically for hemorrhoids with bleeding and irritation.

The seeds have been used to treat pharyngitis, nephritides, arteriosclerosis, hypercholesteremia, tuberculosis and whooping cough.

The leaves have antihemorrhagic properties and used in the form of dressing to treat wounds, leg ulcers and snake bite (1),(4).

Bur nut:

• **The medical use in the manuscript**:

The extract of the plant treats gingivitis. And the plant extract mixture with honey is useful in treatment aphthous stomatitis and gingival rottenness.

• **Bur nut and the complementary medicine:**

- **Active ingredients:**

The medicinal parts are fruits and roots, which contain fatty oils, saponins, resins, volatile oils and alkaloids (5).

The medical benefits and uses:

The fruits have astringent, diuretic and sexual tonic properties. They had been used in treatment of urinary tract infections, heart disease and acute rheumatoid arthritis.

The plant is considered to be a toxic plant, it must be given under a medical supervision (5).

2. Sumac:

• **The medical use in the manuscript**:

The plant benefits in treatment of gingival retraction and supporting it.

• **Sumac and the complementary medicine:**

- **Active ingredients:**

The medicinal parts are the fruits and the leaves.

The leaves contain tannins, flavonoids, vitamin C, carotene and volatile oil including mercine (1).

- **The medical benefits and uses:**

Tannins have astringent, antiseptic and anti-inflammatory properties.

The solution of tannins have been used as a gargle for treatment stomatitis, laryngitis, pharyngitis, and as ointments to treat burns, abrasions and fissurations (1).

Conclusion

This article has clearly shown that what was written by Ibn Abi-l-Salt about the individual medicines treating the intra oral ulcers has been interpreted the new discoveries in the modern medicine, and come into good agreements and several points could be concluded:

- The complementary medicine assured the efficacy of Aloe in treatment the mouth ulcers.
- Tannins in mastic tree strengthens gingiva as the rest of the resin secretions contribute in perfuming mouth.
- The ancient medical uses of blackberry agree with the complementary medicine about the efficacy of the plant in treatment of oral ulcers and aphthous stomatitis.
- Ibn Abi-l-Salt talked in his book about the use of cooked Dar Shishaghan to treat the aphthous stomatitis, but the recent medical information assure that the plant is toxic and it is not used with the same method that Abi-l-Salt mentioned it.

- The ancient medical uses of Galingal agree with the modern studies about the efficacy of that plant in treatment of gingival ulcers.
- The ancient medicine agree with the complementary medicine about the efficacy of coriander in treatment of gingivitis and the oral ulcers.
- Tannins which are founded in the leaves of plantain practice an astringent effect that strengthens gingiva, as vitamin K suppresses its bleeding.
- The recent medical information don't indicate to the efficacy of bur nut to treat gingivitis or aphthous stomatitis because it is toxic, and it should be used carefully.
- The ancient medical uses agree with the complementary medicine about the efficacy of sumac in supporting of gingival.

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Measures Taken Against Contagious Diseases Observed in the Province of Hudâvendigâr (1890-1910)

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Summary

The present study based on archive documents aimed to examine contagious diseases observed in the Province of Hudâvendigâr in the last periods of the Ottoman State (1890–1910). The findings related to the dates when such contagious diseases as syphilis, cholera and smallpox which became effective across the province and the areas where they broke out were presented in the introduction section of the study. The data obtained from the documents selected as examples revealed a general opinion about which disease became effective at which area and how these diseases scattered across the province.

The main part of the study was set aside for the examination of measures taken by the Ottoman Government and local administrations against contagious diseases. In the lead of these measures were health personnel, medicine, providing vaccine and appropriation, establishing provisional hospitals, quarantine practices and informing the public about the diseases. Moreover, in this study, where these mentioned measures are discussed, various measures taken at places where the public got together were explained through examples.Key Words: Oral ulcers, Gingivitis, Abi-l-Salt al-Andalusi, History of medicine.

Key Words: Contagious Diseases, Quarantine, Provisional Hospitals, Hudâvendigâr, Ottoman Period.

Introduction

From the very first periods when the life began until today, many contagious diseases have threatened human being. Lack of sufficient scientific knowledge in the field of health, negativeness of environmental conditions, irregularity observed in feeding habits, natural disasters and particularly wars have caused contagious diseases to acquire an epidemic character. In many parts of the world, when epidemics caused millions of people to become ill or lose their lives, the Ottoman geography got its share from this tragedy as well.

Not only did the Ottoman State struggle against economic and military difficulties in the 19th century, but also it was left no choice but to fight against contagious diseases. In many parts of the country, some contagious diseases such as leprosy (cüzam), smallpox, dysentery, syphilis, changeable fever (humma-i racia), cholera, rabies, malaria (humma), typhoid fever (karahumma), typhus fever, bubonic plague (taun) and tuberculosis became effective on a large scale (1). During the fighting with these diseases, the Ottoman administration was stuck in a difficult situation due to the scarcity of health personnel and financial hardship.

The geography of the Province of Hudâvendigâr had a character which opened the way to contagious diseases. In the settlement areas at the low elevations of the province, the air could not be purified due to lack of air current, but those at high elevations the hard climate made its presence felt. Again in many parts of the province, the brook waters flowed leaving various residues behind them. These residues caused bogs to form with time and threatened human health (2). In addition to these negative conditions, the insufficiency of the sewer system in the city center of Bursa and the presence of continuous humidity over the area were the fundamental reasons for the continuous presence of the diseases in the area (3).

In this study, the year 1890, when the cholera epidemic broke out in the Province of Hudâvendigâr, was accepted as the beginning year. Taking into consideration the fact that the Turco-Italian and Balkan Wars broke out from 1911 on, the study was limited to the period continuing until the end of the year 1910. Within the mentioned period, the contagious diseases observed across the province and the measures taken against these diseases were discussed and the related archive documents were examined. The plague last observed in the ottoman lands in 1844 (4) within the 19th

century broke out, though at a small scale, in Izmir and Istanbul at the beginning of the 20th century in 1900 and 1901. As a result of the measures taken, the number of the deaths from this epidemic was low (5). During the archive study, no data was found indicating that this epidemic affected the Province of Hudâvendigâr.

In the archive research, a lot of documents were encountered related particularly to syphilis, cholera and smallpox. The syphilis, which Europeans give many names such as "French Illness" (6), is named as "frengi marazı", "illet-i frengi" or "illet-i efrenciyye" (7) in the Ottoman archive documents. The disease continuing as rare cases for a period of about thirty years after the 1877–1878 Ottoman-Russian War, started to make its effect felt in 1899 (8). However, between the dates of 2nd February 1902 and 14th June 1902, it acquired an epidemic character and became effective in the district of Sogut (9), the subdistrict of Domanic and fourteen villages of the district of Inegol (10). Some of these villages were the villages of Mezîd, Tahtakopru, Guneykestane, Karacakaya, Kulaca and the village of Yenice, whose people were non-Muslim. 3500 patients with syphilis residing in the villages of the subdistrict of Domanic were treated free of charge. With effects of the treatments carried out and measures taken, the disease lost its effect and the number of patients with syphilis decreased to twenty (11).

In the lead of the places where the disease found an area to spread were the military barracks. Due to the infectious character of the disease, the soldiers' being together and in the same environment facilitated their catching the disease. This type of mentioned case was observed among the soldiers of the redif battalion in the Sincanli subdistrict of the Afyon Sanjak connected to the province in October 1902 (12). In the town of Gediz connected to the Sanjak of Kutahya, too, syphilis became effective particularly among the soldiers within August 1904 and showed a tendency toward spreading in the company centers (13).

In the year 1904, in all of the five big sanjaks connected to the Province of Hudâvendigâr, the fact that syphilis was common is understood from the reports sent by the doctors working in the area to the government. The number of the patients catching syphilis was estimated to the populations of these mentioned five sanjaks separately and it was determined that these proportions varied between 60–80% (14).

In Atranos (Orhaneli), Domanic, Inegol, Lefke and Simav districts connected to the province, the disease of syphilis broke out again between the period of 1909 December - 1910 January (2). It is understood from the archive documents that the disease developed severely in this period in Atranos (Orhaneli). To check ill soldiers routinely, the physician in charge came to the district on the first day of every month, and according to the report prepared and presented to his higher official by kolagasi; found out that 80% of ill patients had syphilis. The report reveals an extremely bad picture by stating that local people, too, were affected by the disease on a large scale. According to the report, wounds appearing particularly on patients' faces and arms and legs caused important damages on these parts of the body. Moreover, the report revealed that the disease passed from mother to baby genetically. Understanding of the fact that the disease had effect on reproduction led to a concern about the possibility that the number of patients would increase and parallel to this the number of patients would decrease (15).

The disease of cholera, like the disease of syphilis, became effective in the late 19th century and the early 20th century across the province on a large scale and especially in the 1890-1895 period turned into an epidemic. In this period, within the province, a lot of people were affected by the disease and some of them lost their lives (16). When the fact that 1537 people died from this disease in the same period (25 August 1893 - 4 April 1894) in Istanbul (17) and the Province of Hudâvendigâr was very close to Istanbul is taken into consideration, the size of the epidemic becomes apparent.

The disease of cholera broke out across the province for the first time within October of 1893 in Eskisehir and within this month 15 patients lost their lives. In the following periods, the disease having spread across the province affected the Kirmasti (Mustafakemalpasa) district of Bursa in early 1894 and resulted in 30 patients' losing their lives. In September of the same year the disease of cholera spread to Bursa city center and caused 132 people to lose their lives (18). Within November 1894, in various districts of the Province of Hudâvendigâr (19) and in 1895 in the districts of Mudanya (20) and Inegol, cases of cholera were encountered (21). In 1910, the disease of cholera breaking out in the Province of Hudâvendigâr caused 22 people to become ill and 11 people to die (22). Within the month of November of the same year, in the city center Bursa and the district of Gemlik, three people were determined to have caught the disease of cholera (23).

Another contagious disease observed very frequently in this period is smallpox. The disease appeared firstly in August 1892 in the district of Mihalic (Karacabey) and caused deaths in Baskoy connected to the district. Upon the disease's increasing its effect, physicians and vaccination of-

ficials were sent to the area (24). Moreover, in November 1894, some cases of smallpox disease were determined in the district of Gemlik and the houses where the disease was observed were taken under control (25). That the disease broke out in the district of Inegol in January, 1899 (26) and again in the district of Kirmasti (Mustafakemalpasa) in May of the same year (27) is understood from the archive documents.

In December 1909, in the district of Eskisehir and around, the disease of smallpox was observed. According to the report sent by Besim Omer, the president of Meclis-i Tibbiye-i Mülkiye and Sihhiye-i Umûmiye, to Dâhiliye Nezareti (Ministry of Domestic Affairs), the insufficiency of the financial states of the local municipalities played an important role in the breaking-out of the disease. Local municipalities had difficulties in evaluating the reports which they received and sending enough number of vaccination officials to the area (28).

Other than the diseases of syphilis, cholera and smallpox, many contagious diseases, though not as effective as these diseases, were observed in the Province of Hudâvendigâr. Typhoid fever, diphtheria (kuspalazı), malaria and influenza are only a few of these mentioned diseases.

When the year 1889 is also taken into consideration in terms of the study's being close to the beginning period, in the month of January of this year, the disease of typhoid fever was observed in some villages of the Karesi Sanjak (Balikesir and around). In the mentioned villages, we understand from the archive documents that fifty people caught this disease and the medicine and treatment expenses these patients cost about 16.000 kurush in a month (29). Moreover, in April 1908, the disease of typhoid fever broke out among prisoners in Kutahya Prison and three-four cases of death were observed (30). Again in December 1909, the disease of typhoid fever was observed in Bursa Prison and as the reason for the disease to break out was claimed that wards could not receive enough amount of air and light. From the archive documents related to this matter, it is understood that the mentioned disease of diphtheria (kuspalazı), too, was another contagious disease which became effective in the area (28).

When we put the year 1889 within the scope of evaluation again, in the month of November of this year, in and around the town of Inonu connected to the district of Sogut, the disease of malaria broke out (31). Moreover, in August of the same year, in some villages connected to the district of Kirmasti (Mustafakemalpasa), the disease of malaria was observed. The reason for the disease to appear in this area was the waters overflown from the lakes and rivers around (32).

Moreover, within January 1890, in and around the Sanjak of Bursa, some cases of influenza, though at mild level, were encountered (33).

Measures Taken to Prevent Contagious Diseases Providing Health Personnel and Appropriation

The number of health personnel serving within the Province of Hudâvendigâr was not enough (34). Furthermore, in case of the death of a health worker or his or her position's becoming vacant due to any reason, assigning someone else in his or her position was very difficult most of the time. Moreover, the breaking-out of a contagious disease or an epidemic across the province caused the matter of insufficient staff to become apparent and local administrators to be stuck in difficult situation. The first method to which the administrators of the city resorted most of the time was to demand the government to send physicians and medicine. However, in this period, in many parts of the country, various contagious diseases were observed. Despite this, the Ottoman State had a great geography and a great population.

The number of health personnel which the government had in hand was rather insufficient. The State went bankrupt financially as well and went under the control of the European states. All this negative structure led the government to give negative answers most of the time to the demands related to more health personnel which came from the Province of Hudâvendigâr or other Ottoman provinces. For this reason, in case of the breaking-out of a contagious disease in any part of the province, local administrations resorted to some provisional and practical solutions such as assigning additional duties to the existing physicians, making provisional assignments, hiring itinerant physicians. Itinerant physicians or physicians were usually selected from among the health personnel serving in the Bursa Hospital. The primary duty of these physicians was to determine the area where the severity of the disease was felt mot. After the determination of the area, patrols were held once every other fifteen days and the inhabitants of the village were treated one by one and those having caught the disease were determined and the names of these people and the severity of their illnesses were put under record. There are records available in the district of Inegol and the subdistrict of Domanic written down in this direction (35). The administrators in the province, too, made necessary planning in the direction of these records toward the prevention of this disease.

In cases when the contagious diseases of syphilis, cholera and others spread out to larger areas and turned into

an epidemic, the number of itinerant physicians fell short of meeting the needs. Furthermore, these physicians' being on duty in Bursa city hospital and at the same time interested in judicial cases, too, caused them not to perform their duties of itinerant physician properly. The Hudâvendigâr Governor's Office was aware of the impossibility of fighting against contagious diseases with provisional solutions. The governor's office called the government's attention to take more serious and permanent measures and demanded a special health committee. This committee, which was to take on the duty of itinerant physicians, was demanded additionally to have the authorization of controlling municipality workers and works of pharmacies (2). The government evaluated these types of demands according to the emergency levels of the reports coming from the area.

Related to the kinds of measures to be taken to prevent the spreading of contagious diseases, from time to time, the Istanbul government asked the physicians serving in the area to prepare some reports. In these reports sent in various periods to the government, Omer Nuri Efendi, the itinerant syphilis physician of the Province of Hudâvendigâr (35), discussed measures to be taken (36).

The Ottoman Government had some physicians specialized in their fields brought from abroad in case of contagious diseases' turning into an epidemic and affecting large geographies. During the 1877–1878 Ottoman-Russian War, about one hundred women doctors were brought from Europe and a great majority of these doctors were charged in the hospitals in Istanbul (37). Brought from Germany in 1889 Dr. Düring (38), performed important works in the struggle against such contagious diseases as syphilis, smallpox, malaria (39). However, the government's policy of having health personnel brought from abroad was criticized by some Turkish doctors. Sometimes these matters of criticism were submitted to the government as well (35).

While, on the one hand, the government provided support to the struggle made against contagious diseases, on the other hand it tried to overcome this situation at the least cost due to financial difficulties. The disease of syphilis observed earlier in the provinces of Kastamonu and Ankara was taken under control successfully. Establishment of a hospital for the disease of syphilis observed in Kastamonu in the years 1885–1886 (40) and charging a lot of health personnel aiming to prevent this disease caused the Treasury to spend a big sum of money. For this reason, the government warned the authorized people in the Province of Hudâvendigâr and asked them especially to get rid of unnecessary expenses and make a selection among the health personnel and assign only those experienced and believed to perform this work successfully (14).

According to the Idare-i Umumiye-i Tıbbiye Nizamnamesi (Regulations), it was decided that the expenses of the itinerant government doctors and health officials assigned in 1871 were met by local municipalities (41). The government sometimes preferred to make modifications in the related current laws to make the salaries of the sanitary inspectors sent from Istanbul paid by local municipalities (8). However, municipalities had no sources of income to meet this financial load.

Medicine Supply

The most important tool in struggling with contagious disease was naturally medicine. The government showed determination in the direction of fighting with contagious diseases and even distributed medicine free of charge despite the economic difficulties in which it was (35). This practice arose from the concern of the disease's turning into an epidemic. For this reason, the government tried to prevent patients from escaping treatment by making the medicine fee an excuse.

In addition to the medicine supply, the government had difficulty in supplying syringe and serum as well (28). The distribution of medicines was not only made through itinerant health personnels' visiting villages, but it was also made through distribution to villagers coming to the open market opening in the town. The government obtained medicines from the pharmacies belonging to persons in the area through agreement. The medicines taken from the Inegol Pharmacy through this kind of agreement were given to 1393 patients with syphilis living in the subdistrict of Domanic and the villages connected to this subdistrict and 598 of these patients recovered from their illness. The payment for these medicines taken to be paid later by the government to the owners of the pharmacies created difficulties most of the time. In this case, the owners of the pharmacies were left no choice but to resort to the government for their fees to be paid (35).

Establishment of Provisional Hospitals

One of the precautions taken by local administrators to prevent contagious diseases as soon as possible was the establishment of provisional hospitals. However, sometimes these constructions could not be started due to lack of appropriation or, even started, could not be finished (12).

Those catching a contagious disease in villages and districts rushed into the center of the province without waiting for itinerant health teams to come. Bursa Gureba Hospital had sufficient capacity to meet this demand. However, in case of turning of some contagious diseases such as syphilis into an epidemic, the existing building fell short of meeting the needs. For this purpose, an additional building was constructed for patients with syphilis within the body of Bursa Gureba Hospital (8). The disease's developing severely especially in the districts of Atranos (Orhaneli) and Inegol caused the additional building to grow insufficient as well. Upon this, the government decided to establish a total of fifteen provisional hospitals with each having a hundred beds in five big districts of the province to lessen the load of the hospital in Bursa. For the construction of these hospitals, an amount of twenty thousand liras was needed annually. Considering both the bad condition which the Treasury was in and the insufficiency of the appropriation allotted by the government for emergencies, local administrations asked the government for the permission to draw lotteries for twenty-five years in order to supply appropriation (14).

The establishment of provisional hospitals required high costs. Local administrations had to resort to various methods other than drawing lotteries to meet these costs as well. Bursa central municipality's asking the municipalities connected to itself to allot 5-10% of their budgets to meet the costs of the provisional hospitals (8) was only one of these solution ways. However, taking into consideration the difficult situation which the local municipalities were in, the Ottoman administration did not approve this method.

Another method which local administrations resorted to was to confiscate some or all of the taxes which the government received from the public. In the direction of the prevention of the disease of syphilis breaking out in and around Inegol, the idea of establishing a provisional hospital by Dr. Omer Nuri was continuously brought to the agenda but this idea had to be rejected due to the lack of appropriation. Moreover, the doctor's idea that this resource could be met by fees in appropriate amounts to be collected from health diplomas and various documents was not approved by the government. In the end, Omer Nuri managed to get the permission to construct this hospital in return for collecting 40 paras from each of the carts carrying chrome from Domanic to Inegol and 20 paras from each of the loaded animals (36). Also with the help of local people, a commission was set up for the establishment of a hospital with sixty beds and works were started on 17th September 1904 (14). From the patients in Inegol with serious health condition, those who could not get treatment at their homes received medical treatment in hospitals in Bursa. The expenses of these patients were met with one hundred and fifty liras obtained annually from the revenue of the Citli mineral water in Inegol. The duration in which the patients were subjected to treatment and taken under supervision in the provisional hospitals covered a period of about three years (35).

Practice of Vaccination

One of the precautions taken against contagious diseases was the practice of vaccination. With the aim of fighting against the smallpox disease, the Ottoman State tried to make this practice widespread starting from the end of the 19th century and in 1884 the vaccination against smallpox was made compulsory (42). In accordance with this purpose, with the aim of preparing smallpox vaccine, firstly a Vaccine Inspector's Office (43) and again in the same year a "Station for Vaccine Preparation" called "Telkihhane" were established in Istanbul for the first time in 1890 (44). Through this station, smallpox vaccine was sent to many parts of the country including the Province of Hudâvendigâr in various periods. The Vilâyet (Province) sent the items of vaccines which it had received to the units concerned and made them be shot.

Upon the seeing of the disease of smallpox in Mihalic (Karacabey), thirty items of vaccination were sent by the Hudâvendigâr Governor's Office in August 1892 (24). Moreover, in January 1899, 101 people were vaccinated in the district of Inegol (26), and in May 1899, 190 people were vaccinated in the district of Kirmasti (Mustafakemalpasa) and they were given vaccination documents, which functioned as today's vaccination cards (27). Within

AREAS WHERE VACCINATION WAS MADE	NUMBER OF PEOPLE VACCINATED
Bursa Atranos District	1400
Aziziye District of Karahisar Sanjak	591
Bolvadin District of Karahisar Sanjak	235
Center and Villages of Karahisar Sanjak	2025
Manyas District of Karesi Sanjak	570
Sindirgi District of Karesi Sanjak	691
Center and Villages of Kutahya Sanjak	1399
Bozuyuk Subdistrict of Sogut District	40
TOTAL	**6951**

March, April and May 1899, across the province a total of 6951 people were vaccinated against smallpox. The distribution of this number across the province is like this (45):

Due to the municipalities' not having sufficient budget, vaccination officials could not sometimes be sent to the areas where contagious diseases were observed (28). As mentioned before, the province decided to meet this matter of difficulty including improvements to be made to the salaries of sanitary inspectors through the taxes collected from the municipalities connected to the province (8).

Quarantine (Establishment of Tahaffuzhânes)

One of the most effective ways of taking contagious diseases under control before they spread is the practice of quarantine. In this practice, passengers to come in and out of the area where the disease exists via land or sea were made to wait for a while and taken under supervision according to the kind of the disease (46). The aim of this practice was to determine ill people and prevent them from entering environments where healthy people live. Cargo boats coming by sea (47) were incensed and disinfected with a tool called pulverizer (48). Moreover, at purification houses called tedbirhane existing at quarantine points, passengers' clothes and possessions were disinfected with hot steam and various disinfectants in sterilizers (tools for tebhir) (1). These kinds of practices, which are far away from today's modern quarantine practices, began in the Ottoman State in the period of Mahmut II. In this period, in 1831 in İstanbul and in 1835 in Çanakkale, first serious provisional (or precautionary) quarantines were applied (49). In 1838, too, a quarantine council was established (50). Later this council was divided into two with the names of Meclis-i Tahaffuz-u Ulâ and Sâni (51). Upon observing a few plague cases in Karahisar Sanjak of the Province of Hudâvendigâr, ill people were separated from the healthy ones and quarantined. It was decided that since work places dealing in leather-work such as debbağhane, salhâne, kirişhâne, yağhane released bad air and caused dirt, they were effective in the disease's becoming widespread. To prevent this, a "Quarantine Regulations Book" was prepared and it was decided to move these mentioned places outside the city (52).

When quarantine desired to be held narrow-scoped, cordons were established to control the area. In the district of Inegol, in 1894, cordon was established due to cholera. This practice was continued in various periods particularly across the province. For the protection and discipline of cordons, zaptieth (nationwide police force) was charged by the government. For the cordons established in the mentioned period, the government charged a total of 278 zaptieth, 212 infantries and 66 cavalrymen. In the first place, 218 of these zaptieth were charged and in later periods the remaining 60 zaptieth were charged. Moreover, to be charged in cordons in the district of Inegol and the village of Kadîmî (Akıncılar), too, 40 infantries were charged. The salaries of these zaptieth were paid regularly and also they were given costumes for one use (19).

In the event of cholera cases in neighboring provinces, the government asked the Hudâvendigâr Governor's Office to take necessary precautions at entrance-exit points of the province. To prevent a disease observed in the Province of Hudâvendigâr from spreading to other provinces, again as in Fart subdistrict of Karahisar Sanjak, health measures were taken (23).

Although the duration of quarantine was determined and practiced as 40 days at the beginning (53), it is observed that this duration tended to decrease. To prevent the cholera epidemic breaking out in the Province of Hudâvendigâr in the 1890–1895 period, quarantine was put into practice at two different points of the Bursa city center and quarantine houses (tahaffuzhâne) were established for a period of ten days (16). In some cases, this duration was limited to twenty-four hours (20).

Local people's dealing with agriculture, stock raising and trading activities created troubles in quarantine practices (21). However, cordon and quarantine practices helped to take the disease under control very much. To lessen difficulties a tiny bit, the government made decisions toward making a reduction in or exemption from taxes paid by those losing their health or income due to contagious diseases based on the report by the relevant doctor (54). As a result, although cordon and quarantine practices casued some difficulties for the public, they became very useful in taking contagious diseases under control.

While practicing the quarantine method on the one hand, the Ottoman State tried to develop a health policy toward preventing those caught a contagious disease from being completely isolated from society on the other hand. In the Province of Hudâvendigâr and many parts of the country, for patients with leprosy, living quarters known as "miskinler tekkesi, miskinler zaviyesi, miskinler dergâhı, mesken-i miskin, miskinhane" were established outside the city (55).

Informing the Public

The people of the Province of Hudâvendigâr did not take diseases such as syphilis seriously as if it had been a

common cold and even did not need to resort to a doctor. However, those accepting the treatment were inclined to continue their works in their orchards while receiving the treatment (35). Furthermore, majority of the public evaluated taking measures against contagious diseases as rising against Allah and rejected it and took no measures (56). In his memoirs, Dr. Şerafettin Mağmumi, who worked as an itinerant doctor in the region, mentions that Bursa villagers did not sometimes inform authorities about deaths from syphilis and keep them secret (57).

Moreover, informing and warning the public about contagious diseases was again the responsibility of health personnel serving in the area. For this purpose, Nuri Omer, the Itinerant Syphilis Physician of the Province of Hudâvendigâr, wrote a book on symptoms of syphilis and how to protect against the disease in 1906 (58). The government, too, gave permission for the printing and publication of the book entitled "Frengi Risalesi" (59).

Physician Nuri Omer also made an effort to make his book entitled "Frengi Risalesi" be included in the curriculum and taught at schools. The Ministry of National Education (Maarif Nezareti) accepted that teaching of the book would be beneficial for students. However, the Ministry decided not to teach this course because of the lesson loads of the teachers serving at schools. Moreover, the idea of assigning a separate teacher was not accepted due to lack of appropriation. Furthermore, the government used a guiding statement that this book could be found and read by students at bookstores easily when desired (60).

Village imams and notables of villages were also given necessary information about contagious diseases. The public was informed through the press as well. Necessary information about the diseases of syphilis and cholera was published as a series of articles in Hudâvendigâr newspaper on different dates. In these articles were mentioned about the infection reasons of the mentioned diseases, treatment ways and ways of protection against these diseases in a simple language that the public could understand easily (35, 61). In Bursa newspaper, "Sihhiye Ta'lîmâtnâmesi" (Sanitary Regulations) were published and the public was warned against the danger of cholera (62).

Arrangement of Gathering Places Causing the Disease to Spread

Army headquarters, municipal police divisions, prisons and the like places where people come together and areas such as brothel, barber's used collectively by the public are each important factors in spreading of contagious diseases. Since the government was aware of this situation, it felt the need to take various measures in related areas. In the lead of the places where these measures were taken were army headquarters.

The possibility that contagious diseases observed in army headquarters could turn into an epidemic led the local administrations get worried. When the fact that the army could find it difficult to meet its need for healthy soldiers was taken into consideration (15), this worry got bigger. For this reason, ill soldiers were kept separately from divisions and health inspections in headquarters were increased. The similar situation existing in headquarters was true for municipal police divisions as well. Physicians serving in the area communicated their idea that the presence of municipal police in division centers was dangerous to the government. The government made a decision toward municipal police's continuing to stay in their divisions by putting forward the fact that the evacuation of the municipal police would take some time (13). Another danger was the soldiers doing their military service outside the province and returning after discharging. For most of these soldiers brought contagious diseases with them (63). Moreover, local administrations did not have enough power to make these discharged soldiers subjected to health examination as necessary.

Upon the break-out of typhoid fever in Kutahya Prison, as in municipal police divisions, moving of the prison to another building came on the agenda. Kutahya Command Office announced an idea in the direction of turning a ruined building which was not in use into a prison and using it temporarily. Although the Second Army Humâyûn Command Office did not like this idea, it let the moving of the prison temporarily because of not being able to find another appropriate building and with the concern of the disease's becoming spread to the city center (30).

Investigating into the factors causing syphilis to spread to large areas, the health personnel working in the area reached an interesting finding. It appeared that the men of three-four villages connected to Inegol had had a shave and a haircut at the same barbers'. Furthermore, when the conditions of the period are considered, that necessary attention was not paid to the cleanliness of straight razors appears as a great possibility. Hence this situation appears as one of the most important reasons causing the disease to spread quickly. The patients resorting to the Inegol Hospital from neighboring villages due to the illness, too, provided information supporting this situation. The Istanbul administration, with the order it sent to local offices, required necessary health precautions to be taken properly at

barbers' and coffee houses and the decisions made by Physician Omer Nuri to be obeyed (35).

With the aim of struggling against contagious diseases effectively and helping local administrations, the Ottoman administration arranged and issued nizamnâmes in some periods. These nizamnâmes are important in terms of indicating the Ottoman administration's general health policy. Similarly, nizamnâmes were arranged for the Province of Hudâvendigâr, too, and when necessary, they were sent to the province (2).

The Ottoman government and local administrations resorted to many other measures other than these mentioned ones to prevent contagious diseases and stop them from turning into an epidemic. The measures taken by the municipalities covered the protective health measures (64). Cleaning of dump areas, taking sewer waters under control, inspection of fruit-vegetable selling in the markets, etc are some of these protective measures (16). Especially taking drinking waters under control was a matter which was paid attention to. Moreover, the recommendation to drink spring waters during the cholera epidemic breaking out in Istanbul in the years of 1893-1894 was a result of this sensitivity (65). The corpses' being burnt with lime and destroyed to prevent the disease from infecting people and becoming prevalent is another practice, too. However, the corpses' being subjected to such a practice without being washed and performing the funeral prayer caused reactions especially among the local people (66).

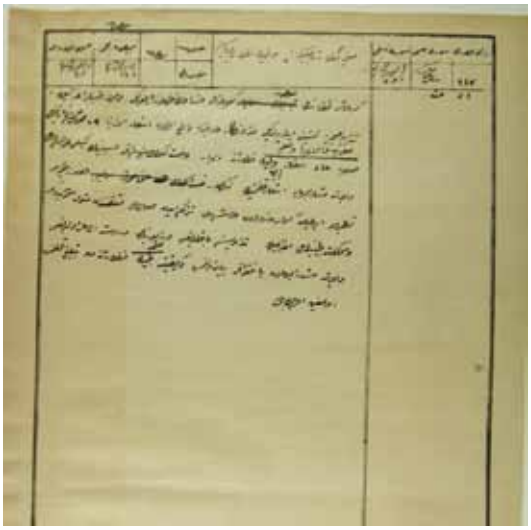
Conclusion

According to the findings obtained in this study, a lot of contagious diseases broke out in the 1890–1910 period in the Hudâvendigâr Province and some of these diseases turned into an epidemic in some periods. Not only did the number of patients increase due to contagious diseases across the province, but also cases of death, though not many, were observed. The Ottoman Government, for this reason, was left no choice but to resort to various measures at each time. However, due to such negative situations as the taken measures' being superficial, not investigating into real reasons causing the disease to break out and the local people's being uneducated and at the same time too poor to buy medicine caused the disease to reappear.

The Ottoman administration made great effort to treat contagious diseases and prevent them from turning to an epidemic despite financial straits, lack of personnel and health personnel. These works carried out with scarce resources became successful and contagious diseases could be taken under control before they turned into very big epidemics and caused human losses. This situation can be regarded as a success of the Ottoman administration. On the other hand, the government and local administrations' not having a general action plan in the field of health and acting according to situation can be evaluated as a weakness of the administration's.

BOA., YPRK.UM., 68/62, 26 Za 1321
Prevention of Syphilis in the Province of Hudâvendigâr

BOA, BEO., 3291/ 246759, 9 Ra 1326
Appearance of Typhoid Fever in Kutahya Prison



BOA., DH.MKT., 1647/5, 14 Z 1306
Appearance of Malaria in the District of Kirmasti

BOA., BEO., 601/45059, 19 Za 1312
The petition given by Ahmet Hamdi and his three friends stating that they had lost money due to cholera.

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Bursa in The History of Turkish Hot Springs And Some Samples (With the Ottoman Archive Documents)

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Summary

Bursa is a famous city from the point of its hot springs and baths. We see these characteristics of Bursa in some Ottoman Archives. Turkish water architecture had begun to develop with the Seljukians. Function of the Moslem Religion, for developing of the baths, was absolutely important, because cleanliness was one of its necessities. The buildings had been done as paralel to this, because the Moslem Religion had determinated the style of washing. Turks had arranged a characteristic of inner architecture according to their social rules and customs.

Key Words: Bursa hot springs, baths, traditional medicine.

1. Introduction

Bursa is an old city of Turkey and it is famous with many hot springs and baths. In this paper, we will stress some Bursa Hot Springs.

In some documents, we see some proposals for the foundation of hydrotherapy center in Istanbul. According to a document with the date of 1851, **Dr. Pavlaki** proposed the foundation of such a center. Medical School accepted this proposal. But, Meclis – i Vâlâ (Assembly) didn't accept this condition because Dr. Pavlaki wanted patent of 25 years for this center.

In Turkey, the first modern hydrotherapy was applied by **Prof. Dr. Nihad Reşat Belger (1881 – 1961)** revised Yalova Hot Springs and established the Department of Hydroclimatology in Istanbul in Turkey. Moreover, he diagnosed cirrhosis, **Atatürk**'s disease, founder of Turkish Republic and treated him up to 1938, the date of **Atatürk**'s death [1].

Prof. Dr. Nihad Reşat Belger was born in Istanbul in 1881 and graduated as captain from Military Medical School. He went to Paris and participated in some lectures. He studied on the branches of neurology, gastroenterology up to 1909. Moreover, **Belger** studied internal diseases in the department of **Marcel Labbe** up to 1910. **Belger**, who worked in radiology laboratuary as assistant in 1914 – 1915, studied on infectious diseases and participated in International Congress of Red – Crescent in Washington. **Prof. Dr. Nihad Reşat Belger** who passed to Paris in 1931, established the Department of Endoscopie Rectosigmoidiennen.

He was charged in by **Atatürk**, founder of Turkish Republic, as the director of **Yalova Hot Springs** in 1936 [2].

When **Atatürk** came to **Yalova Hot Springs**, **Belger** diagnosed **Atatürk**'s disease as cirrhosis for the first time.

Moreover, **Belger** developed **Thermal Hotel** in Yalova and established the **Unit of Physical Therapy** there. Afterwards, he established the **Department of Hydroclimatology** by **Atatürk**'s testament and directives in 14.2.1939 [3].

We can see that its plan type is continuation of the Romans [4-9]. Afterwards, new combinations were added to the baths.

There are three different Turkish Baths according to their functional target:

1. **Social Baths (People Bath, Bazaar Bath)**
2. **Private Baths**
3. **Hotsprings.**

Social Baths are buildings which can provide the washing need of every person.

Private Baths were personal baths which were used by the state managers or by the rich people.

Turkish Bath is used as **"Kaplıca"** in Turkish. A Turkish traveller **Evliya Chelebi** writes that name of the kaplıca is **"Kermabe"** in Persian language, **"Kaynarca"** in Greek, **"Ilıssi**" in the Tatar dialect and **"Keremse"** in Mongolian.

Social Baths and Hot Springs can be defined as follows [10,11]:

Social Baths and **Hot Springs** are social washing buildings constructed in the much used part of the city. These buildings were established by the state or a lot of philantropists.

Social Baths are formed by following parts:

a) **Apodyterium - Dressing Room (Soyunmalık in Turkish)**
b) **Tepidarium (Frigidarium) - Warm Room (Soğukluk in Turkish)**
c) **Caldarium - Hot Room (Sıcaklık in Turkish)**

Apodyterium (**Soyunmalık** in Turkish) is the first room after the entrance. It is dressing room used by visitors and is covered with one or two domes. There is a fountaine with a pool in the middle of the room.

Figidarium or **Tepidarium** (**Soğukluk** in Turkish), is a room with warm temperature. There are marble consoles in the edge of the walls [12].

Temperature is about 20 – 30 ˚C. Room is generally covered with one dome.

Caldarium (**Sıcaklık** in Turkish) is hot room of the bath. It has general and private bath parts. Name of the private rooms are **"Halvet"**. These private rooms can be in different forms. **Marble Platform** (**göbektaşı** in Turkish) is in the middle of this room. It is covered with one large dome. Temperature is about 30 – 40 ˚C [13].

Turkish term of hypocaust is **"Külhan"**. Burner of külhan is adjoining to caldarium. A fire which is burning here is heating the water boiler. Flames and hot atmosphere is circulating under the floor, and the function is finishing in this way. The smoke is vanishing from the chimney.

Situation in Hot Springs is different. The temperature of thermal water is 70 – 80˚C and is enough for heating for all of the parts in caldarium. The hot water cannot be used in this temperature, so it is mixing with the cold.

Bursa has been famous for its baths since antiquity. In his letter to the **Emperor Traianus, the Roman Governor Plinius the Younger** mentions the restoration of an old **Bursa Bath** as an important event. Under Byzantine rule, the **Pythia (Çekirge)** hot springs began to achieve fame. ("Pythia" was the name given in the Pagan age, to the Apollon oracle at **Delphoi**-the woman who foretold the future seated among the sulfurous steams rising from under ground; and suggests the existence of a similar, very ancient, cult here). Justinianos is believed to have built a palace and a big public bath at Çekirge; it was a favorite resort of the Byzantines who came here from Istanbul for seeking [14,15].

Under **Ottoman** rule, the baths and hot springs in Bursa multiplied rapidly (three thousand baths and hotsprings of various sizes are said to have existed at one time). A famous Turkish Physician **Bursalı Ali Münshi (? – 1747)** mentioned Bursa hot springs in his book, called **Bidaatü'l Mübtedî.** Moreover, **Joseph von Hammer (1774 – 1856)** who was a famous Ottoman historian and a famous physician pointed out these hotsprings. **Dr. Charles Ambroise Bernard (1808 – 1844)**, gave some information about Bursa Hot Springs in his book, called **Kaplıca Risalesi (Hotspring Pamphlet)**. Today, numerous baths are still in use all around the city, while hot springs, thermal spas, and the healing waters are primarily concentrated at Çekirge and Bademlibahçe, around Yeni Kaplıca (**the New Hotspring**). At Çekirge, the water is largely under the administration of the **General Directorate of Foundations**, and is distributed from the main reservoirs, whereas around **Yeni Kaplıca** it springs within or near, the buildings [16,17].

The use of the spring waters was brought under a central organization in 1928, with the establishment of the firm "**Bursa Kaplıcaları T.A.Ş.**" (in 1933, the shareholders of the firm included the **Turkish Business Bank, the Turkish Bank of Agriculture, the General Directorate of Foundations, Bursa Province Administration, Bursa Municipality**, with the directives of **Atatürk**) [18].

Thermal water, takes its place in the classification, as the hypothermal water, including a lot of elements, which has a temperature between 70 – 90°C; with radioactivity, with a good taste, clear colour, and sulphur – smelling – odour. The thermal water has a very rich chemical structure, and treating capacity for a lot of diseases, fatness, and breathing problems, depending on the body failure [19,20].

Some knowledge are present on this topic in the Otoman Archives. A document with the date of 1850 mentions that Sıdıka Hatun couldn't pay the rent of baths and hot springs of Rustem Pasha. This condition should be written to the Ministry of Estates Mortmain [21]. According to an Ottoman Document with the date of 1886, Konstantin Bey who became the manager of medical school wanted to use a hot spring in Bursa and so, he was also treated in this hot spring with the permission of Bursa Governor [22]. Moreover, to a document with the date of 1906, a manager of Niğde province, Salih Sulhi Efendi was treated in Bursa Hot Springs [23].

Some physicians could be appointed to Bursa Hot Springs for the patients' therapies. An Ottoman Document with the date of 1857 is about hot springs physicians' salaries [24]. Moreover, a document with the date of 1869 is on Bursa mineral waters [25].

2. Bursa Hot Springs and Baths

2. 1. The Hot Springs Around Kükürtlü

2.1.1. Çekirge Hot Springs

There are many private or public hot springs at Çekirge, as well as several hotels with baths or thermal pools. This feature has helped Çekirge become an important touristic center in Bursa. Eski Hotspring, Küplüce, Keçeli and Hüsnü Güzel are the principal hotsprings.

Composed of calcium, magnesium sulfate and bicarbonate, the water temperature of the Çekirge springs ranges from 39 to 58˚C with a pH of 7.2 to 6.6 and total mineral content of 1,164 mg/lt. These hot springs are good for rheumatic diseases, hepatic and gall bladder diseases, metabolic disorders, gynecological diseases and post-operative problems [26,27].

2.1.2. Eski Kaplıca – The Old Hot Spring

Eski Kaplıca is the oldest Ottoman bath in Bursa, and the largest and most important of the **Çekirge Hotsprings**. This large bath, which had been used during the Roman and Byzantine periods and repaired under Justinianos is believed to have been situated somewhere near **Eski Kaplıca** and the Byzantine capitals used in the building could well be relics of the ancient bath.

It was built as Foundation Property under **Sultan Murat I (1362-1399)**, presumably by a Byzantine master; in 1511, **Sultan Bayezit II (1481-1512)** had repaired it and added to another section. It has two large domes beneath one of which there is a large pool within a space encircled by eight columns with Byzantine capitals; an inscription over the lion's head from which the water flows tells us that it was repaired a second time in 1607. The addition to the building, Armutlu (meaning "peared") derives its name from the shape of its pool [28,29].

2.2. The Hot Springs Around Kükürtlü

There is a second concentration of hot springs, in the area between Çekirge and the city. Here one comes across famous old hot spring such as Kükürtlü Hot Spring, Yeni Kaplıca (The New Hotspring), Karamustafa Hotspring, and Kaynarca, and the best known thermal hotel in Bursa, Çelik Palas (the older section of which was built in 1933 by the Italian architect G. Mongeri, and which receives its water from Çekirge), as well as the ruins of a number of ancient baths [30].

2.2.1. Kükürtlü Hot Spring

This consists of two separate baths, for men and women, built just above a spring of hot water. The older, men's section was built before 1389 by **Sultan Murat I (1362-1399)**, as a "charity", while the women's section is surrounded by wooden buildings constructed in the fifteenth century, under **Sultan Bayezit II (1481-1512)**, as a spa building. Recently restored and placed under the administration of Uludağ University, Kükürtlü Hotsprings structure is a magnificent complex with its intricate and lively appearance and its organic form rising from the skillfull blend of wooden and stone buildings. It has been famous ever since the time of Evliya Chelebi, for the healing quality of its water in diseases of the skin [31,32].

History of Kükürtlü Hot Springs is divided into 4 periods:

1. **The Period of Sultan Murad I (1362 – 1399):**

It was constructed for the use of people. Tepidarium (Soğukluk) was very big and bath was small.

2. **The Period of Sultan Bayezid II (1481 – 1512):**

At that period, display window of this hotspring was constructed at the beginnings of the sixteenth century.

3. **Period of the Nineteenth Century:**

Hotel rooms were added to the building and it was used by Odman Family up to 1978.

4. **Period of Uludag University:**

Kükürtlü Hot Spring was given to **Department of Physical Medicine and Rehabilitation** from **Odman Family** in 1981. Its restoration began at that time. So, baths and hotel were reconstructed. Kükürtlü Hotspring became a healthy center under the administration of Uludag University. Today, its name is **Uludag University, Atatürk Rehabilitation Center, Kükürtlü Hotsprings**. It is the first and single hot spring center of Turkey [33-35].

In this hotspring, apodyterium (Soyunmalık) and caldarium (Sıcaklık) parts are big. A pool was added to the building in the University Period. Moreover, it has three small pools and baths from the Period of **Sultan Murat I (Fig.1)**.

Fig.1 Small Pool of Kukurtlu Hot Springs

Today, **Kükürtlü Hot Spring** has a clinic and in this clinic, the units of emergency, laboratuary, rontgen, physical therapy and rehabilitation are present and many specialist physician serve here.

Temperature of **Kükürtlü Water** is 74.5˚C. Its sulphure amount is 1 mg/l. Moreover, it has calcium, magnesium, sulphates, sodium, free carbon dioxide, potassium and etc.

Kükürtlü Hot Spring is useful for the therapies of some diseases such as romatoid arthritis, neck-aches, fibromyelgia, osteoporosis, osteoarthritis, psoriasis, diabetic arthropathy, rheumatism, hemiplegia, parkinson, various orthopaedic disturbances, urinary diseases, hypertension, respiratory diseases [36,37].

Today, in this hot spring, the number of patients is about 100 – 150 as daily.

2.2.2. Yeni Kaplıca –The New Hot Spring

One of the most interesting and important baths in Bursa, **Yeni Kaplıca** was built on the orders of **Rüstem Pasha**, a vizier of **Sultan Süleyman the Magnificent**. Some of its building

elements such as mosaics, tiles, and marble basins were brought over from the Timurtaş Bath. The tile inscription over one of the doors bears the date 1552. Some have claimed that the building was designed by Sinan the Architect, but they have never been able to prove it [38,39].

In 1558 the hot spring had been rented for 40.000 dirhems, by **Kubad Bey,** son of **Abdülmenap,** representative of **Rüstem Pasha** in Bursa. A document with the date of 1769 mentions that Yeni Hot Spring should be rented with mulberry gardens [40].

The New Hot spring was used only by men till 1621. At the same year, permission had been taken, by the **Sultan,** for being used by women only in Monday. This application has continued till today.

Kaynarca Bath was restorated in 1680. It was constructed by the main architect **Mustafa Agha,** son of Mehmet, who died in **Alacamescit Quarter** at Langa in İstanbul.

The building has a large tepidarium covered with two domes, and a very impressive hot bath with a large pool over which a dome rises from the tile-covered walls and arches. For four centuries, old **"New" Hot Spring** has constituted a distinct and original example of fourteenth century Ottoman architecture with its skillfully arranged structures and spaces, as well its interesting tiles and mosaics.

The **New Hot Spring** is Ottoman Bath of Classical Period covered by three large and seven small domes. Construction material is stone and brick. It is a typical building of Turkish hotspring or Turkish bath architecture. It has apodyterium, tepidarium and caldarium parts, as in other Turkish baths.

The low entrance leads to caldarium. On either side of connecting passage are two halvets. Name of the first halvet is "Green halvet", because of the tiles which are all in turquoise colour. Height of the consoles in this halvet is 0.50 cm and there are three marble basins upon the consoles.

The water in the second is so hot that people have given it the name "which causes the donkey sweat". Temperature of the air of this room is more than 40˚C. There is one small pool in the niche which have been open on the wall. The water is coming without a cooling down. There is a console, in the height of 50 cm. The two halvets are covered with dome and in the top, by the glass windows a natural light is coming inside.

The diameter of the basin is 8 m. The inner plan of the caldarium is showing octagonal plan and formed by six halvets and two inner halvets or room for massaging.

The diameter of the dome is 11 meter. The furniture of the caldarium is white, red and blue colours of marble and stone. There are various geometrical motives done by red stones. The halvets or arched recesses are equiped with marble basin and are opening with arches to the basin side. In the far wall opposite the entrance, marble spout is created in the shape of a lion's head. The natural light is coming down by the glass windows which are on the top.

The bath which has a capacity of 200 people, also serves as a hotel. In this section, there are 103 baths for men and

25 for families, and also a special bath section for tourists, a salon for massage and sports is also present.

The special bathrooms for 2 persons consist of dressing room and the bathroom with wash basin-fountain. The special bathrooms consist of 3 cabins which include changing room and the bathrooms with wash basin-fountains. The section for tourists serves to couples and groups of 12 persons. Man section consists of bathing section which includes a swimming pool and 40 fountains, and the "Üşük Terleten" section in which the walls are decorated with ancient porcelains.

2.2.3. Karamustafa Hot Spring

Situated right next to **Yeni Kaplıca**, this is an interesting bath house with its wooden panelled facade. Its single domed main space contains a marble fountain and an elongated pool. It is believed that, originally a Byzantine structure, the building was known as Akçe Bath for a time under the Ottomans, and was later restored by **Sultan Bayezit II**'s son-in-law **Kara Mustafa Pasha** in 1490 (Fig.2). The building has undergoned various alterations and a number of additions have been made to it, as a result of which it has largely lost its original form [41].

Fig.2 Karamustafa Hot Spring in Bursa

Karamustafa hotspring is a simple building. Apodyterium is from wooden and in this part, seven lodges are present. A pool is found in its center. Caldarium is rectangle and two parts are present here. In the middle of the first part, a pool and two marble basin for the patients' therapy are present. A short corridor passes to the second part (Fig .3).

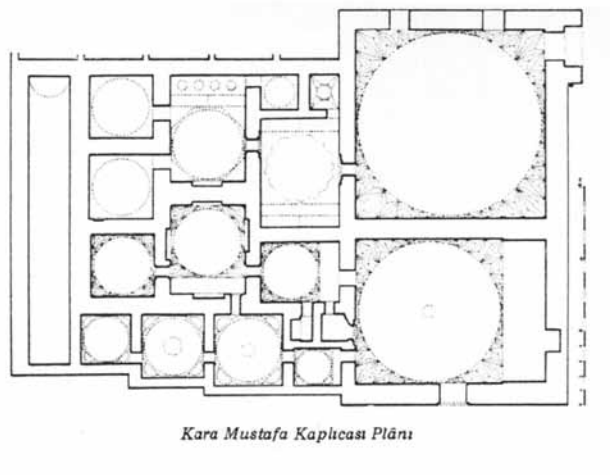


Fig.3 Karamustafa Hot Spring Plan

Here, we see a small pool with lion mouth. In this pool, at night, a phosphorisation is seen and so it is called as "water with silver". Moreover, in this hot spring, some patients are treated with mud baths (Fig.4).

Fig.4 Small Pool in Hot Room in Karamustafa Hot Spring

Bath of hot spring is used by men. Women generally use special bathrooms. In the rooms, a small bathtub, a marble basin and a bed are present. This hot spring has a hotel with 60 rooms.

Many patients who have report from some hospitals of Turkey use this hotspring for the treatment. Karamustafa Hot Spring has a high radioactivity and is in the thermomineral waters group. According to the last analysis, its water contains sodium, potassium, calcium,

magnesium, chlorine, fluoride, sulphate, nitrate and bicarbonate and the temperature is approximately 53.4˚C [42].

Patients come to this hot spring for the treatment of some diseases such as rheumatism, dysmenorrhea, some gynecologic disturbances, urinary diseases, cystitis, gout, prostatitis, skin diseases, joint diseases. Moreover, orthopaedic patients in rehabilitation visit the hotspring.

Especially, Karamustafa water is useful for rheumatism therapy because it is hot and has radioactivity. Radioactive water has analgesic effect because of radon. Calcium has positive effect in the therapy of bones, joints and muscles. Bicarbonate also increases liver metabolism. Moreover, the patients with gynecological and urinary disturbances drink Karamustafa water.

It consists of two sections; first section is for the men, and another is for families. The men section which is also used as a hotel has a capacity of 40 persons, whereas the family section is made up of 26 boxes including the dressing room and bathroom. The enterprise serves as a resting, amusement center with its hotel with 25 rooms.

2.2.4. Kaynarca Bath

This bath is reserved for women only because of its small size. Its single dome is covered with bricks. Its founder is unknown, but it is believed to have been built in late seventeeth century. It is a simple structure, with a pool carved in rock in its two-sectioned thermal bath.

Kaynarca, only serves to women. The dressing section which is decorated with wooden benches serves to 150 persons at the same time. It has a salon for aerobic, totally 8 rooms, a swimming pool and 20 fountained bathing section, a hotel with 60 rooms [43].

Moreover, two hot springs were present at **Kepekler Farm** in Bandırma near Bursa. According to a document with the date of 1894, water of these hot springs contained potassium carbonate, sodium fluoride, aluminium, lithium, acid borique, etc. Moreover, this water's mud was therapeutic. Mud had aluminium, magnesium, sodium, potassium, acid borique, etc. According to Dr.Captain İsmail Bey from Medical School, this hot spring cured rhemautism, eczema, anemia, some skin diseases, and gout. Water's temperature was 64 C.This hot spring is also used today [44].

Fig.5 A View from Oylat Hot Spring

2.3. Oylat Hot Spring

This hot spring is in Inegol district of Bursa (Fig.5).

To a legend, Daughter of Byzantine Emperor fell into bed. Relentless disease took so long. Physicians couldn't treat the girl. So, she was brought to Oylat Forest and they said: die (Öl in Turkish) and lay down (yat in Turkish).

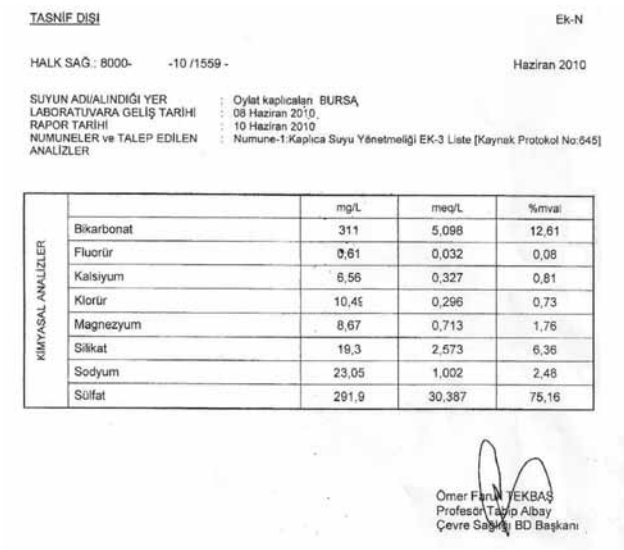
Fig.6 A Legend about Oylat Hot Spring

Namely, if these Turkish words are combined, it means Oylat in Turkish. This girl was washed with hot water here and healed. She returned to her father's palace (Fig.6).

So, today, this hot spring treats some diseases. Oylat Hot Spring is used by the people as a healing hot spring

and is recognized as a source of healing. Today, this spa is managed by a company (Oylat Company).

Here, the water is very warm; the steam bath is heated to 40 C. According to this hot spring's reports and the information of Fahri Eken, Manager, the water contains calcium, sodium, magnesium, potassium, iron and aluminium and sulphate, hydrocarbonate, chlorine, nitrate, hydrophosphate, hydroarsenate, metasilicate and free carbon dioxide (Fig.7).



TASNİF DIŞI Ek-N

HALK SAĞ.: 8000- -10 /1559 - Haziran 2010

SUYUN ADI/ALINDIĞI YER : Oylat kaplıcaları BURSA
LABORATUVARA GELİŞ TARİHİ : 08 Haziran 2010
RAPOR TARİHİ : 10 Haziran 2010
NUMUNELER ve TALEP EDİLEN ANALİZLER : Numune-1:Kaplıca Suyu Yönetmeliği EK-3 Liste [Kaynak Protokol No:645]

KİMYASAL ANALİZLER		mg/L	meq/L	%mval
	Bikarbonat	311	5,098	12,61
	Fluorür	0,61	0,032	0,08
	Kalsiyum	6,56	0,327	0,81
	Klorür	10,45	0,296	0,73
	Magnezyum	8,67	0,713	1,76
	Silikat	19,3	2,573	6,36
	Sodyum	23,05	1,002	2,48
	Sülfat	291,9	30,387	75,16

Ömer Faruk YEKBAŞ
Profesör Tabip Albay
Çevre Sağlığı BD Başkanı

Fig.7 Analysis Report of Oylat Hot Springs

There are a couple of hotel and motel near the center [45,46] (Fig.8).

Fig.8 Hotel of Oylat Spring

This spa is used for some diseases. We can give their names: the inflammation of nerves, sciatica, paralysis, the deformation of broken bones, the tiredness of mind, rheumatismal diseaes, gynaecological diseases, stomach disorders, kidney diseases, skin diseaes, low and high blood pressure disorders.

Hot spring water can be used for both bathing and drinking. Drinking prevents the formation of kidney diseases (Fig.9, 10).

Fig.9 Bath of Oylat Hot Spring

Fig.10 Waterfall of Oylat

Radioactivity of Oylat Water is 10 (Fig.11).

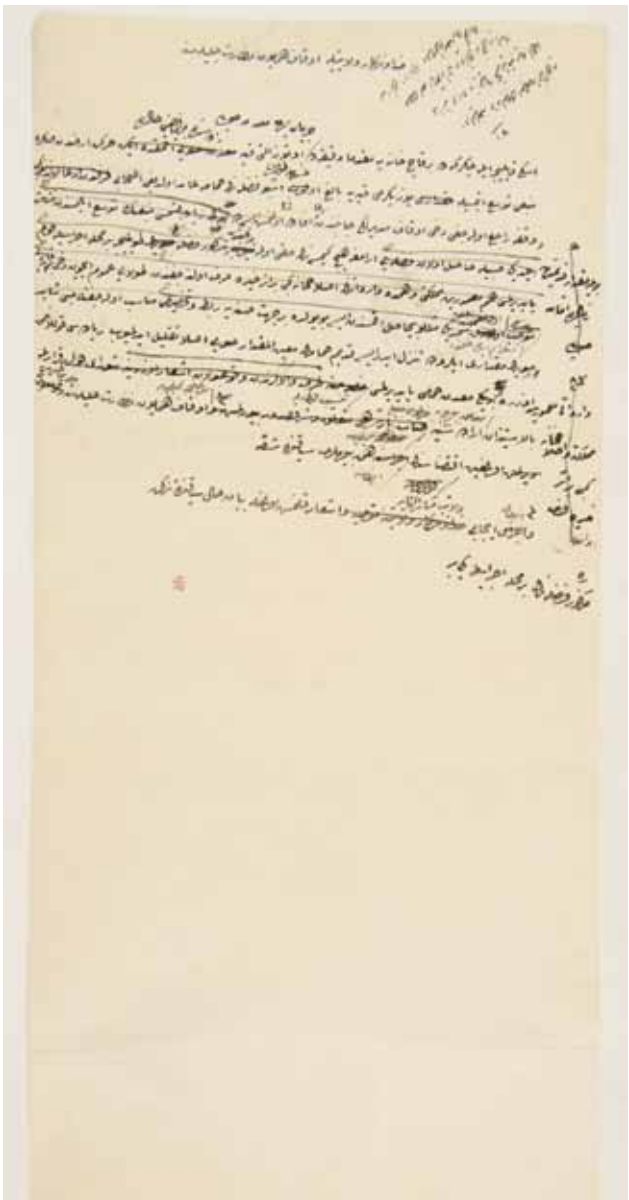


Fig.11 A Document about Turkish Hot Springs from Ottoman Archives

3. Conclusion

Bursa baths and hot springs have been used for various diseases' therapies from the past to today. Their contructions are very original from the point of architecture. These conditions are also written in the Ottoman archives' documents.

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The Concept Of Cancer in Unani Medicine-With Special Reference To Cervical Cancer

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Summary

Cancer is considered to be a type of saudavi swelling in Unani medicine. In Unani literature, it is mostly described under the term 'sartān' which means 'a crab'. It is so named because the lesion has the appearance of a crab, as the vessels leading to it are prominent and filled with dark-coloured blood; and also because it adheres firmly to the underlying tissues like a crab. Carcinoma of the cervix was not differentiated as a separate disease by most of the Unani scholars, and it is discussed under the heading of sartān e rehm (carcinoma of the uterus), therefore, most of the features of the diseases tend to overlap. However, some of the eminent Unani scholars differentiated between the cancers of the upper and lower parts of the uterus.Key Words: Bursa hot springs, baths, traditional medicine.

Key Words: Sartān e rehm, Saudavi, Uterus, Cervical Cancer.

INTRODUCTION

The history of the Greco-Arab and Islamic medicine is divided into two phases: Greek-to-Arab phase and Arab-Muslim phase. The first phase started in the eighth century A.D when the Muslim empire ruled about two-thirds of the world. This magnificent spread allowed them to get and translate Greek scientific and philosophical manuscripts as well as Indian and Persian scripts into Arabic language. During the second phase, by 850 AD, most of the philosophical and scientific works of Aristotle; much of Plato and the Pythagorean School; and the major works of Greek astronomy, mathematics and medicine and the works of Hippocrates and Galen, were all rendered into Arabic. For the next 700 years, Arabic became the most important scientific language of the world and the repository of much of the wisdom and the sciences of antiquity. During this golden age of the Arab-Islamic civilization, numerous scientific and medical innovations were introduced: The discovering of the immune system, the introduction of microbiological science, the introduction of scientific methods to medicine, including animal tests, clinical trials, quantification and separation of medicine from pharmacological science[1].

THE CONCEPT OF CANCERS IN UNANI MEDICINE

In the same period, many of the Unani physicians studied about various types of cancers and their preventive and therapeutic measures. For instance, Ibn Sina (980-1037 AD), known in the west as Avicenna, was the most influential of all Unani philosopher-scientists, suggested, "*As to preventing its (cancer) progress, it can be achieved by … improving the diet and reinforcing the involved organ by the known effective medications.…*" [1].

According to Ibn Sina (980-1030 AD), cancer is a fast-growing and painful *saudavi* swelling. It is mostly seen in autumn season. The base of the swelling, although firmly adherent to the underlying tissues, does not cause sensory loss until it is much advanced. At later stages, it causes loss of vitality of the tissues followed by death of the organ[2]. According to Ali Ibn Abbas Majusi (930-994 AD), if the cancer arises from the *saudavi* matter which is already present in the organ, then it becomes hard and has a typical crab-like appearance. However, if it is formed from combustion of *safra*, then it becomes the ulcerating type. The latter has thick and everted margins and a cheesy material of greenish or reddish colour is present at the centre[3].

Abu Bakr Mohammed Bin Zakariya Razi (865-925 AD) states in his book '*Kitab Al-Mansoori*' that the progress of cancerous lesions may possibly be halted in the early stages. If, however, it advances, then it proves fatal. If an attempt is made to extirpate it, it may not be completely destroyed. But in some cases, it may be possible to expel the lesion completely; in that case Razi has advised to excise the lesion completely and then cauterize the underlying tissues[4].

Cancer is considered to be a type of *saudavi* swelling in Unani medicine. In Unani literature, it is mostly described under the term '*sartān*' which means 'a crab'. It is so named because the lesion has the appearance of a crab, as the vessels leading to it are prominent and filled with dark-coloured blood; and also because it adheres firmly to the underlying tissues like a crab[5,6]. Hkm. Mohd. Akbar states about cancers in his treatise *Meezan-ul-Tibb*,

These vessels drain the nutrition from the adjacent tissues and weaken the organ over a period of time. According to Ahmad Bin Mohammed Tabri (10th century AD), the famous Unani scholar Jalinoos (129-200 AD) wrote in his book '*Al-Mirrah Sauda*' that cancer mostly occurs in the organs which possess a wet temperament, like breast, uterus, intestines etc[7]. Some scholars also observed that cancers are mostly seen in women, and the swelling sometimes increases up to the size of a water-melon or even larger[8].

CERVICAL CANCER

Carcinoma of the cervix was not differentiated as a separate disease by most of the Unani scholars, and it is discussed under the heading of *sartān e rehm* (carcinoma of the uterus), therefore, most of the features of the diseases tend to overlap. However, some of the eminent Unani scholars differentiated between the cancers of the upper and lower parts of the uterus. Although the cancer of the cervix was not clearly differentiated from the cancer of the uterus at that time, yet there are a few references from the medieval period which suggest that female genital cancer was mostly observed in the lower part of the uterus. It might be concluded, albeit with caution, that cervical cancer was a widely prevalent, if not the most common genital malignancy in the early medieval period.

The renowned Unani researcher Abu Bakr Mohammed Bin Zakariya Razi (865-925 AD). He has included a detailed description of uterine cancers in is book '*Al-Hawi Fil-Tibb*'. He also refers to it by the name of *warm jāsīyah*. He stated that carcinoma of the uterus is a hard swelling with a stony-hard base. It appears reddish in colour and is mostly seen at the cervix. Pain in the loins, pelvis and spine, along with a burning sensation is present. The vessels leading to it are congested and appear swollen. If the lesion ulcerates, dark-coloured fluid oozes out continuously[9].

One of the earliest scientific descriptions of genital cancers is found in the works of Ali Ibn Abbas Majusi (930-994 AD) has also discussed genital cancers in his famous book '*Kamil us-Sana'ah*', where he describes cancer of the uterus as a 'stony hard swelling', which develops from *saudavi* matter. He also states that this disease mostly develops adjacent to the 'mouth' of the uterus, and it ulcerates at the later stages. However, he is of the view that this cancer may also develop from an ulcerating lesion of the uterus, although the exact site of the ulceration is not mentioned[3].

According to Ibn Sina (980-1035 AD), cancer of the uterus is preceeded by *warm e rehm sulb*, i.e., hard swelling of the uterus. He states that this swelling causes dysuria and may be diagnosed by palpation[10]. From the above discussion of Ibn Sina, it appears that he may be referring to some lesion in the lower part of the uterus, which is why he describes it as easily palpable.

He further states that if this swelling remains untreated, it develops into cancer, and becomes painful; or it may lead to ascites[10]. It may be inferred at this point that this description of genital cancers includes both uterine and cervical cancers, but they were not studied as two separate diseases. That is why the signs and symptoms and the natural history of the diseases is not completely differentiated.

Ahmad al-Hasan Jurjani (d. 1140 AD) further added to these researches. He states in his treatise '*Zakhira Khwarzam Shahi*' that the hard swellings of the uterus are easily palpable. These swellings lead to dysuria and difficulty in passing stool by obstructing the urethra and the anal canal. However, there is only minimal pain. It, however, becomes painful when the swelling turns cancerous; then it causes a sharp pricking pain in the pelvis, thighs and sometimes ascends to the chest and diaphragm[11].

In all the above discussions by the Unani physicians, it may be noticed that they have mentioned a certain stage which they refer to as *warm e sulb* of the uterus. This lesion, according to them, advances and ulcerates, and leads to severe symptoms; and then it is termed as *sartān* (cancer). This was probably because the histology of malignant cells could not be studied in the medieval ages in the absence of microscopy. It was learnt much later that there are several stages in all cancers, including cervical cancer; and ulceration and malignant transformation occurs much later. Nevertheless, the contribution of those earlier scholars can never be underestimated, as they laid the perfect foundation for further researches.

About the natural history of uterine cancers, Majusi states that an inflammation of the neck of the uterus may be followed by a hard swelling of the uterus, which he terms as *saqīrūs* (Scirrhus). He has stated that-

There is a generalized feeling of uneasiness, especially in the lower limbs. Later, the swelling becomes extremely hard and turns cancerous. This cancerous lesion may ulcerate as it advances, and causes pain in the pelvis and back. The hard swelling may also be visible on the lower abdomen and on the mouth of the uterus. Majusi is of the opinion that the disease is untreatable[3].

From the above description, it appears that Majusi has observed both the uterine and cervical cancers, but he does not differentiate them as two distinct diseases. Also, he observed the early stages of these cancers, which he and some other scholars call by the name of *saqīrūs*. He is of the view that the swelling may be called *sartān* (cancer) only when it starts ulcerating, which, as we know today, is the advanced stage of cancer.

Similarly, Ahmad al-Hasan Jurjani expressed his view that when *warm e sulb* of the uterus becomes painful, it is a sign that it has become cancerous. The pain is severe and pricking in nature and affects the pelvis, thighs and may ascend to the chest and diaphragm. Headache, asthenia and bloating of abdomen are seen. The cancerous swelling is hard and the vessels leading to it are congested. It appears green or brownish in colour[11]. The swelling is tender to touch[10]. Mild fever may also be seen, which increases with pain. Pus or serous fluid may ooze out from the lesion if it ulcerates[11]. The expelled fluid is foul-smelling[12]. When the tissue destruction is more, bleeding is seen which may be confused with menstrual bleeding. The fever may also decline when these fluids are expelled[11]. Hakim Azam Khan observed that cold extremities and migraine may also be seen in the advanced stage of the disease[12].

Jurjani has hypothesized that these swellings ulcerate because they are composed of abnormal *saudavi* matter, which is formed from the combustion of normal humors. Therefore, it is irritating in nature and destroys the tissues[11]. Hkm. Akbar Arzani (d. 1722 AD) of the Mughal period observed that if the inflammatory lesions of the uterus do not heal, and also if the wastes in such lesion are not expelled, it gives rise to cancers of the uterus; although he does not specify the exact site of the cancer. As a complication of this type of cancer, general debility, ascites and local ulceration may occur[13].

It may be inferred from the above review of literature that cancers in those times were diagnosed only when they were quite advanced and highly progressed. Therefore, the signs and symptoms described by the Unani scholars correspond with those of advanced cancers. That may be why most of the scholars, including Ibn Sina, Ahmad al-Hasan Jurjani, Ali Ibn Abbas Majusi, Azam Khan and many others agree that these cancers are untreatable[3,10,11,12]. However, the observation of Majusi with regard to the origin of cancer is remarkable when he states that '*…carcinoma of the neck of the uterus develops when an inflammation occurs and leads to a hard swelling of the area*[3]'. It has been established today by several studies that inflammatory lesions of the cervix are an important risk-factor for the development of cervical cancer[14].

CONCLUSION

Unani researchers discussed in detail about the causes of cancer, its stages of development, and its progress. Gynecological cancers were also studied upon with a view to determine their exact nature and possible cure. It is noteworthy that most of the Unani scholars emphasized on diagnosing the disease in early stages - similar to modern researches.

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Physician's Commandments at Abu Nasr Sa`ed Al-Baghdadi (Died 624 H)

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Summary

Introduction: The medical commandments is the most important issue must be considered by physicians before starting practicing medicine. Since the Hippocratic Oath physicians care to those, and Arab physicians marched on this way.

Aim of the paper: Definition of Abu Nasr al-Baghdadi, and his book Kitab Intikhab al-iqtidab, and the study physician's commandments given by Abu Nasr al-Baghdadi, in addition to highlight the modern reality of each of the commandments mentioned by the author.

Material and Methods: The historical method was followed in this research, by going back to the old Arabic medical books, Especially Kitab Intikhab al-iqtidab by Abu Nasr Sa`ed al-Baghdadi, then we will compared those commandments with currently science.

Results: By the study of commandments given by Baghdadi we can mention: 1- Adoption of the principle of prevention is better than cure by Arab physicians. 2- Adoption the diagnosis by finding out the clinical story, and make clinical examination of the pulse, and the patient's eyes, and then identify the disease and determine the. 3- Lay the foundations of the drug used in the treatment. 4- Taking care the psychological state of the patient as choose the right way to give medication.

Conclusion: The commandments of Abu Nasr al-Baghdadi is set of rules that must be performed by a physicians before and during treatment of patients, and is currently used aggressively by physicians, including: Full diagnostic before starting treatment. Follow the principles and rules in the selection of medication.

Key Words: Abu Nasr Al-Baghdadi, Physicians Commandment, Kitab Intikhab al-iqtidab.

1-1- Introduction:

The method of short questions and answers for teaching is considered the best and the most developed way for teaching, where it depends on the technique of questioning and discussion.

Our Arab scientists followed this method, and perhaps Hunain Ibn Ishaq was considered the first when he wrote his book Al-Masa`il fi t-Tibb, where he put the bases for this type of medical writing.

We will concentrate in this thesis on "Kitab Intikhab al-iqtidab according to the technique of questioning and answering". It is one of the books that were written according to this technique. Then the author summarized it in "Kitab Intikhab al-iqtidab". We are going to present a full summary for the contents of the book related to medical and pharmaceutical information at the same time. Then we'll show medical commandments given by Abu Nasr for physicians, and we will study their significance.

1-2 - The importance of research:

The importance of research to the fact that commandments doctor is very important in the present era, and will appear to us the understanding of Arab doctors to the importance of this topic, such as Abu Nasr al-Baghdadi, and this research may the first research that talked about the author Baghdadi in detail, and that the subject of the commandments doctor at al-Baghdadi was not covered by the researchers as far as we know before this search.

1-3 - The aim of the research:

Definition by Abu Nasr al-Baghdadi, who has treated the Abbasid Caliph al-Nasser, and he was from Baghdad

medical school professors, and definition typing by the question and the answer way, which was one of the short-cut medical encyclopedias that the physicians must be read, and the study of the commandments of the physicians by Abu Nasr al-Baghdadi, where, as we said he was school professor and those commandments as guid to his students in the treatment, as well as to highlight the modern reality of each of the commandments mentioned by the author and comparing each separately.

1-4 - The method of the research:

The historical method was followed in this research, by going back to the old Arabic medical books, Especially Kitab Intikhab al-iqtidab by Abu Nasr Sa`ed al-Baghdadi, we mentioned the biography of author, then we told the contents of the book, then told the commandments which Abu Nasr said in his book, then we compared those commandments with currently science.

1-5- The Biography of Abu Nasr Al-Baghdadi, The Author:

Abu Nasr Sa`id ben Abi Al-Khare ben Issa ben Al-Masihi is one of the remarkable people, the most imminent, and the elite between professors in the manufacturing of medicine. He died after 598A.H(1). He treated the Abbasid Caliph Al-Nasr Lidin Allah from a stone in the bladder(2). So he ordered Abu Nasr to join Dar Al-Darb and to carry gold as long as he can and so he did. He continued in arbiteration until Al-Nasr died(1).

And for Abi Nasr ben Al-Masihi from these books Kitab al-iqtidab according to the technique of question and answer in medicine in "Kitab Intikhab al-iqtidab"(3).

1-6- Kitab Intikhab al-iqtidab:

Al- Baghdadi mentions that the reason behind writing manuscripts is to be an introduction for the beginner, and a reminder for those who finish medicinal sciences. It discussed a lot of medical subjects that can be classified as the following:

1- Thorough in Medicine:

He talked about the humors, the elements, the organs and their kinds then he talked about the formation of bones for the human body as well as the cartilages, the joints and the muscles. After that, he talked about arteries, vessels and every organ in the human body separately. And he concluded the Thorough by talking about capacities, spirits, and actions(4).

2- Diseases and Their Reasons:

He talked about the types of diseases and their kinds, their time, and their reasons. He also talked about the effect of air, seasons, inhabitants, soil, and food on the body from one side and on the diseases from the other side. He used to mentions an example of the diseases for every paragraph. Then he talked about the effect of sport, sleeping, awakening, bathing and sexual intercourse. He concluded the diseases section by talking about signs and symptoms of diseases(5).

3- Medicines and Rules for How to Treat and Use Them:

He talked about the rules of choosing the medicines, and choosing the right time for using them, as well as the rules of medicines which are related to every organ. Then he talked about the types of medicines and their mixtures and strength. He concluded by talking about the adopted rules when formulating medicines(5).

4- Organs Medicines: where he mentioned the following groups of medicines:

Medicine causing vomiting	Cardiac medicine
Medicine for cleaning the ear	Anti- vomiting medicine
Medicine useful for the liver	Laxative medicine
Medicine useful for the spleen	Constipating medicine
Diuretic medicine	Dermal medicine
Medicine for clearing the gravel	Medicine for menstruation
Medicine for getting rid of helminthiasis(5).	

5- Several Medical Topics: He talked about the advantage and the disadvantage of every single one. He also explained their types and how to distinguish them where he mentioned:

Vomiting, bleeding, fever, tumor, maturation, urine, feces, and pulse(5).

6- The Diversities between diseases: where he mentioned the diversity between almost sixty diseases. For example:

What is the difference between dizziness and dinus?

What is the difference between coma and apathy which is known as oculogyric condition?

What is the difference between epilepsy and spasm?

What is the difference between catarrh and cold?

What is the difference between vitiligo and leprosy?(4).

7- The Recommendations of Practicing and Conducting Diseases: This sections points to an important recent topic which is known as the doctor's morals. It also assured how the ancient Arab physicians are interested in this topic (4).

1-7 - The commandments of Abu Nasr al-Bagdadi:

Arab physicians interesting of medical ethics and commandments Appeared before starting treatment or even in managing the disease and prescribe medications. some Arab physicians allocate part of their books for this topic, such as Abu Nasr al-Baghdadi, who told at the end of his book Intikhab al-Iqtidab fantastic range of wills and tips, which are essential in the management of patients, while the other Arab physicians wrote private books for medical tips for physicians, for example, Ishaq Ben ali ar-rahawi who wrote a book called Adab Al-tabib(6), and also Ibn Al-wazeer Abu Huzaifa Mohammed ben Ibrahim who wrote Nafh Al-teb fe Adab wa Ahkam Al-tabib.

In this search we will list the Commandments given by Abu Nasr al-Bagdadi for his students and comment on it as current nowadays:

1- The power of the patient is stronger than the disease, there is no need then for a physicians or medicine(4):

This topic is currently very important as we always say prevention is better than cure, and the general situation of the patient plays an essential role in the treatment and particularly the strengthening of the body's immune For example, in the cold disease physicians give vitamin C as assistant to strengthen the body's immune, they don't give any medication if the patient has good health and can overcome the disease.

2- Physicians first control pulse and the eyes of the patient(5):

Pulse plays an important role in the knowledge of the condition of the heart, and the eyes and their focus gives us the situation of brain, and nowadays especially in hospitals in emergency cases we note the physicians first measure pulse and look inside the eye of an infected person.

3- If we can treat the patient with food, there is no need for the drug(5):

This talk has proven scientifically and physicians are focusing on the quality of food allowed to give patient the power, and new specialization known patient's feeding is begun for each disease.

4- If we can treat the patient with mild medicine, there is no need for strong one(5):

This rule followed by physicians and recommended by specialist as they follow the proverb (do not kill an ant with cannon).

5- If we can treat the patient with one medicine, there is no need for more than one(4)(6):

At the developed countries if the physician wants to prescribe more of the one drug to the patient, he must writes a report to explain why he needs more than one drug.

6- Don't prescribe the drug before expert it(4)(6):

we know that the drug before coming to the markets must be undergoing clinical trials, which means the experience of the drug on volunteers.

7 - The experience of the drug should be on a healthy person(5):

This is a very important point, when we need to expert any drug, the volunteers must be healthy people in order to know all possible side effects.

8- When you need to treatment 2 diseases at same patient, you must begin deal with the most dangerous one(5):

We always see this point at hospital, especially at emergency cases, first we treat the most serious disease on the human life, as example, a person suffered internal bleeding with a broken hand first thing we deal is internal bleeding, which can cause death and then we treat the broken hand.

9- When patient desire some thing like foods, drink, give him it(4):

we know that mental health is very important in the treatment. So when he wants any thing we must help the patient and give him it.

10- We must take care about the patient desire of method of treatment(4):

It's an important point because it help us at treatment when patient preferred method of treatment and he will still takes the full medication.

11- We must relieve the patient's pain(5):

We observe this point at diseases which cause pain such as bone fraction, physicians must take down the pain to give the rest for patient.

12- We must know the whole clinical story of patient(5)(6):

The clinical story is the key of treatment, sometimes patients don't give us complete information about their sick, but may be some information are very important for physicians to diagnose the true disease.

13- We must know the disease before begin the medication(5):

This point is very distinctive and important, the knowledge of the disease will facilitate the treatment. Unfortunately in the case of our lack of knowledge of the disease we will make medical trials which may cause problems for the patient.

The Results and the Discussion

The study of the commandments which given by al-Baghdadi can be inferred and discuss the following results:

First: Adoption of the principle of prevention is better than cure by Arab physicians, this appears when Baghdadi through the following points:

- The power of the patient is stronger than the disease, there is no need then for a physicians or medicine: Here we note the interest by strengthening the immune system of the patient, although Arabs physicians were not fully aware of the concept of the immune system.
- If we can treat the patient with food, there is no need for the drug: we note that they didn't be rushed to prescribe the drug, and take care the food provided to patients that's what agrees Dietetics.

Second: Adoption the diagnosis by finding out the clinical story and make clinical examination of the pulse and the patient's eyes and then identify the disease and determine the, this appears when Baghdadi through the following points:

- We must know the whole clinical story of patient: it's the first task the physicians must make before start the treatment.
- We must know the disease before begin the medication: where there will be a full knowledge of the disease to determine the appropriate medication.
- Physicians first control pulse and the eyes of the patient: this point indicate that Arab physicians knew the importance of brain and heart.

Third: Lay the foundations of the drug used in the treatment, this appears when Baghdadi through the following points:

- If we can treat the patient with mild medicine, there is no need for strong one: it's the most important thing for medication in fear of bacterial resistance.
- If we can treat the patient with one medicine, there is no need for more than one: this point must be took care by physicians before prescribe the drug.
- Don't prescribe the drug before expert it: nowadays it's impossible to allow to give the medicine to human until to test it on animal at first, then on people as second.

Fourth: Taking care the psychological state of the patient as choose the right way to give medication this appears when Baghdadi through the following points:

- When patient desire some thing like foods, drink, give him it: we must take care the psychological state of patient through give him what he want.
- We must take care about the patient desire of method of treatment: whenever the method of administration drug was suitable for patient, he will take it continuously.
- we must relieve the patient's pain: physicians must taking care psychological state of patient, which is reflected on the overall situation.

1-9 – Conclusion

The commandments of Abu Nasr al-Baghdadi is set of rules that must be performed by a physicians before and during treatment of patients and is currently used aggressively by physicians, including:

- Full diagnostic before starting treatment.
- Follow the principles and rules in the selection of medication.

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Greco Arab Concept of Taleeq (Leech Therapy) and its Importance –A Review

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Summary

Taleeq (Leech therapy), one of the most important and widely practiced methods, is known from the time of extreme antiquity and is still alive today. This fact testifies its efficiency in various health problems. Eminent Unani physicians Razi, Majoosi, Zahrawi, Ibne Sina, have described and practiced the use of non poisonous (or medicinal leeches) in joint diseases, chronic non healing ulcers and various skin disorder like eczema, psoriasis etc. Scientific studies also reveal that leech saliva contains hirudin, histamine etc. These substances have anti-coagulant effect hence improve microcirculation in diseases like varicose veins and diminished oedema. Therefore leech therapy can be used as an alternative or adjacent therapy for these diseases. And need of the hour is to generate clinical data for validation of claims of Unani physicians about efficacy of this therapy. Present paper deals with the method, indications and contra-indications of the leech therapy.

Key Words: Leech therapy, Hirudo therapy, Regimental therapy, Unani Medicine and Blood letting.

Historical back ground

Alaq is an Arabic word, which is synonymous to leech and the process of leech application is termed as *Taleeq*[1]. It has a long history, there are evidences that leeches were used all over the world since the stone age.[2] Egyptians used leech therapy 3,500 years ago. The first documented use of leeches is found in an Egyptian wall painting, **(dated 1567-1308 BC)** that shows the leeches are applied on patients head.[3]

Rofus (Ist century AD), was the first among the Unani physicians who wrote about leech therapy in "*Risale Taleeq*" which is in the form of manuscript. Hakeem Abdul Hameed Bhopali quoted him in his book *Takmeelut Tib* that leeches are applied at different sites in different diseases.[4]

Arkaghanees, quoted by Razi in his book *Al Havi fil'tib*, recommends application of leeches in *salabate tehal.*[5]

Razi (865-925AD) has recommended the use of leeches in *Qooba* (ring worm infection), *Sa'fa* (alopecia), *Quroohe balkhiya* and *I'lale Mafasil* (joint diseases) etc.[5, 6]

Ali Ibn Abbas Majoosi (930-994 AD) advised the application of leeches in *Irqunnisa* (sciatica) at the hip joint.[7]

Abul Qasim Zahrawi (936-1036 AD) has suggested that leeching should be done at such sites where cupping cannot be performed like on lips and gums. They can also be applied over the parts having least flesh like finger and nose. He further suggested that sucking the part through cups or washing it with vinegar and plenty of water has got additional benefits from this therapy.[8]

Ibn Sina (980-1037 AD) described the leech therapy very comprehensively with reference to Indian physicians. He has mentioned the types and characteristic of the medicinally usable leeches. In addition to it he has also described the mode, procedure and post leeching regimens.[9]

Ibn Hubal Baghdadi (1122-1213 AD) suggested the use of leeches after the evacuation of deranged humours through *fasad* (venesection) and *Is'hal* (purgation). He also mentioned that leech removes altered blood from the site of *Safa* (alopecia), *Qarha muzmin* (chronic wound) and relieves *Wajaul anaf* (nasal pain).[10]

Ismail Jurjani (d. 1136 AD) has described that if complete evacuation of the morbid material is to be intended, *Taleeq* (Leech therapy) should be performed for two consecutive days. He also advocated its benefit in skin diseases. Echoing Baghdadi's comment, he also recommended the application of leeches after cleaning the body through *fasad* (venesection) and *Is'hal* (purgation).[1]

Ibnul Quf al Maseehi (1233-1286 AD) says that *Taleeq* (Leech therapy) eliminates the morbid materials more vigorously in comparison to *Hijamat* (cupping) but lesser to *Fasad* (venesection). He emphasized the pre and post leeching procedures and stressed that cupping should also be done after performing *Taleeq* (Leech therapy). He further added that leeches should be applied before using the local drugs in *Sa'fa* (alopecia).[11]

Akbar Arzani (16th century), an Indian physician states that *Taleeq* (Leech therapy) is a substitute for *Fasad* (venesection) in cases of children. He mentioned its main benefit in *muzmin amraze jildiah* (chronic dermatological diseases) like *Sa'fa* (alopecia) and *Qooba* (ring worm infections).[12]

Hakeem Syed Abdul Hameed Bhopali in his book *Takmeelut Tib* mentions with reference to some experts that leeches absorb only *fasid khoon* (contaminated blood) and they are very beneficial in chronic skin diseases like *Safa* (alopecia) and *Qooba* (ring worm) etc. [4]

In medieval and early modern medicine, the medicinal leech *Hirudo medicinalis* and its congeners were used to remove blood from a patient as part of a process to "balance" the "humours" that according to Hippocrates must be kept in balance in order for the human body to function properly and these four humours are blood, phlegm, black bile and yellow bile.[13]

Leech therapy became a popular method in medieval Europe due to the influence of *Alqanoon Fil'tib*. A more modern use for medicinal leech was introduced by *Abdul Latif Al Baghdadi* in the 12th century, who wrote that leech, could be used for cleaning the tissue after surgical operations. Contemporary leech therapy is pioneered by surgeons.[14]

The use of leeches in medieval times was of greater benefit than cupping because the amount of blood removed would be more "predictable" and of a greater amount. The reporting of the practice of using leeches reached its climax between 1820 and 1845. **Francois Broussais (1772-1832)** proposed that all diseases resulted from excess of blood and that bloodletting was the only cure.[3]

Leeches seem to have made both a clinical and laboratory resurgence over the past several years. In 2001 researchers from Kliniken Essen-Mitte Essen, Germany reported in their study, on the use of leeches in the treatment of osteoarthritis of the knee joint.[15] and Michalsen A *et al.* 2003 studied on effectiveness of leech therapy in OA of the knee[16] and they found that the anaesthetic, anti-inflammatory enzymes and vasodilators in leech saliva could relieve patient's pain.[17]

Eminent physicians like Ibn Sina, Jurjani, Ibnul Quf Maseehi and others have also advocated the use of non poisonous leeches and stated their identification and differential characteristics in detail. They divided the leeches into two classes----non poisonous or therapeutically usable leeches and poisonous leeches.[1, 9, 18, 19, 20]

Indication of Taleeq (Leech therapy)

Leech therapy is one of the most important and widely practiced methods of regimenal therapy. It is a procedure of treatment with the use of medicinal leeches. Following is the list of indications described in the Greco Arab literature of unani medicine.

Diseases	No. of Leeches applied	Location	Number of days	Rationale
Ramde damvi (Sanguinous conj.)	7	Base of the ear & nape of neck	Depends upon the severity & improvement	Cleanses morbid humours.[9, 21, 22]
Ramde safravi (Bilious conj.)	7	Base of the ear & nape of neck	Do	Do[9, 21, 22]
Ramde reehi (Gaseous conj.)	7	Base of the ear & nape of neck	Do	do[21, 22]
Subl (vascular keratitis)	7	Behind the ears in nape of neck	Do	do[21]
da a'asabe mujavvifa (optic nerve obstruction)	-	Base of the ear	Do	Do[12, 22, 23]
Jarbul ajfan (Granular lids)	-	Over the eyelids	Do	Do[5]
Ibtedae nuzoolul maa (Immature cataract)	-	Over the temples	Do	do[5]

Suddae a'ain	-	Over the temples	Do	do[5]
Salaq	-	-	Do	do[19]
Warme ajfan (Infl. of eye lids)	-	-	Do	Do[5]
Zahbul basar wal a'ain	-	Over the temples	Do	do[5]
Wardeenaj	7	Behind the ears in nape of neck	Do	do[21]
Bawaseere anaf (Nasal polyp)	-	Locally	Do	do[12,21, 22]
Auram wa busoore anaf (Nasal infl.& pustules)	-	Locally	Do	do[21]
Ru'af (Epistaxis)	-	Locally	Do	Deviate the morbid matter[22]
Wajae gosh az warme har (Otitis media)	-	Locally	Do	Musakkine alam[22]
Warme goshe bairuni (Otitis externa)	-	Locally	Do	Cleanses morbid humors[22]
Qula ul uzn (Ear ulceration)	-	Root of the ear	Do	do[22]
Inkesarul uzn	-	Below the ear	Do	do[12]
Aakalae dahan	-	Locally	Do	do[21]
Shush dahan (Angular stomatitis)	-	Locally	Do	do[21]
Bwaseere lab (Labial polyp)	-	Locally	Do	do[21,22]
Zifda (Sublingual tumor)	-	Locally	Do	do[22]
Qulae damvi (Acute sanguinous stomatitis)	-	Nape of neck & below the chin	Do	do[21,22]
Qulae saudavi (Chronic melancholic stomatitis)	-	Nape of neck & below the chin	Do	do[21,22]
Tashquq wa jufafe lub (Cracked lips)	-	Below the lips	Do	do[21,22]
Sozishe luhat (Uvulvitis)	5	On qifa	Do	do[22]
Shushe halq & warme halq (Infl. of throat)	-	Locally	Do	do[22]
Khunaqe safravi (Bilious diphtheria)	-	On the centre of the neck	Do	do[5,21,22, 24]
Khunaqe damvi (Sanguinous diphtheria)	-	On the centre of the neck	Do	do[5,21,22,24]
Shushe lissa (Gum ulceration)	2-3	Root of the teeth	Do	do[22]
Warme lissa har (Acute gingivitis)	-	Locally	Do	do[21,22]
Darde dandane har (Acute toothache)	-	Root of the teeth	Do	Musakkine alam[9,21,22]
Warme luhat (Uvulvitis)	-	Over the chin	Do	Cleanses morbid humours[5]
Taharruke asnan (Loosening of the teeth)	-	Below the chin	Do	Do[12,23]
Slabate tehal			Do	do[5]
Jarbe kulya	-	On the back	Do	do[22]
Baul ud dam (Haematuria)[21,22]	-	Above pubis & below umbilicus	Do	deviation of morbid matter
Jamood du dam fil masana	-	-	Do	Cleanses morbid humours[5]

Warme khusiyatain har (Acute orchitis)	-	At the site of inflammation	Do	do[21,22]
Warme qazeeb har (Acute infl. of penis)	-	Around the penis	Do	do[21,22]
Aqoona	-	Over the penis & vagina	Do	do[9,12]
Hikkae qazeeb (Pruritis of penis)	-	Around the penis	Do	do[9]
Humrah (Erysipelas)	-	Locally	Do	Do[9,21,22]
Dakhis (Paronychia)	-	Locally	Do	do[21,22]
Qooba (Ring worm)	-	Locally	Do	Do[5,6,9,12,21,22,23,25]
Sa'afa (Alopecia)	-	Locally	Do	Do[6,9,21,22,23]
Batam	-	Locally	Do	Do[12,21,22,23]
Badashanam	-	-	Do	Do[9,12,21,22,23]
Zarbah wa saqta (Trauma)	-	Locally	Do	do[21]
Namash (Freckles)	-	Locally	Do	do[9,19]
Kalaf (Chloasma)	-	Locally	Do	do[9,19]
Daul feel (Filariasis)	-	Locally	Do	Do[6,21,22,24,]
Falghamooni	-	Locally	Do	do[21]
Ghanghrana (Gangrene)	-	Locally	Do	Do
Jarb wa hikkah (Scabies & pruritis)	-	Locally	Do	do[12,23]
Sartan (Cancer)	-	-	Do	do[22]
Aurame maghabin (Lymphadenitis)	-	Locally	Do	do[22]
Quroohe khabeesa (Chronic ulcer)	-	Locally	Do	do[5,9, 19]
Ilale mafasil (Joint diseases)	-	Locally	Do	Musakkine alam[5]
Niqras (Gout)	-	Locally	Do	do[5]
Irqunnisa (Sciatica)	-	Locally	Do	do[5]
Waja ul zahar	-	Locally	Do	do[5]
Irqe madni (Medeanansis)	-	Locally	Do	Cleanses morbid humours[5,9,12,22,23]
Qurahe aakla (Chronic non healing ulcer)	-	Locally	Do	Do[6,21,22]
Wajaul khasirah (Hip pain)	-	Locally	Do	Musakkine alam[25]
Daus sa'alab (Alopecia areata)	-	Locally	Do	Cleanses morbid humours[9,23]
Daul haiyya	-	Locally	Do	do[23]
Bawaseer (Hemorrhoids)	-	Locally	Do	Musakkine alam[21,22]
Khurajate kunran & baghal	-	Locally	do	Do[19]
Samoom (Poisons)	-	Locally	Do	do[9,19]
Amraze pistan (Breast disease)	-	Locally	Do	Do[19]
Junoon (Mania)	-	-	Do	Do[19]
Suda'ae shaqeeqa (Migrain)	-	On temples	Do	do[5]
Suda'a (Headache)	-	On temples	Do	do[5]
Suda'ae zarbani	-	On temples	Do	do[9]
Juzam (Leprosy)	-	Locally	Do	do[9]

Quroohe balkhiya	-	Locally	Do	do[9,6]
Shiqaqe miqa'ad imtelai (Anal fissure)	-	Locally	Do	do[24]
Nazfud dam (Haemorrhage)	-	-	Do	do[5]
Anurisma (Aneurysm)	-	Locally	Do	do[5]
Falij (Hemiplagia)	-	Do	Do	Do[25]

Contraindications

Taleeq is contraindicated in Absolute haemophilia, Children, Pregnancy, Anaemia, Leukaemia and Hypotonia [26,27].

Conclusion

It may be concluded that leech therapy as indicated by the Unani physicians can be safely and effectively used to evacuate the blood and morbid humours from deeper tissues and for its Muhallil, musakkin alam and Muraqqiqe dam properties. It may be suggested that leech therapy can produce better results either single or as an adjuvant with drug therapy in diseases like osteoarthritis, angina pectoris, coronary thrombosis, hypertension, atherosclerosis, varicose veins and in various surgical and traumatic conditions such as reattachment of severed extremities, fingers, toes and ears and in skin diseases like psoriasis, chronic ulcers, eczema and favus.

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Diabetes: From Ancient To Modern Era

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Summary

The story of diabetes mellitus—its discovery, description, and treatment—is a remarkable chronicle covering around 3,500 years of medical history. History reveals that diabetes has always been a part of medical research and discussion, although in a very primitive form in the ancient ages. In the medieval ages the Unani physicians carried out extensive literary and clinical research into the signs and symptoms, and complications of diabetes. Among these works, Maqala Fil-Baul of Rufs al-Afsi (2nd cent. AD), Kitab Fil-Baul of Hunain Ibn Is'haaq (d. 1188 AD) and Kitab Ma'rfa Al-Baul of Is'haaq Bin Hunain (828-911 AH), are worth mentioning. Later, in-depth research by numerous scientists led to the discovery of insulin and the role of beta cells of pancreas in the pathology of diabetes.

Key Words: Diabetes Mellitus, Silsil Al-Baul, Temperament, History.

ANCIENT AGE: The Beginning of Medical Research

(Up to 500 AD)

The story of diabetes mellitus—its discovery, description, and treatment—is a remarkable chronicle covering around 3,500 years of medical history. History reveals that diabetes has always been a part of medical research and discussion, although in a very primitive form in the ancient ages. The signs and symptoms of the disease were a topic of study and research since antiquity. The earliest mention of Diabetes is found in the Ebers Papyrus. This papyrus was discovered in a tomb in Luxor by German Egyptologist George Ebers in 1872, and is presently preserved by the Leipzig University Museum[(1)]. The script of the papyrus appears to be of around 1550 BC. It contains a description of about 1700 diseases, along with their treatment. Although the papyrus does not include any disease by the name of diabetes, but medical historians are of the view that the disease described under *Kasrat-e-baul* (Polyuria) is actually diabetes[(2)].

The word 'Diabetes' is derived from a Greek term, which was first used for this disease by Aretaeus (81-138 AD) in 138 AD. He introduces diabetes in these words:

Up to 1st Century AD, no further successful research was carried out in this disease. Later, Jalinoos (129-199 AD) researched into this topic and described it as a renal disease. Fortunately or unfortunately, the disease was so rare in his lifetime that Jalinoos could examine only two diabetics during his entire medical practice. Still, the above discussion makes it evident that many of the signs and symptoms of diabetes were known to the ancient Greek physicians; therefore, they studied and classified it on the basis of this knowledge. However, they were obviously not aware of its pathophysiology, so it was incorrectly interpreted as a renal disease due to the presence of polyuria. Although we know today that polyuria is only one of the many symptoms of diabetes.

MEDIEVAL AGE: The Rise of Unani/Arabian Medicine

(500-1500 AD)

In Persian and Arabic language, diabetes is known by various terms, which were principally coined based on its signs and symptoms. In Persian language, it is known as *Dulaab* (water-wheel) because the patient always feels

thirsty and never seems to be quenched. In Arabic language, it is known as *Istisqa-e-Amnas* because whatever fluids the patient consumes, they are collected almost immediately in the bladder just like *Istisqa* (Ascites). It is also known as *Mo'attisha* (Dipsetic), which is derived from *'atsh* meaning thirst. The reason for this name is obvious. Diabetes is also known as *Dawwarah* (revolving, rotating, whirling) and *Barkariyyah* because the vicious circle of intake and excretion of water seems to be unending. It is also known as *ziyasqoos* and *qaramees* in Arabic language. It is also known as *Silsil Al-Baul* because, as the disease advances, urgency of micturition also occurs, which is often not curable. Apart from that, diabetes is also referred to as, *zalaqal-kulliyah, marz-e-majari* and in some books. Ibn Hubal Baghdadi has referred to the disease by the names of *ziyabetus, barkariyah, dulabiya, zalaq-e-kulliyah* etc[4,5,6]. Unani physicians have carried out extensive literary and clinical research into the signs and symptoms, and complications of diabetes. Among these works, Maqala Fil-Baul of Rufs al-Afsi (2nd cent. AD), Kitab Fil-Baul of Hunain Ibn Is'haaq (d. 1188 AD) and Kitab Ma'rfa Al-Baul of Is'haaq Bin Hunain (828-911 AH), are worth mentioning[7,8].

The importance of the study of diabetes was also realized by the later scholars and it was discussed in detail by succeeding scholars especially by Rabban Tabri (d. 895 AD) in Firdaus Al-Hikmat, Ali Ibn Abbas Majusi (930-994 AD) in Kamil-us-Sana'ah, Abu Sahl Masihi (d. 1010AD) in Miat-e-Masihi, Abu Bakr Mohammed Bin Zakariyah Razi (860-925 AD) in Al-Hawi Fil-Tibb, Abul Hasan Ahmad Bin Mohamed Tabri (d. 985 AD) in Moalijat-e-Buqratiyah and by Shaikh-Ul-Rais Bu Ali Sina (980-1037 AD) in Al Qanoon Fil-Tibb. Zakariyah Razi mentions in Al-Hawi Fil-Tibb that a patient of diabetes suffers from polydipsia, and whatever fluids he consumes, they are expelled almost immediately via urine. He states that this renal disease (diabetes was believed to be a renal disease in that period of time) is similar to *zalaq-ul-am'a* (Lienteric diarrhea), and is basically caused due to abnormal hot temperament of the kidneys. This hot temperament affects the bladder also. Due to the increased heat, the kidneys absorb a lot of fluids from the gastro-intestinal tract. Also, due to weakness of *quwwat-e-masika* (power of retention), the kidneys are not able to retain these fluids and they are immediately diverted to the bladder, and excreted as such. The loss of fluids is again responsible for increasing the already abnormal hot temperament. This gives rise to a vicious cycle of intake and excretion, and the disease is, therefore, difficult to treat[7].

Zakariya Razi has quoted Sorabeun (d. 864 AD) in Al-Hawi Fil-Tibb that diabetes is caused due to the weakness of the bladder muscles and *quwwat-e-masika.* The intensity of thirst also increases, and the fluids are readily excreted via urine, due to abnormal hot temperament of the kidneys. Later, muscles may get paralyzed, resulting in incontinence of urine and feces. In this stage, obstruction of the urethra may also be seen[9].

Jorjus (769 AD) has speculated that diabetes is one of the diseases, which are seen rarely. In fact, he claims to have seen only two patients of the disease in his lifetime. Also, he states, the incontinence of urine and feces in this disease is due to the paralysis of bladder and rectal muscles which is one of the complications of diabetes[9].

The period between 9th-11th centuries was the golden era of Arabian medicine. This period was witness to unparalleled progress made by Muslim physicians in all fields, including medicine; and the results were highly impressive. Ibn Sina has mentioned that in diabetes, the relation of fluids to the urinary tract is the same as that of eatables to gastro-intestinal tract in *zalaq-ul-am'a* (Lienteric diarrhea). It is principally caused due to weakness of the kidneys and dilatation of the urethra, which is mainly caused due to abnormal hot temperament of the whole body. The abnormal temperament may be localized to the liver or kidneys only in some cases. Ibn Sina has also described the signs and symptoms of diabetes in great detail. Among these, polyuria, polydipsia, physical and mental weakness, erectile dysfunction and gangrene are most prominent[6].

Ismail Jurjani (d. 1136 AD), writes in Zakhira Khwarzam Shahi that the etiology of diabetes includes four main factors-(i) Weakness of the kidneys, (ii) Dilatation of the urethra, (iii) Abnormal hot temperament of the whole body, liver or kidneys, and (iv) Excess hot temperament[10].

Ali Ibn Abbas Majusi(930-994 AD) has named this disease as *parkariyah,* and expressed the view that it is caused due to increased absorption of fluid by the kidneys[11].

Ibn Nafees (1210-1288 AD) has mentioned in Shrah Mojez that in diabetes, the fluids are excreted within a short time, without undergoing any change. This is due to excess hot temperament of the kidneys. He states-"The *quwwat-e-masika* (power of retention) of the kidneys is weakened due to the abnormal hot temperament, therefore, they are unable to retain the fluids in the body and the *quwwat-e-dafi'a* (power of excretion) is stimulated and it expels the fluids immediately after intake. Thus, the cycle of absorption (into the kidneys) and excretion continues". On this basis, it has been named *dulaab* (water-wheel) and *dawwarah* (rotatory, revolving, whirling) etc[7].

Jamal-uddin Aqsarai (d. 1337 AD) has mentioned in Al-Aqsarai that diabetes may be caused due to predominance of cold temperament, which is accompanied with

decreased thirst, but this condition is very rare. Prolonged diabetes weakens the liver and causes general debility. This, accompanied by body also makes the patient vulnerable to *diq*[7].

Burhanuddin Nafees (d. 1438 AD) has mentioned renal dysfunction, weakness, hot temperament and inflammation of the kidneys among the causative factors of diabetes. He states that *diq* may be a complication of diabetes, which is caused due to abnormal excretion of fluids and leads to a state of dehydration. He has also mentioned cold temperament as a causative factor of diabetes, which weakens the *quwwat-e-masika* (power of retention).

According to Ibn Zuhr (1091-1162 AD), diabetes is one of the conditions which are mentioned by the name of *barkariyyah* by Jalinoos in Al-A'za Al-Alimah and Kitab Al-Mayameer. When hot temperament is associated with moisture, then absorption (into the kidneys) is less, urine is dark in color and viscous. Instead of the above two situations, if cold temperament is predominant along with dryness, then the power of absorption is very strong and this is a most lethal form of diabetes. In Kitab Al-Mayameer, Jalinoos has expressed the thought that that the weakness of *quwwat-e-mughayyarah* (Power of transformation) may be a causative factor of diabetes[12].

In Shrah Al-Mojez, Allama Sadeed-uddin has mentioned that abnormal hot temperament, with or without involvement of *madda* (matter) is the etiological factor of diabetes. This observation of Allama Sadeed-uddin is proof that he was aware that diabetes may involve some other system of the body along with kidneys. However, this does not imply that he was completely aware of the nature of diabetes. Also, the observations of earlier physicians demonstrate a detailed knowledge of the symptoms and complications of diabetes, including the renal pathophysiology involved in the disease process. However, the exact knowledge about the causes and pathology of the disease was still far from complete[13].

Ibn Hubal Baghdadi (1122-1213 AD), Hakim Azam Khan (1772-1902 AD) and Hakim Akbar Arzani (d. 1721 AD) also agree with the above-mentioned scholars on the concept of diabetes[7,14].

Among the predisposing factors of diabetes, the Unani physicians have included both hot and cold temperament. However, it seems impossible that two opposite temperaments may be the causative factor of a single disease. It may be possible that the abnormality of temperament differs from patient-to-patient. But most of the physicians, including Ibn Sina, have advocated hot temperament as the causative factor of diabetes. In addition, the drugs included in the treatment of diabetes, are all cold in nature. E.g. *kahoo, afyoon, sandal, maghz khasta jamun, kishneez, maghz khasta aam* etc. Since *Ilaj Bil-Zid* (Heteropathy) is the mainstay of Unani treatment, it seems logical to believe that diabetes is a disease having hot temperament.

The concept of diabetes is also seen in the Ayurvedic literature, but an unawareness of the etiopathology is observed. The discussion on diabetes is based mainly on the signs and symptoms. The famous scholars of Ayurvedic medicine, Charak and Sushruta (5th cent. AD) have mentioned about the presence of some sweet substance in the urine of patients suffering from polyuria. They named the disease as '*madhumeh*' (honey in urine). However, no further progress was made in the field[15].

MODERN AGE: New Advances in Medicine (1500 AD to date)

In 16th Century, Paracelsus (1493-1541 AD) dismissed all the earlier theories of diabetes and gave the concept that diabetes is a systemic disease, which is caused due to the alteration of blood composition[16].

Thomas Willis (1621-1675 AD) revived the Ayurvedic concept of the presence of sweet substance in urine[3]. Around the same time, Thomas Sydenham (1624-1689 AD) expressed the view that diabetes is a digestive disorder and is caused due to incomplete absorption of callus[17]. This unabsorbed matter is excreted in the urine. A major breakthrough was achieved after about a century when Matthew Dobson (1735-1784 AD) separated this unabsorbed matter from the urine of diabetic patients. He also put forward the research that a sweet substance is present in the serum of diabetics. Later, he proved that the substance was, in fact, sugar and it is present in excess quantity in the blood before being excreted in the urine[16].

It was Cullen who was the first to distinguish between diabetes mellitus and diabetes insipidus. In 1769, Cullen published an elaborate classification of human diseases. In this classification, we see for the first time a distinction between diabetes (mellitus), with the urine of "the smell, color and flavor of honey," and diabetes (insipidus), with limpid but not sweet urine. It was Cullen who added the descriptive adjective 'mellitus', from the Latin word for honey. At the end of the 18th century, Thomas Cawley (1788 AD) carried out research into the pathology of diabetes and discovered that it is caused due to some abnormality of the pancreas[2].

Where Anatomy is concerned, it is known that Herophilus (325-280 BC) and Erasistratus (310-250 BC) had

knowledge of the presence of pancreas, and Jalinoos had also mentioned the pancreas with the reference of these two scholars. But they were unclear about its functions[7].

Some physicians of the School of Alexandria had also speculated that a type of thin matter is expressed from the pancreas into the intestine, and Jalinoos was of the view that it is put into the abdominal cavity to fill up the empty space. Hippocrates and his followers believed that the pancreas absorbs fluids from the intestine and diverts them towards the mesentery.

The 19th century witnessed significant progress in medical sciences, and important researches were carried out during this period.

In 1901, Eugene Linsday Opie, a Pathology instructor at the John Hopkins University reported that inflammation of the pancreas is sometimes, but not always, associated with diabetes[18]. In the pathophysiology of diabetes, Claude Bernard (1813-1878 AD) carried out path-breaking research. He provided the information of the relation between metabolic derangement and diabetes mellitus, and concluded that the sugar which is excreted in the urine of diabetics is stored in the form of glycogen in normal people. He also explained the relation between Central Nervous System and diabetes[3].

In 1969, Paul Langerhans discovered some atypical cells in the pancreas and explained their structure, but he could not get an insight into their functions[19,20].

Oskar Minkowski (1858-1931 AD) and Josef Von Mering (1849-1908 AD) experimented to find out if pancreas was vital for survival. They removed the pancreas of a dog and observed that the animal started to exhibit the typical symptoms and signs of diabetes e.g. polyuria, polydipsia, polyphagia and increased levels of sugar in blood and urine. This confirmed the association of diabetes with pancreas[21].

In 1893, Edouard Laguesse (1861-1927 AD) named the cells discovered by Paul Langerhans as Islets of Langerhans, and explained that the endocrine system is composed of these cells[22].

A major achievement was made by Frederick Grant Banting (1891-1941 AD) and Charles Herbert Best (1899 AD), who isolated an extract of pancreas and demonstrated the role it plays in carbohydrate metabolism. They named it 'Pancriene'. In the summer of 1922 it was named insulin[16]. They were awarded the Nobel Prize in 1923 for their achievement. Notably, Banting used the word 'Diabetus'[19] for the disease in one of his famous lectures-which was strikingly similar to the term used for diabetes in Unani medicine. Although the association between diabetes and pancreas was already clear after the experiment of Oskar Minkowski and Josef Von Mering in 1989, and many physicians had started experimenting with various treatments based on this knowledge[16].

In 1908, a German scientist, Georg L. Zuelzer (1870-1949 AD) prepared a crude extract from animal pancreas and unsuccessfully tried to treat human diabetic subjects[23]. In 1909, Jean De Meyer gave the name 'insulin' to the hormone released from the pancreas. Insulin is a Latin word which means 'island', however, the name was based purely on speculation and not on any proven theory[22]. Later on, the first human clinical trial of the extract was carried out on 11th January 1922[24]. Later, the first series of oral drugs for insulin was marketed in 1955[17].

In 1936 AD Himsworth divided Diabetics into two types based on "insulin sensitivity." In 1959 AD, two major types of diabetes were recognized: Type 1 (Insulin- dependent) Diabetes and Type 2 (Non-Insulin-Dependent) Diabetes. The names were formally recognized by American Diabetes Association in 1979. In 2003 AD, the names Insulin Dependent Diabetes Mellitus (IDDM) for Type 1 and Non Insulin Dependent Diabetes Mellitus (NIDDM) for Type 2 diabetes are formally dropped[22].

In its 1998 report, the congressionally mandated Diabetes Research Working Group recognized the great urgency and extraordinary opportunities facing us today in diabetes research. Mapping of the human genome marks a new era in medical research, paving the way for the treatment and cure of many serious diseases. In the 21st century, we are witnessing an exciting new chapter being written in the history of diabetes[2].

CONCLUSION

The progress in diabetes research, from the ancient to modern ages, includes a series of successful and unsuccessful attempts at discovering its cause and risk factors. Although most of the researches in earlier ages could not exactly pinpoint the pathology leading to diabetes, yet, they paved the perfect path on which future researchers managed to tread upon and reach the very root of the disease. However, the future seems to be more challenging. New researches are being carried out to identify the genes which lead to diabetes and to suggest a possible solution at the earliest, to remove the risk of suffering from diabetes later in life.

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In the Name of God the most merciful, the most Kind

Medical Services Expenses and Doctors Remuneration At the times of the Arabic Islamic Civilization Era

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Summary

Medical profession is practiced since long time,although it is considered a holy work doctors have to earn for their lives, beside that hospitals and medicine expenses has to paid for. During the Arabic Islamic Civilization Era these were met by the kings, caliphs and rich people rewards and charity investments.

Key Words: Arabic Islamic Era, Expenses, remunerations

Preface:

Certainly the viewpoint about medical profession and in sequence about physician does not lack a holy trait mixed with an internal fear felt by the patient. This viewpoint started long time ago since the early human life on earth &since the early days of medicine. Medicine started with traditional and rudimentary ways of treatment alongside with the spiritual medicine that was experienced by clergies in the temples. Still some prophets had practiced medicine at their times.

Both types of medical practice were aiming to keep healthy living and to treat patients from illnesses and to deal with them carefully and sympathetically.

Some times both types were practiced simultaneously.

Being the only person allowed uncovering the patient i.e. his body, illnesses, and psychological attitude, make the medical profession respectful and fearful at the same time, that life is ever sacred then the help to make living longer and saving it from diseases this endeavor is considered a holy work and gives medicine its human character.

Historical review

In old days charging patients wasn't obligatory as well as the fees weren't fixed and the fees may by given after recovery

It has been mentioned that some times these fees were given as jewels on beautiful

Plates with nice velvet or silk sheets covers[1] according to the assumption that saving human life is priceless.

Hippocrates -400 B.C- and other early pioneers insisted on medical ethics, which included that care, should be the same for poor and rich people and not to force the poor people to pay fees for treatment[2]. While there is controversy between the historians weather Hippocrates did charge his patients or not[3], it seems that Galen – 200 A.C – had mentioned in one his books that he did not charge his patients[4], and he give them drugs and even feed them freely and he may find some one to help bed redden.

It seems that charging patients at that old days differs according to the type of illness, duration of the treatment, who far the patient, the richness of the patient[5].

Medical services expenses and charges in Islam's bases and principles:

Medical ethics including charging the patients were deepened and gained utmost interest during Islamic civilization era according to the Islamic concepts which are based on the idea that the aim of human work in earthly life is to gain rewards in the other life (after death).

But according to Iben Abbass[6] –cousin and a friend of prophet **Mohammed** (most honored by God)- he mentioned that the Prophet had paid for venisection and this was considered as the base for the permission of the doctors charging in Islamic religious rules, but certainly not from the poor, and not to be a must in treating emergencies other wise the doctor will be considered as partner to the offender[7].

Hospitals and medical services Expense (and doctors **remuneration**):

There is an invaluable heritage of free charges which is still seen and part of it goes back to the Arabic Islamic civilization era with estimable principles and concepts for the people who used to consider the medical services as a work blessed by God and as a sort of alms (it is to be said that prior to the advent of Islam monks in the cloisters were treating ill people freely and on the same principle).

And when justice and welfare at that time reign the people feel themselves obliged to invest these properties to present more useful services and in better quality, there is an old story at the time of the fair caliph Omar bin Abdul aziz[8] – died 720 A.C- it said that if a man want to give a charity he would not find any one who asks for alms however he tries,and when the progress and luxury reached a high level people will think to invest there charities and to win the bless of god by establishing hospitals and out of question for free services.

And it was in Baghdad where the first large hospital built[9], Baghdad which was the center of Islamic civilization and the pioneer in any form of progress and through it all the sciences moved to other Islamic cities.

Al Adhdi hospital[10] – 905 A.C- was the first large hospital established in Baghdad to be followed by around more than hundred hospitals all over the Islamic cities, and it is interesting to know that their building, arrangement and quality of medical services were beyond any limit and fiction.

Beside the medical services there were the best and rarest drugs, different delicious meals and according to the orders of the doctors to every patient, clean clothes, trained dressers and many servants, good cleanliness with bathing, rooms for every specialty and for male and female ; there were clowns and musical bands to amuse the patients ; these hospitals were ready to welcome any patient day and night, to boot after the patient's recovery they used to pay him money to spent until he was able to return to his previous work again.

Doctors were well paid including the fodder of their mules.

Their salaries[11] range between 750 – 50 U.S.A.$,it is to be said except for kings or Caliphs private doctors other doctors income was about the same for any store keeper in the market.

All these services were free of charge for poor and rich, the cost of these services is paid from the gains earned out of caliphs,princes or other rich men who keep their grooves,farms, markets,etc for charitable establishments.

On the other hand doctors who practice medicine at there homes or in stores or at street purchase with there patients for the charge in advance or they ask for fixed charge, beside there are higher charges for surgical intervention as phlebotomy or cupping etc, at the time off Abassid an operation for cataract[12] may cost 15 U.S.A in minimum but it goes higher according to the wealth's of the patient.

Here a question may rise:

Do doctors at that periods make property from their jobs?

The answer is yes for some extent, since Jebrael Ibn_ Echtoshe -died 828 A.C- who was the most famous and probably the best physician at that time (he was the private doctor of Abbasid caliphs Al –Rashid, Al-Amin and Al-Maamoon,).

His property [13]reached a big sum, about milliards of Iraqi dinars (nowadays millions of U.S.A dollars), including cobalt, gold, jewels and hundreds of acres of agricultural lands.

Though others didn't try to treat lords although they were outstanding figures in medicine but they were satisfied in treating rich and poor people, taking little fees like Ibn al Gazzar [14] –died 898 A.C- w ho lived in Tunisia and he was one of many brilliant physicians during his era and he wrote many valuable books.

There are also others who complained of bad luck as one of Baghdad city doctors named Ibn Batlan [15] –died 1058 A.C-, because there were abundance of physicians at his time and a lot of charlatans among them and it seems it is since long time people are not able to differentiate between good and bad doctors.

CONCLUSION:

From what is mentioned above one may conclude:

1st Patients charges for the medical and surgical services both in general or private clinics was not the same for rich and poor before as it is very clear shown in the Arabic Islamic civilization Era.

2nd. Doctors richness was not a must as the main source of it was from the rewards and gifts from caliphs, kings, and other rich people and not from fees of common people.

In these days were many questions regarding the rise of medical services cost to be discussed on wide base.

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Historical Perspective of Wajaulmafasil (Osteoarthritis) and with Special Reference to Contribution of Greco-Arab Physicians

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Summary

The current practice of medicine owes much to the knowledge and achievements of the past. It is surprising how far back one must look to find out the true beginning of scientific knowledge. With Rheumatology, it can be truly said that its origin goes back to antiquity as far as ancients Greeks, Indians and Egyptians who suffered, described and named many syndromes. The trail of Rheumatology has witnessed several twists and turns, victories and defeats, scintillating light and somber darkness. After over 5000 years of history, Rheumatology has now evolved into a well-developed branch of medical science poised to make a quantum leap in 21st century. It is worth looking back to understand what the past has taught us.

In the classical text of Unāni Medicine, the illness of joint pain is mentioned under the caption of Wajaulmafāsil which includes other types of arthritis too.

Key Words: Wajaulmafasil, Osteoarthritis, Arabs, Greek Physicians

Medicine, as it stands today, did not develop overnight. It is the culmination of efforts of millions of people, some we know and others we do not. The flame of civilization, including medicine, started thousands of years ago. The flame has been handed over from one generation to another and from one country to the other. Depending on who took the sacred responsibility of hosting it, sometimes it got brighter and sometimes it got dimmer. However, it never died away, because if it did, it would have been too hard to start all over again.

The *Unani* System of Medicine is one of the oldest systems of medicine practiced during the period of earliest civilization on the earth. The documented history regarding the treatment of diseases goes back to 1400 years before Hippocrates.

Jamaluddin Qifti has mentioned in his book, "***Tareekhul Hukma***" that ***Hazrat Idrees Alaihissalam*** **pbuh** **(Harmasul Haramsa)** was the first physician, who was believed to have God gifted knowledge on medicine. He further mentioned that ***Aflatunattabeeb*** was the first person who started treatment of the patients in a proper way with his experiences.[1]

The first known traces of human arthritis date back as far as 4500 BC, yet the evidence of primary ankle OA has been discovered in dinosaurs. It was noted in the Native Americans, found in Tennessee and parts of what is now Olathe, Kansas. Evidence of arthritis has been found throughout history. From Otzi, a mummy (circa 3000 BC) found along the border of Modern Italy and Austria, to the Egyptian Mummies (circa 2590 BC).

The earliest known appearance of the arthritis was in circa 4500 BC among the American Indians, living near the Tennessee and Green Rivers had arthritis. Cheops constructs the great Pyramid at Giza. Egyptians practiced mummification of their dead and many Egyptian mummies (circa 2590 BC) found in pyramid and tombs throughout the country showed sign of arthritis.

The cult of medicine was developed in Egypt as early as 2000 BC. Papyrus Ebers (1500 BC) a medical manuscript containing prescriptions for several human ailments, was one of the earliest record of medicine which was found along with a mummy buried on the banks of River Nile.[2]

Buqrat (circa 400 BC), the Father of *Unani* medicine, who lived on the Greek island of Cos, mentioned joint ailments in 18 of his famous medical treatises and Gout in 5. ***Celsus*** (25 BC – 50 AD) described certain signs of inflammation in his work. ***Rufasulafsi*** (98 AD – 117 AD) was the first person who wrote book on *Wajaulmafasil* i.e. ***Kitab Wajaulmafasil.***

Jalinoos (95 AD – 183 AD) wrote the detailed description on *Wajaulmafasil* in his book, "***Kitab Illal Wal Amraz***". He disclosed about the plethora in humours and resulting diseases and about the formation of chyme. He then, for the first time propounded the concept that disease basically occurs due to the causative factors viz - the predisposing factors, the provocative factors and the environmental influences. ***Orebasoos*** (326 AD – 403 AD) has mentioned drugs related to *Wajaulmafasil* in his book, "***Al-Adviatul Mustaamila***". ***Felgheryus*** (circa 4th -- 5th century) mentions in his treatise about the ***Irqunnisa*** (sciatica) and ***Niqras*** (Gout) and other types of *Wajaulmafasil.* ***Serjeus*** (536 AD) and ***Askandarave Tawali*** (580 AD) have well discussed *Wajaulmafasil* in their treatises.

Contents of ***Kunnash*** written by ***Ahran Bin Ain*** (600 AD) and interventions of ***Foolas Al Ajneti*** (690 AD) are mentioned in ***Kitabul Hawi*** with great importance. ***Al Hawi*** vol.11 has references of ***"Zikre Wajaulmafasil"*** by ***Jurjis Bin Jibrael*** (769 AD) and ***Kunnash*** of ***Bukhteeshu*** (798 AD), at several places. ***Yuhina Bin Masveh*** (777 AD – 857 AD) describes about *Wajaulmafasil* in his book, ***"Kitab Fil Wajaul Mafasil".*** **Hunain Bin Ishaq** (809 AD – 873 AD) has mentioned many drugs for *Wajaulmafasil* in his book, ***"Tarkeebul Adviatul Mustaamila". Qusta Bin Luqa Lablabki*** (Death c. 912 AD) wrote ***Kitab Fi Aujae Niqras*** **and** ***Yaqub Bin Ishaq Al-Kindi*** (Death c.873 AD) authored ***Kitab Fi Wajaulmeda Wal Niqras.***

Abulhasan Ali Bin Sahel Rabban Tabri (810 AD – 895 AD) mentioned briefly about *Wajaulmafasil* in his book, ***"Firdausul Hikmat". Ishaq Bin Hunain*** (828 AD – 911 AD) has described the regime for joint pain (*Wajaurrakba*) in his book, ***"Aladviatul Mustaamila". Sabit Bin Qarah Hirani*** (836 AD – 901 AD) has discussed about this disease in his book, "***Kitab Fi Wajaulmafasil Wa Niqras". Abubakr Mohammad Bin Zakariya Razi*** (860 AD – 925 AD), one of the greatest physicians of the time has written many books on *Wajaulmafasil* out of which, ***"Kitabul Hawi"*** (vol. 6 & 11) and ***"Kitab Al Mansuri"*** gained much fame. ***Ahmad Bin Mohammad Tabri*** (985 AD) in the chapter 56 & 57 of his treatise, ***"Moalijate Buqratiya"*** has given a description of the disease.

Abu Mansurulhasan Bin Noohulqamri (990 AD) has described the causes and treatment of *Wajaulmafasil* in his work namely – ***"Ghina Muna"*** and ***"Moalijate Mansoori". Ali Bin Abbas Almajoosi's*** (930 AD – 994 AD) well acclaimed book, ***"Kamil us Sana"*** dealt with a detail description on this disease. He mentioned definition of the disease, etiology, clinical features, principle of treatment and management. ***Abu Sahal Masihi*** (1010 AD) discusses about the diseases occurring as a result of *sue mizaj* (Derangement of Temperament), in a special chapter of ***"Kitab al Miyath". Ibne Sena*** (980 AD – 1030 AD) has described in detail regarding the definition, etiopathogenicity, clinical features, diagnosis, management and treatment of *Wajaulmafasil* in the IVth Vol. of, **"*Al Qanoon Fi Tib*"**

The famous book of ***Sharafuddin Ismail Jurjani*** (11th century – 1140 AD), ***"Zakheera Khwarzam Shahi"*** known as, **"Encyclopedia of *Tibb*"** has an elaborative description about *Wajaulmafasil* in its vol. VI. ***Ibne Zohar*** (1162 AD) has detailed the Regimenal Therapy and treatment of *Wajaulmafasil* in his book, ***"Kitab ut Taiseer". Ibne Rushd*** (1188 AD) has well discussed regarding the flow of matter and evacuation and also discussed the Humoral derangement of the temperament. ***Ibne Sadeedi*** (1204 AD) commented on *Al Qanoon* of *Ibne Sina* and hand written prescriptions of *Jalinoos*, in which *Wajaulmafasil* is also one among the described diseases. ***Moosa Bin Maimoon*** (1214 AD) has well written on *Wajaulmafasil* in his book, ***"Kitabul Fusool".***

The book of ***Najeebuddin Samarqandi*** (1232 AD), ***"Asbab o Alamat"*** is so popular among Asians especially South East Asians, that's why it is still in the curriculum with its keys and translations. This book also has details of different types of *Wajaulmafasil.* ***Ibne Baitar*** (1248 AD) has mentioned more than 70 drugs for *Wajaulmafasil* in detail in his book, ***"Kitab Jameul Mufradat Al Advia Wal Aghziya". Zia Mohammad Mashood Rasheed Zangi*** (1385 AD) has described this disease in his book, ***"Majmue Ziayee".***

Hakim Shahabuddin Abdul Karim Nagauri (1393 AD) was a renowned scholar of Unani medicine and well experienced court physician. He wrote, ***"Tibbe Shahabi"*** which is an acclaimed medical treatise, it also deals with the causes, symptoms and the treatment of *Wajaulmafasil. "Shrahe Asbab O Alamat"* by ***Nafis Bin Auz Kirmani*** (1449 AD) and "***Maadinusshifa Sikandar Shahi***" by ***Bahu Bin Khawas*** (1462 AD) have extended the knowledge on *Wajaulmafasil.*

One of the famous physicians of *Babar* Reign (1526 AD – 1530 AD) was ***Hakim Yusifi;*** one of his writings is "***Ilaj Al Amraz"*** in which he wrote sign and symptoms with treatment of many diseases. ***Rustam Jurjani*** (1544 AD) describes the drugs for the diseases of the joints in the 14th

chapter of his treatise, ***"Zakhirae Nizam Shahi"***. ***Dawood Antaki*** (1549 AD) enlightens the scholars of *Tibbe Unani* on *Wajaulmafasil* in a newer way in his book***, 'Tazkirah e Uloolul Albab"***.

Muhammad Abulqasim Farishta (1628 AD) compiled a book entitled, ***"Dasturul Atibba (Ikhtiyarate Qasmi)";*** the 3rd section of the book is related to diseases and their treatments. ***Hakim Ali Gilani*** (1554 AD – 1668 AD): In one of his manuscripts ***(Mujarrabate Gilani)*** has the famous prescription of **"*Roghane Devdar*",** which is effective in the treatment of muscular pain, arthritis and neuralgic pains.

"Tibbe Akbar" and "***Meezan ut Tib"*** by ***Akbar Arzani*** (1721 AD) and fabulous writings of ***Hakim Mohammad Alvi Khan*** (1747 AD) have introduced important points regarding the disease, as per the temperament of Indians. In 1807, ***Hakim Mohammad Shareef Khan*** wrote a book, ***"Ilajul Amraz"*** and ***"Akseere Azam"*** by ***Hakim Mohammad Azam Khan.*** These two books became pioneer in the field of medicine. ***Akseere Azam*** is famous as, **"Encyclopedia of Persian Medical Literature"** has detailed description on various types of *Wajaulmafasil* with references.

Unani physicians of 20th century like ***Hakim Abdul Aziz Lukhnawi*** (1911 AD) and his book ***"Biyaze Mujarrabat",*** and ***"Haziq"*** by ***Hakim Ajmal Khan*** (1927 AD) have mentioned important prescriptions for this disease.

Lastly but not the least comes the era of ***Hakim Kabiruddin*** (1889 AD – 1976 AD), who translated the books of different subjects of *Unani* medicine in *Urdu* language. Few of his works are – ***"Tarjumae Kabir"*** and ***"Al Akseer"*** has detailed description of *Wajaulmafasil.* In the later part of 19th century, monumental contributions were made by the laudable discovery of ether anesthesia by **Crawford Long** (1842 AD) and **W.T.G. Mosten** (1846 AD).

The epoch making discovery of bacteria as the causative organism of disease by **Louis Pasteur** (1822 AD – 1895 AD) and X-rays by **Roentgen** (1895 AD) are the illustrative land markers in the glorious pages of the history of orthopedics. **A.E.Garrods** classified chronic arthritis as two independent diseases, osteoarthritis and rheumatoid arthritis. In America, **Gold Thwaits** divides it into **Hypertrophic** and **Atrophic** in 1904. **E.H.Nicholas** & **P.L.Richardson** described it as, **"Degenerative and Proliferative".**[1-10]

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A Divine Itinerary of Al-Hijamat (Cupping)

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Summary

Cupping is the best remedy for almost all organic morbidities and always produces positive outcomes, if correctly followed by the recommended procedures, techniques and principles of Unani (Greco- Arab) system of medicine especially, recommendations mentioned by Albucasis and Ibnesena. These outcomes may be subtle and asymptomatic but always be remarkable like wellbeing, prolonging life, promoting health and efficiency or increasing quality of life etc.

Here, possible etymology, historical itinerary, important sites, possible hypothesis, behavioral changes perceived by Muhajim (cupped person) after cupping, and the techniques are explored in unique and different way.

Key Words: Macedonia, Warm, transient response, hypothesis, Muhajim.

Introduction

The word hijamat has been remained controversial with its etymology, epidemiological distribution and meanings. Whether the word was coined from hijamat or not, it always retained its literal meanings varying from- to reduce in size i.e. to return the body back, to minimize, and to suck or leech the morbid matter. In this text Ibne Manzoor evidenced the famous Old Arabic adage "Hajama al sabyo sadya ummihi" (baby has sucked her mother's breast) or 'ma hajama al sabyo sadya ummihi' (baby did not suck the breast of her mother) that also have accorded with and advocated the famous Ahadhis of Bukhari, Thirmidhi and Abu Daud, mentioning below:

1. "Khairu ma tadawaitum bihil hajamata wal fasd" (there are no remedies comparable to cupping and bloodletting).
2. "Khairul dawa al hajamata wal fasd" (The best remedies are cupping and venesection)
3. "Al hajamato alarraiqi amsala wa hiya tazido fil Aqle wa tazido fil hifz" (cupping on empty stomach enhances memory, brain and cramming)
4. In another statement ibne Abbas said "Innan nabi sallallaho alaihi wasallam ihtajama fa'atal hajjama ajra"(I cupped the prophet (SAW) and he paid me a fee)
5. ".Manehtajama li sabae ashrata wa tisye ashrata wa ihde wa ishreen.Kana shifa ammin kulle da" (whoever is cupped on 17th, 19th, 21st days of lunar month will be cured of every disease). Here, for those diseases which are incurable, like chronic diseases, cure (outcome of the therapy) may be produced as control of the morbidity or decrease in intensity of the disease, or may be symptomatic relief or subtle, subjective and asymptomatic positive but essential outcomes like prolonging life, promoting health and efficiency or increasing quality of life, and the like or a complete cure are the culmination of the therapy. This statement opens the door for some non conventional clinical trial and various experiments. In all of these divine quotations, word Hajamat has been used instead of Hijamat. Whatever the word may be, there is no debate or difference of thoughts of any scholars that Hijamat leeches (pull) or deviates morbid matter towards the site of elimination or from the lesion of important organ to the comparatively less important organ i.e. the place from where its elimination is easier.

Historical background

Way back in time, long before any historical or archeological evidence had been uncovered to support the appli-

cation of cupping instrument to the body as a therapeutic procedure. Prehistoric humans relied in part on their ability to leech (suck) and draw to the surface of any irritations such as stings and thorns.

Cupping is purely a Greeko-Arab(Unani) Remedy:

Historical itinerary of cupping therapy from Greek to the Arab: Cupping therapy is one of the oldest documented medical techniques (Kaptchuk *et al.*1997). The practice, which involves suctioning the skin through a cupped instrument, as apparently been used since prehistoric times to treat diseases and disorders, with the earliest documented evidence traced to ancient Macedonia, circa 3300 BC (Abele, 1996) and verified documentation of its use in several other early cultures (Chirali and Scott,1999; Nielsen, 1995).

Ancient Papyrus 2200 B.C describes about the common practice of this art in the world. It can be observed by mugging up the pages of ancient history that dominant existing rulers of the world not only influenced the mainstreaming socioeconomic and cultural values of the world but also effects concepts, hypothesis and as a results medicine also remained untouched.

Out of the infinite number of incidences, some great examples are mentioned here as: Indian surgery suffered a setback because of the doctrine of ahimsa (non violence), Ayurveda declined during the Mughal period,(Kutumbiah,p,1956), fall of Roman empires led to the disappearance of Roman medical schools and the reverting back of medical practice to the primitive medicine(dominated with superstitions and dogma) in European regions ruled by the Christians in the middle ages (Parke-devis,1961),calling of Hajjam as a barber after the complete extraction and transformation of knowledge from Arabs to western world, burning of the documents of Galen and Ibnesina by Paracelsus, conversion of barber association to the royal college of surgeon after revival of medicine in Europe(Park,K.2009), most recent example is hype of epidemic of swine flu in India , revitalization of Unani and other complementary systems of medicine and their recognition by World health Organization due to their holistic approach and looking into the depth of multifactorial dimension of health and disease , and again not accepting the centuries old work of physicians of complementary systems and creating more and more hindrance in mainstreaming the complementary systems by making clinical trial and other observational trial more complex day by day. All are influences of Industrial and materialistic world which do not intend to even think in subtle and transcend dimensions which are far beyond the art of physiological, pathological, and biochemical explanations. Even some explanation need be explored through metaphysics and supra material world and cannot be proven by existing hit and trial experiments like Rooh (The Sprit, described by the Prophet(s.a.w.) 'amre rabbi'(who does not explained Amr due to certain standard reasons).Although the materialistic world is accepting the ill-defined terms like wellbeing and quality of life in the WHO definition of health but again committing mistakes and deviating itself by measuring these terms in terms of money and other measurable indicators like PQLI,HDI,HPI,GDI and GEM etc. Besides this, medical historians admit that there was free exchange of thought between Hindu, Arab, Persian, Greek and Jewish scholars. Chinese medicine was also influenced by migration of Buddhists scholars from India to China. After more than 700 years of Macedonia, this art (cupping) entered into China. All of these incidences of history showed that Itinerary of power shifting also leads to the transformation of knowledge and medical sciences and remedies which are being summarized below:

Macedonia (region) is a country located in the central Balkan peninsula in Southeastern Europe. It is one of the successor states of the former Yugoslavia, a wider geographical and historical region covering both a region of Greece, modern country in southeastern Europe, as well as parts of Bulgaria, Albania, and Serbia. In antiquity, most of the territory that is now the Republic of Macedonia was included in the kingdom of Paeonia, which was populated by the Paeonians, the people of Thracian origins, It also included parts of ancient Illyria [1]and Dardania, inhabited by various Illyrian peoples, and Lyncestis and Pelagonia populated by Molossian tribes. None of these had fixed boundaries; they were sometimes subject to the Kings of Macedon, and sometimes broke away.

In 336 BC, Philip II of Macedon conquered Upper Macedonia including its northern part and southern Paeonia, which both now lie within the Republic of Macedonia.[1] Philip's son Alexander the Great conquered the remainder of the region, reaching as far north as the Danube, and incorporated it in his empire. The Romans included most of the area of the current Republic in their Province of Macedonia, but the northernmost parts lay in Moesia; by the time of Diocletian, they had been subdivided, and the area of the current Republic was split between Macedonia, Salutaris and Moesia prima

Medieval period:

***Sklaviniae in Medieval Macedonia* c. 700 AD.**

During the 580s, Byzantine literature attests to the Slavs raiding Byzantine territories in the region of Macedonia, aided by Avars or Bulgars. Historical records document that in c.680 a group of Bulgars, Slavs and Byzantines led by a Bulgar called Kuber settled in the region of Keramisian plain, centered on the city of Bitola. Persian's reign apparently coincides with the extension of Bulgarian control over the Slavic tribes in and around Macedonia. The Slavic peoples that settled in the region of Macedonia accepted Christianity as their own religion around the 9th century, during the reign of Tsar Boris I of Bulgaria.

In 1014, Emperor Basil II finally defeated the armies of Tsar Samuil of Bulgaria and by 1018 the Byzantines restored control over Macedonia (and all of the Balkans) for the first time since the 7th century. However, by the late 12th century, Byzantine decline saw the region contested by various political entities, including a brief Norman occupation in the 1080s.

In the early 13th century, a revived Bulgarian Empire gained control of the region. Plagued by political difficulties, the empire did not last and the region came once again under Byzantine control in early 14th century. In the 14th century, it became part of the Serbian Empire, who saw themselves as liberators of their Slavic kin from Byzantine despotism. Skopje became the capital of Tsar Stefan Dusan's empire.

With Dusan's death, a weak successor appeared and power struggles between nobles divided the Balkans once again. This coincided with the entry of the Ottoman Turks into Europe. The Kingdom of Prilep was one of the short lived states that emerged from the collapse of the Serbian Empire in the 14th century. With no major Balkan power left to defend Christianity, central Balkans fell to Turkish rule — and remained under it for five centuries. (Web:1,11/09/2010)

Medieval period/ "Middle ages" is also considered as **"the dark ages of medicine"** only because of the reason that the Europe was passing through the time of great strive of socio-political change, of regression and progression; At the same time, Arabs stole the march over the rest of civilization, they translated the Greco-roman medical literature into Arabic text and helped preserved the knowledge. Borrowing largely from the Greeks and Romans, they developed their own renovated and innovated system and reinvented medicine known as the Unani system of medicine (Parke-devis, 1961). This system of medicine was introduced in India by Muslim rulers about the tenth century AD, flourished in India and still remained alive in India and have become the part of Indian culture and continued to be an important source of medical relief to the rural as well as urban population(Banerjee,J.N.,1966)

Epidemiological distribution of cups: Practices of Various pious vessels throughout the world: Shells were used by the natives along the west coasts of North America, in the vicinity of Vancouver Islands; Animal horns were used in Europe, Asia, Africa and North America; Sliced point of Buffalo horns were used by the natives of North America, the natives made their cupping implements by slicing off the point of a buffalo horn.

Other cupping instruments, which came into existence, were made up of Bamboo, Horns, Pottery, Fire (cups), Metal Cups, Glass cups / common drinking Glasses, Modern cups/Suction cups.

Types of cupping on the basis of scarification and the techniques used for suction and recommendations: It can be classified into the following types:

Dry Cupping or Hijamat Bila Shurt (cupping without scarification): It is actually the first step of wet cupping process to distribute and accumulate the morbid matter uniformly and evenly at the place of elimination where the scarification has to be done. To attain this very purpose, the empty vessel is first put in position and then sucked moderately without holding the cupping-vessels in a place, and cups are applied and removed quickly. So, that the morbid humours gather evenly at the place of elimination. This process should be repeated time after time (and sometimes takes several sittings without scarification) until the place is seen crimson and swollen and the redness of the blood manifested.

Only occasionally, the Unani physicians practiced dry cupping as a complete therapy but as a initial step of wet cupping, like, they stated that cupping without scarification is the cupping practiced below the bust line, on(over the region of) the liver, the spleen, the lower belly, the umbilicus, the region of the kidney and the acetabulum of the femur for curing the respective disorders, Metrorrhagia or menorrhagia and epistaxis, Hepatic problems due to air, the problems of spleen due to air, Inguinal hernia (on the respective site), Severe abdominal colic, pain abdomen due to flatulence and dysmenorrheal pain, Renal calculus or any obstruction , Sciatica Piles, hydrocele, Niqras and the problems of the hip and thigh (in between the flanks), respectively, for these part do not tolerate scarification.

Wet Cupping or **Hijamat Bil Shurt** (Cupping with scarification and drawing of blood): After accomplishment of very initial and essential step of dry cupping, scarifica-

tion is attained and the suction is repeated very gently, then the bodily conditions are considered. For the person of tender flesh and porous skin, not more than one scarification is recommended, lest the place ulcerated. Muhajim (the person who is cupped) is to be scarified rather widely and deeply with keeping control over suction with gentleness and a delicate motion. If there be a thickness of the blood, he should be scarified twice to make the way out for the thinner blood and plasma and then to complete the extraction of the thick blood and thrice scarification for completion of the therapy is needed in case of more turbid blood. In general, one scarification is enough when we wish to draw a little thick blood, but if we wish to draw more blood we need more scarification (Internal ethical committee of National Institute of Unani medicine has allowed not more than 50ml blood to be withdrawn in one sitting). If we judge that the blood is thicker, we should scarify deeply. A fair depth for the scarification is the thickness of skin and not more than that.

Recommendations for different mizaji (temperamental) conditions:

The oil and water to be used in applying cupping vessels: For thick, solid, desiccated skin of narrow pores, Hajjam(cupper) should anoint the place with opening and emollient and resolving oils like Roghan (oil) haft barg and babuna; or if it be in the summer season, with, i.e. oil of yellow or violets gillyflower or of roghan badam sheeren(oil of sweet almonds) or of pumpkin seeds and the likes. If it be in the winter, with narcissus oil or oil of lilies, camomile oil, jasmine oil, or the likes. And if the superfluities be thick and cold, then oil of marjoram, wild thyme, Ben or dill should be applied. If he who is to be cupped has wide open pours and tender flesh, he should be forbidden oils. After cupping, such muhajim should wash the site with rose water, cold water of black night shades or of gourds, or garden purslain, or the likes. For he whose blood is very humid, should wash the sites of his cupping with vinegar or water of myrtle or sumac, and the alike. For the muhajim of thick superfluities should wash the sites of his cupping with old wine or decoction of dill or of camomile etc. One should beware of cupping in the bath or just after the bath, but can have cup one or two hour after leaving the bath. And no one should sleep after cupping. For those who are choleric (bilious) in nature and have preponderance of prevailing factors like bitterness and inflammation in his sanguine (blood) should take cooling diets such as pomegranate and endive with vinegar and lettuce and oximel and julep, etc. His diet should be chicken and mutton made into stews with vinegar, and soups with verjuice, etc. The man of frigid constitution should drink syrup of honey or quince or spiced oxymel; he should also take perfumed raisin wine, not too old and not too new; he should be bidden to be moderate in eating and should make his diet young pullets and larks and sparrows and young pigeons in white stews and on the day of cupping and venesection he should drink rather than eat it may sometimes be necessary to have some people drink the great theriac or musk-medicine(different preparations of Musk i.e. dawa-ul-misk like motadil jawahar wali aur sada etc)or shilitha before cupping and before or after venesection to strengthen the chief parts and to render the blood thin; but these draught should not be given to the feve

Water Cupping (Hijamat e Maiya)

Sometimes in pleuritic complaints Unani physicians stated that cups are applied filled with tepid-water/decoction. This is done by filling the vessel, which should be large, with plain hot water, or with hot water decoction of suitable herbs. This is applied to the place, full, and held there, then removed; and the process repeated as often as is necessary. This technique can be performed for attaining the action of fomentation and getting the maximum benefit of the drugs of the like actions, together with the other conventional actions of cupping therapy. This indication is partly the result of applying hot cups. (Kabeeruddinn1930, Albucasis)

In Chinese, bamboo cups would be boiled in a herbal decoction just prior to applying to the skin (this is one type of liquid cupping, so-called because a liquid is incorporated into the treatment). Both liquid cupping and cupping over an acupuncture needle are favored for treatment of arthralgia. Cupping also is thought to dispel cold by virtue of its ability to release external pathogenic factors, including invasion of wind, damp, and cold.(Dharmananda. S)

Fire Cupping or Hijamat **e Nariya or Moxibustion** (Camphor Fire Glass cups, Spirit Fire Cups, Camphor and coin fire cup): Vessel mouth should be a width of two open fingers; the depth should be half a span; and in the side about halfway down there should be a small hole of a size to admit a needle, made of Chinese bronze or of brass. Edge should be thick smooth, even and polished, so as not to injure the part to which it is applied and in the middle there should be a transverse rod of bronze or iron to carry the lighted lamp. Size may be larger or small to suit various ailments and the age of the user for cupping vessels for boys and thin persons differ from those for man and stout persons.

Now this is the manner of applying this cupping vessel with fire to a part of the body. Light is to be set to a strongly twisted wick of linen or a small wax candle, and it is to be on the middle of the cross piece in the middle of the vessel, so that the flame be directed toward the lower part of the cupping vessel and not burn the patient's body. Then the vessel should be placed on the part with the finger kept over the above-mentioned hole; then after holding the vessel sufficiently long there, the finger is taken away; the vapors will come out through the hole, and the vessel will become loosened at once, then light the wick as prescribed and repeat the wick if necessary (Kabeeruddinn1930, Albucasis).

If such vessels are not available, we can use common drinking glasses instead, but then we cannot perform scarification in camphor and coin fire cupping because this will alter the blood flow and may contaminate the blood. But in case of sprit and paper fire cupping, we can operate the wet technique also. Because it superficially warms the cup and not be kept inside, so does not contaminate blood.

Moveable Cupping glasses/Massage Cups (slide cupping): In some cases, the cup may be moved while the suction of skin is active, causing a local pulling of the skin and muscle (the technique is called gliding cupping).This technique can be performed as dal'k e layyan amlas kaseer bil roghan or bila roghan (type of soft and silky massage with or without oil), a replacement of bahtere hathon ka dal'k (massage with many hands).

Behavioral/Psychological changes perceived by the Muhajim (Cupped patients):

Albucasis observed that people with abundance of blood sometimes felt heaviness and pain in the head; some found they have fullness and redness of face, head and neck; some had an itching in their face and forehead and the dimness and irritation in their eyes; some scratched the cupped area; some laughed immoderately; some found the taste of blood in their mouths, gums swollen up and they spitted blood; some slept over much, some frequently dreamt of seeing blood and redness and murdered men and wound and the likes. So, he told the cupper as when we see anything of this kind, and especially if it be in the 2nd and 3rd lunar month, we thereupon prescribed cupping after the second and third hours of the day have passed. (Kabeeruddinn1930, Albucasis)

Conclusion: Cupping therapy historically and etymologically belonges to Unani system of medicine. National Institute of Unani Medicine, Bangalore is the center of excellence for this system and the only international institute of this system. Besides this, Aligarh Muslim university, Nizamia tibbia college, Hyderabad and Jamia Hamdard are also serving Unani (Greeko-arab medicine) to the community and practicing Unani remedies as a standard interventional trials including Al-Hijamah (cupping) and all Regimenal therapies like Al'q (leeching), Nutool (pouring from standard heights), Hammam (series of exposure to different baths and atmospheric rooms to change the altered temperament), Pashoya, Takmeed, Bakhoor etc. in a scientific manner without losing its traditional values. Al-Hijamat is a technique which is gaining popularity in treating multifactorial deseases of iceberg in India. These therapies are holistic in a way that they change the complete local and systemic internal environment and lead to acclimatization/ adaptation to external environment in Toto.

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Spiritual Prospective in Anxiety Neurosis

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Summary

Spirituality can refer to an ultimate or an alleged immaterial reality, an inner path enabling a person to discover the essence of his/her being; or the "deepest values and meanings by which people live. Spiritual practices, including meditation, prayer and contemplation, are intended to develop an individual's inner life.

The word anxiety has been derived from a German word angst meaning sense of dread and loss, from a Latin word anxietas meaning nervous, restlessness and from a Greek word meaning to constrict. The term anxiety is used to describe the feelings of uncertainty, uneasiness and apprehension or tension that a person experiences in response to internal or external stimuli and can result in physical, emotional, cognitive and behavioral symptoms.

Anxiety is an emotional state, unpleasant in nature, associated with uneasiness, discomfort and concern to fear about some defined or undefined future threat. Some degree of anxiety is a part of normal life. Treatment is needed when it is disproportionate to the situation and excessive……..

Introduction

Role of Faith in Anxiety

The Quran is final commandment of God and the Quranic education always provide new dimension of hope when the man is tired to find out a solution of any un resolving matter . It helped man's mind to go beyond the barrier of material universe. All the Universe with it's vast space is the creation of God and Quran invites man to study it and discover for himself its mysteries and wonders and endeavor to use it" Widespread resources for his benefit.

The principles of medicine are deeply rooted in the Islamic faith. That means whole sciences of medicine are closely related to quranic studies and Islamic faith through the injunction of Holy Quran and Hadith of Holy Prophet. It is fact that every medicine just help the human system to removal of causes, drugs directly not cure the disease as prophet said "God has not send down a disease without sending down a remedy for it"

The faith in God like a relief value, helps to regulate psychic urges and provide a perfect beauty to life, faith in God not only removes anguish and anxiety from the human heart , it can protect it from being over whelmed by agitation, agony and depression, the Quran describes the role of faith in these words.

It is He who sent down tranquility into the hearts of the faithful (48:4)

Role of the faith in spirituality

A study of the history of human progress proves that the support of man civilization and culture have always rested on the shoulder of those for whom the power of faith had made it easy for them to bear the heavy burden of hardship and pain whose negative effects were neutralized by the faith present in their strong hearts.

Psychologist admits that the power of faith is amazingly effective in the cure of psychic neurosis and building of confidence and inner peace. Some time severe hardships shatter man's personality and divest his hope and will power, trust in God produces a profound and un deniable effect in defeated soul. If faith in God is deep rooted in the heart then failure, adversity and difficulty can never create a storm in the life.

Role of Faith in resurrection.

Similarly, faith in resurrection and after life removes the intolerable strain induced by the idea of absolute annihilation and extinction from the human spirit, for the person with such a faith is convinced that at the thresh hold of

death, the door to another world will open in front of him and he will enter in eternal life and its everlasting bounties that can't be compared with the joy of this world. This faith result in the eliminating another agent of mental anxiety which is the anguish of absolute non existence.

If you have faith, do not yield to fear and sorrow, for you have an upper hand over the others on account of this asset of faith (3:139)

Role of Islamic Medicine

We are always thinking about alternative medicine like Aurvedic, Unani, etc but in my mind it is striking that do we have no Islamic alternative? Why? Did not our dear prophet (Blessing and peace of Allah be upon him) Say "I left among you what it you hold on to, you will never go astray, the book of Allah and my Sunna (life practice). I think these doses not apply only to acts of worship (ibadat), it covers all aspects of life. The well being of the person emotionally, physically, spiritually and mentally is necessary for the believer to participate fully in life, fulfilling his or her duty towards Allah and towards society

Spirituality is the component of health.

Holistic therapy does not concentrate only on the physical body it views the human body being as combination of five "bodies" (1) Physical body (2) Biochemical body.(3) Intellectual body (4)emotional body (5) the Spiritual body, this is the part we usually neglect in our daily routine this is the important component of our body which connect us with our Almighty creator which acquires its driving energy directly from this connection.

So according to the holistic approach Health is not only absence of illness but also the balance between these five bodies. WHO also describe health as "a state of complete physical, mental and social wellbeing" and this is exactly what Islamic teachings are all about.

Islamic Teaching to dealing properly with our stress

It has been proven that mental and emotional stress affects our body. Fear, worry, envy, egoism, boast fullness truly poison the body these things affect not only our psychology and emotions but also our physical body & immune system. Some people perceive any problem as menacing imminent and troublesome, while other approach their problems with a fighting spirit, favoring adjustment and adaptation. Perceiving stress full situation as harm full hinders our ability to analyse and subsequently cope with these situations. On the other hand, seeing them as challenging enables us to deal effectively with the events.

Our way of coping with our anxiety depend primarily on our degree of faith, it can provide strength and peace of mind we turn each failure into challenge and each loss into hope. Allah promises to reward patience and the acceptance of His will in this life and in thereafter. The believer should always remember this verse of Quran.

Say, 'Nothing shall ever happen to us accept what Allah has or dined for us .He is our Mewl [Allah, Helper and protector] and in Allah let the believers put their trust.

Happiness is desirable in Islam

Happiness is inner feeling; it is contentment and satisfaction of one's soul.

Ibn al-Qayyim classified happiness into three types.

1) External happiness resulting from wealth power, prestige or the possession of worldly natural goods. This is provided us a momentary pleasure that can vanish in an instant. Allah says'

(Know that the life of this world is only play and amusement, pomp and mutual boosting among you, and rivalry in respect of wealth and children, as the likeness of vegetation after rain, thereof the growth is pleasing to tiller; afterward it dries up and you see it turning yellow; then it become straw.)

2) Second type happiness originates from the physical body. It is health, mood, and strength. It also comes to an end at any time. Allah says

Verily, we created the human of the best statue (mould), then we reduce him to the lowest of the Low.

3) Third type is moral happiness, which originates from the heart and the soul, this is true happiness, and it results from useful knowledge good manners, content of character and faith. Allah teach us in His Holy Book

(Say, 'In the bounty of Allah, and in His Mercy [Islam and the Qur'an]; therein let them rejoice. That is better than what [the wealth] they amass.) 10:58

Conclusion

So it is our believe and faith that real reason of happiness resides in the soul; this happiness can be served by the physical body (health & strength)and then other external worldly desires likes wealth and children who ever follow this order adjust their priorities and attains real bliss.

Actually real type of spirituality, which has life long positive effect on human health, is developed in man who has full faith on God, Quran and last Messenger. But in other way of a concept of spirituality is never be sustain for a long time regarding healthy life so it is very clear that no any power on which you fully believe in every difficult moment of life except Allah it means *Tawheed* is a key point of spirituality regarding to health and disease.

We observed on OPD patients who are suffering in anxiety neurosis that when we become success to develop faith on ALLAH then recovery from ailments becomes faster incomprision to those who are fails to cope up the anxiety with strong heart of faith on ALLAH.

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Hammam – A Unani Regimen to Stay Healthy

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Summary

Unani system of medicine has got holistic approach towards understanding disease and health. It charts out the measures to stay healthy and cure the disease in the light of its description of the disease and its causation. Humoral theory and the moderation in Mizaj have remained the main stay in the treatment strategy it employs for the cure and prevention of diseases. Health as primary state of living organisms has been evaluated with positive parameters though subjective in nature. Staying healthy in Unani perspective needs continuous efforts on the part of the person in choosing his/her diet, exercise, sleep hours and specific age/gender related regimens as described in Unani literature foe specific conditions.

Hammam or Turkish bath has been in practice for people predisposed to various diseases or with diseases caused by mizaj derangement. Various types of Hammam have been described and the general infrastructure of a typical Hammam has been elucidated in the paper. It also reviews the precautions and indications of various Hammams in various diseases.

Key Words: Unani medicine, Regimen, Turkish Bath, Mizaj moderation.

Since time immemorial mankind is concerned about personal hygiene / hygienic conditions around. It is the matter of fact that they started living near water resources. According to their need human beings developed new things and made them available for their well being with new advancements. Hamam is one of the useful inventions of the mankind.

Unani system of medicine is one of the oldest systems known to the mankind, in which many regimens are described and practiced since long time for the prevention & management of diseases Hammam is included among them.

Hammam has an age old history and it became popular in Roomi era. Antaqia and Yokelisiyan hammam's were located in Tadammur in the same Roomi era. When Turk went to Antulia a new concept of Turkish bath came out as a result of Roomi and Baaznateein civilization.

Some were of opinion that Islamic Arabic Hammam was the copy of old Unani Hammam. Some others were of opinion that earlier Hammam were the copy of Roomi, Baznateeni and old Shami Hammam's and those were very simple in their earlier days. Daktoor Afeef Bahansi thought that Hammam of Islamic era were the copy of old Shami Hammam which was in trend by earlier days of Halansati era.

They developed in Roomi era. Their proofs/ remnants are found in Hammam of Antakia, Basri, Tadammur and Shahba. These Hammam were divided into three categories based on their habits and tradition. The first one is Barid, second Moatadil and third one is Ha'ar.

The first Hamam constructed in Islamic era was located at Baladsham. Qaiser Umrah Hammam was the first Hammam of Islamic era which was constructed in Sha'am. The "Qaisur Heer Gharbi" hammam was located at Damashk in the era of Husham Bin Abdul Malik. There was abundance of Hammam in Islamic era as that time Hammam were associated with general public, rich peoples as well as built in mosques. The historians found that there were more than 600 Hammam's in Damask, Baghdad, Qartaba, Astanbol, Asfahaan and in other Islamic cities. In Halb only 177 or 195 Hamam were there. It is worth to mention that in 1169 AD Noor uddin Zangi had built a Hamam in Damashk, 13 century AD Hamam built by Salah uddin Ayyubi and by Damashk emperor in 1749.

The word Hammam is derived from Arabic word Ham which means heater or warmer, in other words vapour room.

Hammam is constructed in a large area consisting of three chambers/rooms. The first room is mubarrid and murattib. Second chamber is musakkin and murattib and third one is musakkin and mujaffif.

1. Al-Qism Al-Burrani (External part, Al-Qism Barid)

It's a roofed hall built in dome shape consisting of colour ventilators. This room is usually spacious and square shaped. Bathing tub is placed centrally and at one end outlet is there which used to remove extra water.

2. Al-Qism Al-Wastaani (Ma-e-Fatir, Neem garam)

In this room entry is through the door of first room and bathing room is in one corner. This mid portion is divided into two halls. In each hall big pitchers were placed consisting of both cold and hot water outlet. In this room latafat is more than harart. These big halls were connected with many small rooms and bath was taken there.

3. Al-Qism Al-Jawwani (Internal part, Al-Qism Haar)

Entry is through mid room. It consists of a big hall surrounded by pillars and stone pitchers are placed around these pillars. Arched doors are there and opens into maqsoora, these maqsoora are the small sized room consisting of stone pitchers and can accommodate four persons at a time.

Classification of hamm'am according to Ma'a (water used):

i. Hammam Ma-e-Barid

It removes excessive heat from the body. It exhillarates heart, tonic to brain and nerves.

ii. Hammam Ma-e-Bahri (Ocean water bath)

The ocean water contains different salts and it acts as muhallil (resolvent) & mulattif (demulcent). It prevents oozing of matters towards wound and useful for irq madni.

iii. Hammam Ma-e-Borqi (Salt water bath)

It has muhallil (resolvent) and mulattif (demulcent) effect. It prevents oozing of matters towards wound and useful for irq madni. Also found effective in gastric juices and ascitis.

iv. Hammam Ma-e-Kibreeti (Sulphur water bath)

It has muhallil (resolvent) and mulattif (demulcent) properties. It prevents oozing of matter towards wound and useful for irq madni. It also cleans nerves. It is found effective in falij (hemiplagea) and ra'asha (tremors). It is useful in gaseous and convulsive pains. It removes chronic pustules, wounds, chloasma and vitiligo from the body. It is also found useful in hardness of uterus. Its side effect is that it produces weakness of stomach and loss of appetite.

v. Hammam Ma-e-Natrooni (Armenian Bole water bath)

It has effective muhallil (resolvent) & mulattif (demulcent) properties. It prevents oozing of matters towards wound and useful for irq madni.

vi. Hammam Ma-e-Ramavi (Ash water bath)

It is muhallil (resolvent) and mulattif (demulcent). It prevents oozing of matter towards wound and is useful for irq madni.

vii. Hammam Ma-e-Nahsi (Copper water bath)

It is effective in amra'aze bareda wa ratba like osteoarthritis, sciatica, muscle weakness, asthma, furuncles and in renal diseases. Apart from this it is also used for isterkhae luhaat (weakness of uvula), ptosis and in ear secretions.

viii. Hammam Ma-e-Hadeedi (Iron water bath)

It is effective in amra'aze bareda wa ratba like osteoarthritis, sciatica, muscle weakness, asthma, fruncles and in renal diseases. It also used for stomach and spleen.

ix. Hammam Ma-e-Qifree (Lapis judacious water bath)

It provides heat to the organs of the body. It's side effect is collection of matter in brain. It is harmful for herpes.

x. Hammam Ma-e-Shibya wa zajia (Alum water bath)

It is used in haemoptysis, per rectal bleeding, menorrhagea, oedema, excessive perspiration and in habitual abortion.

Uses of Hammam:

- Produces sleep
- Opens pores of the body.

- Cleans the body.
- Resolves the matters.
- Concoctive to matters.
- Stops loose motions.
- Relieves fatigue.
- Liquefies humors.

Side effects:

- Causes weakness of heart.
- Produces vomiting and fainting.
- Produces weakness in organs and in nerves.
- Dissolves powers of the body and decreases body temperature.
- Decreases appetite and diminishes aphrodisiasic powers.
- Stimulates latent matters and putrefies them.

Precautions:

- Don't/Avoid stay for longer period.
- Sheerein water should be used.
- Avoid in empty stomach.
- Sitz bath should be used in Hammam
- Avoid just after exercise.
- Avoid after sexual intercourse and after intense emotional states.
- Avoid immediately after ingestion of food as indigestion and obstruction can occur

Indications of Hammam:

The Unani physicians were well aware of the uses and importance of Hammam that is why they mentioned it in their books and also used it for the cure of following diseases.

Amraze Ain

Zulmate basar (blindness), sabl (keratitis), haul (squint), slabate chashm, bayaze ain (corneal opacity), ramad (conjunctivitis), shaeera (stye), hikkae chashm, nazolul ma'a (cataract), Muqawi-e-Basar

Amraze unf

Suddae unf (nasal obstruction), badbuae unf

Amraze uzn

Wjae uzn (otalgia), bahrapan (deafness), graani gosh (heaviness of ear)

Amraze dandaan

Wajae dandaan (tooth ache), warme lissa (gingivitis)

Amraze Ra'as wa Demagh

Suda (head ache), Suda-e-barid, Suda-e-khumaari, sar'a (epilepsy), Rasha (tremor), Malankholia, Nazla wa Zukam (corrhyza)

Amraze halaq wa dahan

Warme halaq (phyringitis), qula (stomatitis), hararate duhan, khunnaq (diphtheria), kawway ka utarna (uvulitis), warm kasbatur riya (tracheatis)

Amraze sadar wa riya

Zaatur riya (pneumonia), zaatul janab (pluresy), shausha (pleurodynia), sil (phthisis)

Amraze qalb

Zofe qalb (weakness of heart), amraaze qalb haara ratba

Amraze meda wa ama'a

Sue mizaj yaabis meda, wrme meda (gastritis), tukhma (food poisioning), fuwaaq (hiccup), ishaa'l (diarrhoea), haiza (cholera), quroohe amaa (intestinal ulcers), qolanj (intestinal colic), badhazmi (indigestion)

Amraze jigar wa tehal

Yarqan (jaundice), istisqa (ascitis), salabate tehaal (induration of spleen)

Amraze gurda

Warme gurda (Nephritis), hesaate gurda wa masaana (kidney & bladder stones), usre baul (dysurea), ziabatus (diabetes mellitus)

Amraze tauleed wa tanasul

Ehtalaam (nocturnal emission), warme khussiya (orchitis), irtefae khussiya, basoore khussiya, quroohe raham, usre velaadat (dystocia), ehtebaase tams (ammenorrhoea), sailaane raham (leucorrhoea), inqlaabe raham

Amraze meqd

Bawaseer (piles), qaroohe meqd (anal ulcers), natue meqd (prolapse of rectum)

Hummiyat

Humma-e-Yaoom, H. Zarbania, H. Diq, H. Balghamia, H. Wbaiah

Amraze zahira

Juzam (leprosy), Barsh, Namsh, Saleel, Farbahi, Dublapan, Izal-e-Khumar, Susti, Irq-e-Madni, Jarb

Contraindications:

- Fasting is prohibited just after Hammam
- Sudden out coming should be avoided.
- Avoid sexual intercourse, exercise and anger.
- Sleeping should be avoided.
- Excessive cold and hot food and water is contraindicated in and during Hammam.

Conclusion:

The detailed description of Hammam in Unani medicine as shown above illustrates the application of it in various diseases and in healthy individuals. The marvel of Tibb is the individualization of the regimen to suit age, mizaj, built, gender, the season and time of the day. Hammam may serve apart from medical service an active, positive and valuable means foe eco friendly medical tourist venture.

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The Impact of Islam on Medicine in the Dark Ages

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Summary

The Dark Ages was a period (5th-11th century) with little intellectual expansion in Europe. However, during this time, the Islamic world flourished. The Caliphate during this time played a significant role in promoting the preservation and expansion of knowledge. This paper will also look at notable scientists, physicians and translators during this period and there contribution to medicine and humanity.

Key Words: Islamic Civilisation, Physician, Translation.

Introduction

The Dark ages is a term used to refer to a period in Europe between the fall of the Roman Empire and the High Middle Ages. It is now more commonly known as the Early Middle Ages, and is generally accepted to be from the 5th to 11th centuries. During this time there was very little intellectual enlightenment or progression in Europe[1]. This article will focus on the impact that Islam had on Medicine during the dark ages. It will briefly look at how the teachings of Islam helped encourage understanding and progression, and how the rulers during that time, in particular the 'Abbasid Caliphs helped facilitate this development [2].

The teachings of Islam are primarily concerned with ones spiritual life. However, it also sought to improve one's physical and day to day life. The teachings of this religion had put a huge degree of importance upon ones purity. This is apparent from teachings that declare cleanliness is half of one's faith and that God loves those that are clean. This encouraged adherents of Islam to be particularly wary about their hygiene. Muslims are also required to be in a pure state when they pray. This is usually observed by performing a partial ablution. This involves washing the hands, mouth, nostrils, face, arms and feet. These traditions and others helped to prevent the spread of infection and improve overall hygiene[3, 4].

The Golden Age

As Europe was facing its Dark Age, the Islamic world entered in what is said to be its Golden Age. During this era, the Islamic world contributed greatly to many areas of science and art. They expanded and developed previous knowledge and created new fields of study. The main Islamic government during this time were the 'Abbasids, which for most of their rule had Baghdad as their capital. At the peak of their power, this empire stretched from as far west as Spain, and to China in the east. They governed for about 500 years starting in 750 CE. The policies of this government led to Baghdad becoming a cauldron of cultures, intellect and the financial capital of the Islamic world. Although other regions such as Cairo under the Fatimid government, and Spain under the Ummayad government flourished, Baghdad was the most significant. An important step the 'Abbasids took was the making of the House of Wisdom. Modelled on the Imperial Sassanid Library, the main purpose of this house was to translate books from foreign languages into Arabic and preserve them. The vastness of this empire, its openness, and its thirst for knowledge enabled Persian, Greek, Egyptian, Spanish, Indian, Chinese and knowledge from other areas to be brought to Baghdad and translated into Arabic. The books translated covered a vast range of subjects including medicine, philosophy, mathematics, astronomy and many other subjects. One of the main translators, especially of medical texts was Hunayn ibn Ishaq, who was a Christian physician, scholar and translator. He was fluent in Arabic, Persian, Syriac and Greek. His accurate translations earned him the title, "Sheikh of the Translators". The translation of medical texts enabled many physicians in the Islamic world to learn medicine from other parts of the world and develop them even further[1, 2, 5, 6, 7].

9th Century

In the 9th century, a number of important medical discoveries were made in the Islamic world. One of these discoveries was made by Al-Kindi, born in 801 CE. He excelled in various areas including music, philosophy, mathematics, pharmacology and medicine. He applied mathematics to pharmacology by grading the effect of drugs. This led to advances in medicine by being one of the first people to quantify the effect of drugs. This was a significant step, as it helped physicians decide what drug to use and how much of it will be used. His works were translated into a Latin book called, "De Gradibus". However, it was commented that the mathematics used by Al-Kindi in calculating the potency of a drug was extremely difficult and hard to follow. This may have caused difficulty for physicians trying to use this method[8, 9].

Another notable scientist, born in 838 CE was Ali ibn Sahl Rabban Al-Tabari. He was a Persian scholar, physician and psychologist. One of the main contributions he made to medicine was creating, "Firdous Al-Hikmat" in 850 CE. This book was one of the first medical encyclopaedias to have been written. It was based on a variety of Greek, Persian, Arabic and Indian sources. In this book, he covers a substantial number of diseases and goes into much depth about them. An encyclopaedia was much needed in that period of time, as it helped incorporate the knowledge of many books from a variety of sources, into one book, that physicians could use[8, 10].

One of the most notable scientists produced during the Golden Age of Islam, and a student of Al-Tabari was Mohammad ibn Zakariya Razi. He was born in 865 CE in the city of Rey to a Persian family, and is commonly known as Rhazes in the west. He had a lot of interest and success in subjects such as Medicine, Chemistry, and Philosophy. He is said to be a polymath, and was also a scholar in religious matters. He made a number of advances in medicine. He was the first to write a book on smallpox and measles, and discovered that they were two different diseases. In this book, he goes into great depth about these two diseases. He wrote about the differences between these diseases and their symptoms. He looked at what symptoms these patients developed and when they developed it during the course of the disease. He would use these details and others to predict the severity of the disease and would give a prognosis. This was of significant importance as these diseases were prevalent in the east and had a high mortality rate. Another one of Rhazes many books was called, "Al-Hawi", or "The Comprehensive", in English. This book was one of Rhazes main books that made a big impact in Europe. It was a big manual that contained information about many diseases. For each disease, Rhazes cites Greek, Arabic, Indian and Persian authors' observations regarding the disease, before giving his own valuable opinion and experiences. Rhazes exceptional medical talent earned him much fame. He eventually became the director of the main hospital in Baghdad and Rey. Although hospitals existed before the religion of Islam, significant changes and improvements were made to the hospital design and system. He made a number of noteworthy changes to the hospitals, such as making a special separate section for the mentally ill. He also improved the aftercare services of the hospitals by giving some patients that were dismissed a small sum of money, which was to help them with their needs after they had left the hospital. He also encouraged ethical practice by advising his students to respect their patients. In addition to advising student physicians, he would recommend patients to avoid doctors that were addicted to wine, and would ask them to evaluate their physician and the service which they had received. Overall, Rhazes has been accepted as an exceptional figure in medicine, and a significant person in the Islamic Golden Age[8, 11-13.]

10th Century

In the 10th century, important advances were made in the field of surgery. A man that made significant advances in this field was, Al-Zahrawi, more commonly known in the west as Albucasis. He was born in Al-Zahra, which is near Cordoba, Spain, in 936 CE. He made advancements in many areas of surgery, and developed many original surgical techniques and instruments. For example, he was the first to create a non-sinking trephine for use on the skull. It would have a rounded margin beneath the sharp head, and this would prevent the trephine from entering and damaging the brain tissue. Albucasis wrote over 30 books relating to medicine. In these, he addressed a variety of surgical issues such as skull fractures, Spinal injuries, hydrocephalus and others. In addition, he provided details of treatments for these issues. He was also aware that during invasive surgical procedures, pathogens could enter the patient. As a result, he would make procedures more sterile by using alcohol obtained from wine. His original works and creations in surgery earned him the title, "Father of Surgery"[13, 14.]

Another important scientist of the 10th century was Ibn Sina, or more commonly known in the west as Avicenna. He was born in 980 CE, near Bukhara, which was part of the Samanid Empire. He is one of the most well known scientists of the Islamic world. This was due to the fact that,

many of his books were translated into various languages, and used extensively for hundreds of years. Avicenna was a polymath, and wrote numerous books on a variety of subjects including medicine, philosophy, astronomy, mathematics and many other subjects. One of the most well known medical books written by Avicenna is, "The Cannon of Medicine". This book was a medical encyclopaedia which included works of previous physicians from various backgrounds, as well as including his experiences and discoveries. Although it was not the first medical encyclopaedia, the way he classified, summarised and organised it was distinct. The book was split into five main parts, and covered a vast range of medical topics. This book was used widely in Europe after the Dark ages. It set the standards for medical practice in the Islamic world and Europe for hundreds of years, and was used in many medical schools across the globe. His efforts and hard work earned him many titles including, "Prince of Physicians"[8, 13, 15-18].

Conclusion

This essay has looked briefly into a period of time in which the Islamic world was exceptionally rich with knowledge, and in which numerous discoveries were made. The vastness of the Islamic world[2], its rulers[2,3], its scientists and translators[2,3,6,7] helped knowledge from previous civilisations to be preserved and developed even further. The important advancements that the physicians[8-18] of the Islamic world made, contributed greatly to create the foundations of modern medicine, and have benefitted humanity very much.

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Historical Development of the Profession and Education of Midwifery in Turkey

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Development of societies can be can be evaluated through importance they attach to their reproductive health and governments' success in investments and sanctions related to the matter. It should not be forgotten that midwives are the most important manpower in the achievement of this success (1,2).

Since the beginning of human existence, the duty of lending assistance to giving birth has been assigned to midwives in all cultures and midwives has lent assistance via different techniques many of which composed of natural methods (3,7) .

Midwifery is one of the oldest professions of the history after medicine (6). Initially midwives were defined as "submissive, dependent, patient, helpful, naive, faithful and devoted individuals supporting their seniors and letting them develop authoritarian and bossy attitudes toward them and conforming to commands without questioning". Until the beginning of the 20th century, expectations continued like this(3,7). However, in the 20th century and after the World War II, under the effects of such factors as the beginning of feminist movements in the world, the development of the concept of team in health systems and the weakening of traditional hierarchical power structures in systems, definition of midwifery has changed as well (8).

World Health Organization (WHO) defines a midwife as "a person trained to provide necessary care and counseling during pregnancy and during and after giving birth, have normal delivery done under his/her responsibility and offer care to the newborn" (3, 9) .

However, WHO suggests using the term 'nursing' for midwifery under appropriate conditions as well. However, this approach was criticized by International Confederation of Midwives (ICM) and it was emphasized that midwifery is different from nursing (8).

In 1919, with the aim of providing women giving birth with midwifery services more regularly and better, the International Association of Midwives was established and in 1954 this association was changed into International Confederation of Midwives (2,10). According to the International Confederation of Midwifery established (ICM) with the aim of developing the profession of midwifery, increasing its autonomy and developing the standard of care provided to women, babies and their families all over the world, "Midwife is a trustworthy, responsible professional offering care and giving necessary advice to women during pregnancy, during giving birth and in the postpartum period, carrying out giving birth under his/her responsibility, providing care to the newborn and working in collaboration with women. Giving antenatal care and training, preparing people for parenthood, sexual health and reproductive health, carrying out activities related to childcare are also among the duties of midwives"(11).

For Turkish society, midwives have a distinct place. Together with birth, the first person who an individual see when s/he opens his/her eyes to life is the midwife. In our culture, those who are most continuously together with the society are midwives and thus showing high respect to them has become a custom (6).

Helping a living being to come to the world, lessening the pain of a mother suffering labour pain and achieving the joining of an individual expected with desire and yearning in the family has caused midwives to acquire a respected place in the society. This situation has required the midwifery education, which was informal formerly, to change into formal in later years and acquire the quality of a contemporary profession (3, 6, 12, 13).

In the first times of the Ottoman Period, it is observed that the profession of midwifery was performed by the minorities living in the Ottoman State. When the Ottoman Period archives are examined, it is observed that the archieves include pieces of information about Sakine Sofya Veled-i Yani's demanding to be employed as a midwife in Balat

after graduating from Medical School (Mekteb-i Tıbbiye) and Madam Apyar's working as a midwife at Darülaceze. Again, in the archieves of later periods, there are registers mentioning about Emine Hanım's (of Turkish midwives dwelling in Kemer Edremit) not cutting umbilical cords of babies during giving birth and causing them to die(14).

The subject of a firman issued in the Ottoman Period in January 1786 is related to the punishment of non-Muslim herbalist selling banned herbs. Although the firman gives no information about which herbs were prohibited, it is assumed that they were most probably miscarriaging herbs. In the Ottoman Period, a month after Selim III's ascending the throne, with a firman issued in May 1789, the selling of drugs which were likely to cause miscarriages by physicians and pharmacies was banned. This decision, which was limited only to the area of Istanbul formerly, was made valid for the other provinces of the empire with the issue of an additional firman(15).

Again, when the practices and regulations related to miswifery are examined in the archieves, it is observed that in the Ottoman Period, a short while after abolishing Janisaries in 1826, Mahmut II issues a firman in March 1827 about miscarriage (iskat-i cenin) and in accordance with this firman he sends two Jewish midwives providing pregnant women with miscarriaging drugs (one of these midwives is nicknamed as bloody midwife) into exile to Salonika. In the same firman, heads of non-Muslim communities were given orders related to opening investigations against community members involving in miscarriaging (iskat-i cenin) affairs(14,15,16)

It is mentioned in the Ottoman archieves that midwives were also commissioned in alimony trials for the settlement of the trial. When the woman understood a while after she got divorced that she was pregnant, she claimed alimony until she gave birth to the child from her ex-husband, but if her husband did not believe she was pregnant, the woman was sent to midwives and the situation was made clear. If we are to give an example related to these suits included in the archives, we can give this: "Although the woman named Kerime dwelling in Abdal Mehmed Neighborhood breaks up with his husband, Saban, 23 days before and when she understands that she is pregnant, she claims alimony from him until she gives birth, his husband does not believe she is pregnant(17). In this case, Kerime is sent to the house of a woman named Fatma, who is understood to be a midwife in Hoca Yunus Neighborhood, by the court to see if she is pregnant and when it is understood that she is pregnant, a decision was made regarding his husband's, Saban, paying an alimony of ten akca daily"(18,19).

Again, in the Ottoman, with a firman dated 1838, with decreasing population concerns, miscarriage was banned; the matter was associated with the future of the society and the state rather than taking it individually(20).Not only Muslim subjects but also non-Muslim subjects were prohibited to do miscarriages; necessary measures tried to be taken also with the contribution of their own clergymen. Moreover, a more effective precaution was taken by also holding the husband of a woman doing miscarriage responsible to prevent the crime (20,21). The precautions suggested and accepted in the firman about the prevention of miscarriage (iskat-i cenin) are two-sided: The first side of the precautions was to warn physicians and pharmacists about not giving miscarriaging drugs(22). Within this framework, it was required that midwives, physicians and pharmacists belonging to the Rum, Armenian, Jewish and Armenian Catholic communities would take an oath through the mediation of their patriarchs and rabbis about not giving the drugs under discussion; Muslim midwives would take an oath before the qadi by being taken by neighbourhood imams to Istanbul qadi. The second side of the precautions was to put social control mechanisms into practice. Here it is emphasized that since not only experts but also other women might know about miscarriaging drugs, when a miscarriage occurs in a neighborhood, such an event could be heard around and it is required that heavy legitimate sanctions should be applied to those hearing about a miscarriage done deliberately do not inform the police about it and the pregnant woman doing this and her husband(21).

It is shown in the documents that the firman acquired a quality which was much more systematic and consistent than those issued before and its practice continued until the collapse of the state(22).

In the direction of the requirements of the country, under the lead of Dr. Besim Omer Akalın, the first "Midwifery Course" lasting two years was opened in 1846 for women working at Medical School (Mekteb-i Tıbbiye) as midwives with the aim of giving information about maternity(23). In these courses, lessons were given an hour a day and 2 days a week. Those who became successful were made to take an oath and first certificates were given in 1848. And in later years the midwifery education continued within the body of Military Medical School. In 1880, Dr. Besim Omer Akalın regulated the enrolment rules to the course and course programs again. The first midwifery school in Istanbul was opened in the quarter of Kadırga in 1909. In the same year, it moved next to the school at Demirkapı Maternity Hospital. Later it changed name into Kadırga Maternity Hospital. (16) Madam Lister gave service as a midwife at Kadırga

Maternity Hospital (17). Hence, midwives were provided with the opportunity to do practice at this maternity hospital. To this school were admitted primary school graduate girls/women below 30 and in the coursebooks were included clinical practices as well. Midwifery practiced via traditional methods formerly has found the opportunity to become a profession and enter social life together with the beginning of formal education. However, since midwives graduating from here could work only in Istanbul, in 1920 the Health General Directorate took primary school graduates from different provinces into midwifery education for two years as boarding students to fulfill the need for midwives in Anatolia. In the midwifery education, Dr. Refik Münir and Dr. Kenan Tefik have books entitled "Nursing in Midwifery". At this school, the principal of which was Dr. Besim Omer Akalın, the section of exhibition, physiology, diseases and bacteriology was taught by Dr. Kenan Tefik and the section of nursing was taught by Dr. Refik Münir. Dr. Besim Omer Akalın became the founder of contemporary midwifery in the country by publishing the books entitled "In the Postpartum", "My Advice to Midwives" and "Midwifery", which were the first books in the field of midwifery(23,24) In the Ottoman archieves, too, registers were found related to the permission given for the printing and publication of the books entitled "Midwifery" and "In the Postpartum" written by Besim Omer Pasha, the professor of Mekteb-i Fünun-i Tıbbiye(25).

In 1924, within the body of Istanbul Şişli Children's Hospital, a boarding midwifery school lasting two years was opened and later in 1928 the midwifery school in Haydarpasa Medicine Faculty started to admit secondary school graduate girls for midwifery education. When Haydarpasa Medicine Faculty moved to Beyazıt in 1933, the maternity clinic moved to Haseki Hospital and midwifery education started to be given here (23,25).

In 1950's, the development observed in population growth made mother health and child health problems related to prolificacy primarily important and "MCH Organization" was established by the Ministry of Health in 1952 for Mother and Child Health (MCH) services. Among the personnel working in these organizations were mostly midwives; since many problems related to women's health can be prevented, duties, roles and responsibilities of midwives have been broadened (11).

In 1961-1962, the midwifery schools were separated from the body of maternity hospitals and an educational system in which 3-year regular education is given, institutional information is taken at school and practices are given in maternity hospitals was adopted. In 1961, "Zeynep Kamil Health College" was opened by the Ministry of Health to train midwives. In 1966, the midwifery school moved inside Cerrahpaşa Hospital. In 1969, it was taken in the body of Istanbul University and the duration of instruction was determined as 4 years and it was changed into a "Health College" enrolling secondary school or girls' institute graduate female students aged between 15-25 years as day and boarding students. (11, 25)

The Ministry of Health combined midwifery and nursing schools in 1975 and made a decision to train "Midwife-Nurse". Two years later, the "Midwife- Nurse" education was abandoned and again midwives and nurses started to be trained separately. At the end of the 1978-1979 educational year, health colleges were changed into "Health Vocational High Schools", the requirement that midwives should finish the "Midwifery Departments" of health vocational high schools was brought (11,13).

In the 1985-1986 educational year, in addition to these schools, within the body of health services vocational schools, the "Midwifery" programs were opened. In the 1997-1998 educational year, "Health Vocational Schools" were established and within the body of these schools the midwifery undergraduate education was started. Today, in Istanbul, there are two health vocational schools giving midwifery education at undergraduate level (24).

Today, in Turkey, there are about 46 thousand midwives. Midwifery nursing practiced in developed countries is different from midwifery practices in our country. In these countries, when midwives take the pregnant woman, that woman's pregnancy and giving birth is under their responsibility. In our country, midwives state that contemporary midwifery practices do not only include having women give birth, but they also include education and research, preparatory for maternity classes and following, caring and counseling the pregnant when giving birth and in the postpartum (26).

When the professional description is examined, it is observed that a midwife is defined as the person admitted to an approved midwifery education program in the country where s/he lives within the frame of the relevant regulation provisions, having fulfilled the requirements of the courses envisioned in the field of midwifery successfully and having obtained an authorization legitimately to be registered and/or practice the profession of midwifery(1). However, defining the profession of miwifery, determining its duties, roles and responsibilities alone is not enough. It is necessary that these definitions should be supported legally, too. In our country, the duties of midwives were specified in "154- Numbered Directive on the Execution of Service in

the Areas where Health Services were Socialized" issued based on "224- Numbered Law about the Socialization of Health Services" and the 133rd item of 13.1.1983-dated and 17927- numbered Bedded Treatment Institutions Management Regulation(2, 5, 11).

During the historical development of a profession, its ethical development should also be achieved and professional ethics should be adoted by all members of the profession to protect the honour of profession. This rule is true for both all health and non-health professions. Health care ethics is a concept concerning nurses, midwives, health officials, health technicians and physicians giving health care(16).

While such professional values as benevolence, self-sacrifice, dignity and compassion were described as effective ones in midwifery until the beginning of the 20th century, today its scope has been broadened with such values as esthetic (characteristics of events and persons), equity (having the same rights, privileges and positions), human honor (believing in the uniqueness and values of the individual), justice, legal principles and respect.

Gynaecology and women's health, which are the service areas of midwives and gynaecology nurses, are one of the areas where ethical dilemmas are lived most frequently. Ethical violations can be encountered during the use of auxiliary reproduction techniques, the use of abortion as birth control, the practicing of prenatal diagnosis methods, interventions made to the newborn and gynaecological examination (17, 28). To solve this ethical dilemma and problems, midwives, like other health professionals, should be knowledgeable about ethical principles and the ethical codes of their profession as well(27,28).

Like all other health professionals, midwives should conform to ethical principles (not giving harm, respect for privacy and autonomy, justice, secrecy, equity, informed consent) in all practices they perform. For the profession to maintain its existence, it is not enough that members of the profession only conform to international ethical principles, at the same time it is necessary that profession-specific ethical codes and the professional ethics be determined, all members of the profession share these and professional organizations audit if these are conformed to. In 1993, the ICM published international ethical codes for midwives. These were prepared within a framework to be reflected into the structure and quality of the professional relationships, functions, responsibilities, practicing and information base of midwives and designed as a whole of international rules. (7, 10, 12, 18, 19). The ethical codes published by the ICM are these:

1. Midwifery Relationships:

- Midwives show respect to the woman's right to make a decision as a result of being informed and provide her with support in taking the responsibility of the results of these decisions.
- When working with women, midwives support their right to participate in their own care and authorize them to speak on their behalf about matters affecting their and their families' health in their culture/society.
- Midwives and women work in collaboration with organizations providing political and financial support and determine women's requirements in health services and make the distribution of resources according to the order of priority.
- Midwives support and protect one another within their roles in the profession and exalt their own and other individuals' feelings of self-value.
- Midwives consult and resort to other health team members in cases when women's care requirements exceed their professional abilities.
- Midwives know about human solidarity within their practicing area and seek solutions to settle disputes.

2. Practicing of Midwifery:

- When giving women and the pregnant necessary care by considering their cultural differences, midwives also try to remove harmful practices in the same culture.
- Midwives support women's realistic expectations in the society about maternity with the belief that no women will be damaged by pregnancy.
- Whatever the conditions are, midwives use their professional knowledge to provide women demanding health service with a safe birth-giving.
- Whatever the conditions are, midwives respond to psychological, physical and emotional needs of women demanding health service.
- All their lives, midwives become role models for women, families and other health workers about developing health.
- Midwives integrate individual, mental and professional developments which they acquire all their professional lives into their practices as well.

3. Professional Responsibilities of Midwives:

- Midwives keep secret information about individuals by protecting their confidentiality rights and they give the decision to share this information by themselves.

- Midwives are responsible for their own decisions and behaviors and the consequences of the care they give.
- Although midwives are free not to participate in activities which they think are contrary to their own ethical values, this individual conscience dimension should not affect the woman's benefiting from health services. Midwives get involved in the establishment and practicing of policies aiming to develop the woman's and the pregnant's health.

Besides matters at more local level such as basing midwifery practices on legal ground, reducing birth-giving rate through cesarean, improving midwifery education and training of intermediate midwives, the need for the development and improvement of service to be given to mothers has been still preserving its importance at international level. The works which the World Health Organization started in relation to issue of safe maternity are an international issue aiming to reduce mother deaths (1). Developments about midwifery in our country gained momentum in the 20th century. The development of the profession of midwifery, mother health services' becoming better and safer and efforts spent to improve mother and child care are still scontinuing (5,9,26).

By employing enough number of midwives in hospitals and first step health centers, empowering midwives professionally and having midwives get involved in the maternity process more actively, normal birth-giving rates can be increased, the rate of birth-givings through cesarean can be decreased and unnecessary interventions can be prevented. (3, 5)

Conclusion

The profession of midwifery has a particular place among the health professions in increasing the quality of care especially prior to, during, after birth-giving, achieving mother safety and maintaining protective health measures related to this matter. Knowing about the historical development process of the profession and taking it together with the ethical framework are considered to guide members newly participated in the profession to know about their profession better and be aware of their duties and responsibilities.

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SCIENTIFIC EVENTS

KCL National Conference for Islam&Medicine History of Islamic Medicine

It was made in London.

13 March 2013

Guy's Campus ,Kıng's College London

Spa Culture in Europe 3

16-17 May 2013, Polonya,Wroclaw

It was held in Zachelmie **,** Wroclaw . **Prof.Dr.Ayşegül Demirhan Erdemir's paper** from Turkey was on **Comments on Hamidiye Water in the Light of Ottoman Archives Documents and Original References.**

VIII. Lokman Hekim Medical History and Folkloric Medicine Days

Gaziantep 22-25 Mayıs 2013

It was held in Gaziantep

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4.International Congress for Medical Ethics and Law

İstanbul 12-15 Kasım 2013

It was held in Istanbul during 12-15 November 2013.Its topic is Woman Health.

Congress Co-Presidents:

Prof.Dr.Ayşegül Demirhan Erdemir

Prof.Dr.Seyfettin Uludağ

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The 6th International Congress of the International Society for the History of Islamic Medicine

23-26 Eylül 2014- 23-26 September 2014

Van-TÜRKİYE

Congress Presidents

Prof. Dr. Ayşegül Demirhan Erdemir
Assoc. Prof. Dr. Şükran Sevimli

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Congress Topics

1. Comparative study of Islamic medicine with the previous and subsequent civilizations.
2. Famous Moslem physicians.
3. Diseases and therapies in Islamic medicine.
4. Drug therapy.
5. Approaching disabilities in Islamic medicine .
6. Health Institutions.
7. Contributions by Muslim physicians to the Western medical sciences.
8. The Significance of Museum and Museum Work in Islamic Medicin
9. Sources and methods of collection of Islamic medical literature and their preservation, classification and digitization.

Spa Culture in Europe-IV
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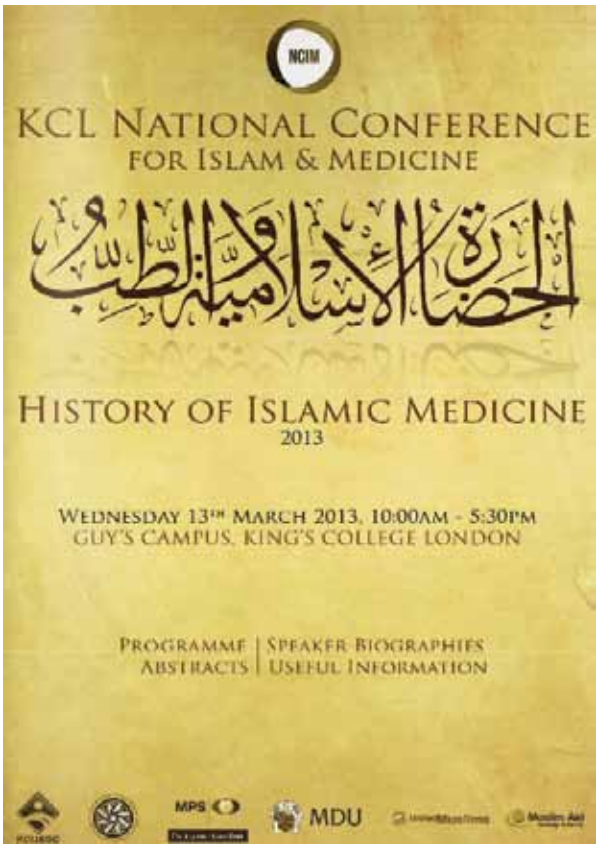

Cover of Programme Book of KCL National Conference for Islam& Medicine

Programme

09.30 - 10.00	Setting up of posters *Poster Presenters* *(The Spit, Boland House)*	
10.00 - 10.30	Registration *All attending delegates* *(The Spit, Boland House)*	
10.00 - 13.00	History of Islamic Medicine Exhibition Hosted by: *International Institute of Islamic Medicine (IIIM)* *(The Spit, Boland House)*	
11.00 - 12.00	Student Poster Presentations *(The Spit, Boland House)*	
13.00 - 13.45	LUNCH *(The Spit, Boland House)*	
13.50 - 14.00 (LT2, NHH)	Introduction from Conference President and Host	*Abdullatif Aydın* *Dr. Mohammed Jafer Qureshi*
14.00 - 14.30 (LT2, NHH)	Illuminating the Dark Ages: The Role and Contribution of Muslim Civilizations	*Prof. Mohamed M. El-Gomati* Professor of Electronics, University of York Deputy Chair, Foundation for Science, Technology and Civilisation
14.30 - 15.30 (LT2, NHH)	Contributions of the Islamic Civilization towards development of Modern Medicine	*Dr. Husain F.Nagamia* Chairman, International Institute of Islamic Medicine (IIIM) Consultant Cardio Vascular Surgeon, Tampa, Florida, USA
15.30 - 16.00 (LT2, NHH)	Islamic medicine – A light in the Dark Ages	*Mr. Sharif Raf Al-Ghazal* Consultant Plastic Surgeon, Honorary Senior Lecturer, Leeds, UK
16.00 - 16.30	REFRESHMENT BREAK *(Henriette Raphael House)*	
16.30 - 17.00 (LT2, NHH)	Medicine of Pre Islamic phase: An evolution out of Africa and Mid-east Cradle	*Dr. Abdul Jamil Khan* Consultant Pediatrics Nephrologists, Brooklyn, NY
17.00 - 17.30 (LT2, NHH)	Evidence Based Prophetic Medicine	*Dr. Ahmed Younis* Deputy Head of School of Rehabilitation Sciences, SHH. President, British Cupping Society
17.30 - 18.00 (LT2, NHH)	An Islamic perspective on Medical Ethics	*Dr. Amer Hamed* Locum Cardiology Consultant
18.00 (LT2, NHH)	Closing remarks from Chairman, NCIM and Conference President	*Abdullatif Aydın* *Mohammed Shafiul Amin*

Programme of Conference of Islam & Medicine

Prof. Dr. Ingrid Kastner,Prof. Dr. Bozena Syroka and Prof.Dr. Aysegul Demirhan Erdemir in Spa Culture Meeting in Wroclaw, Poland in 2013.

بسم الله الرحمن الرحيم

الجمعية الدولية لتاريخ الطب الاسلامي

International Society for the History of Islamic Medicine

(ISHIM)

طلب إلتحـاق

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