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JOURNAL OF ISHIM
INSTRUCTIONS TO AUTHORS

1. Journal of the International Society for the History of Islamic Medicine (Journal of ISHIM), published twice-a-year, accepts material for publication as follows:
   - Original Articles: Papers reporting a research in the History of Islamic Medicine and Islamic Medical Ethics.
   - Letters to the Editor: Views on papers published in Journal of ISHIM, and other current topics and short reports of reader's own original findings. Letters should not exceed 400 words, 3 authors and 10 references.
2. Papers submitted to the journal are only accepted with the understanding that they are subjected to editorial revision and that they have not been or will not be submitted to any other journal. All authors are responsible for the scientific and ethical contents of their papers.
3. The journal's language is English.
4. The manuscript should be typewritten in an IBM compatible computer under Microsoft Word program. In addition to the form of the manuscript recorded into a disk/diskette, four copies of double spaced print-outs and figures and tables should be sent. The printed form should not be more than 12 pages.
5. The manuscript of a full paper should be arranged in the following order: Title page, abstract and key words, main text, acknowledgements, references, tables, figure legends and figures. All pages should be numbered consecutively.
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7. ABSTRACTS and KEY WORDS: Each article should include brief English abstracts (not exceeding 200 words) stating the purpose(s) of the study, basic procedures, main findings, and the principle conclusions. Below the abstracts provide not more than 5 key words or short phrases.
8. MAIN TEXT: The main headings of the sections should be written in bold capital letters, and subheadings in bold italic lower case letters, except for initial letters.
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   ARTICLES IN JOURNALS: Meutler B, Cerami C. Cachectin: More than a tumor necrosis factor. N Engl J Med 1987; 316:379-85.

   CHAPTERS IN BOOKS: Arieff Al. Neurological manifestations of uremia. In: Brenner BM, Rector FC, eds. The Kidney: Philadelphia: WB Saunders, 1986:1731-56.
10. FIGURES and TABLES should be identified by arabic numerals (in parenthesis). The drawings should be submitted in original drawings by ink. The photographs should be printed in good contrast and be submitted unmounted. The letters and signs on all figures should be large enough to be legible after reduction.
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JOURNAL OF THE INTERNATIONAL SOCIETY FOR THE HISTORY OF ISLAMIC MEDICINE (ISHIM)

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EDITORIAL

This issue of ISHIM journal is also published late due to the finance difficulty. We know that Journal of ISHIM is an academic journal devoted to the History of Islamic Medicine research and scholarship. Moreover, in this journal, the papers on the dilemmas of the medical ethics in the Islamic World can be published. This issue like the earlier ones represents diversified studies in the History of Islamic Medicine and Islamic Medical Ethics which stimulate thinking and raise certain questions. So, it also try to provide solutions to thorny and sensitive problems and the ensuing understanding helps in enlarging one's perception and intellectual horizon. So, this issue has the studies to promote better understanding between the Islamic World and the West.

We can see both important biographies and valuable original papers on this issue of the History of Islamic Medicine.. One of them belongs to the medical ethics. These articles are from famous scholars of many countries of the world. After 12 papers, news of some scientific meetings are present in this issue. The first paper by H. A. Hajar AL BINALI is on Majnoon Lila.

The second paper by Sharif Kaf AL-GHAZAL is about The Valuable Contributions of Al-Razi (Rhazes) in the History of Pharmacy During the. Middle Ages. Another article by Zuhal OZAYDIN is on The Indian Muslims Red Crescent Society's Aid to the Ottoman State During the Balkan War in 1912. The fourth paper by Husain F. NAGAMIA is on Islamic Medicine History and Current Practice. The fifth paper by Nüket ÖRNEK BÜKEN is about Truth-Telling Information and Communication with Cancer Patients in Turkey. Another paper by *Abdul Nasser KAADAN* is about Child Health as Viewed by Ibn-Sina The seventh paper by Aysegül DEMIRHAN ERDEMIR and Öztan ÖNCEL is on Development Of The Foundations Of Quarantine In Turkey In The Nineteenth Century and Its Place in the Public Health. The eighth article by Ibrahim B. SYED gives Spiritual Medicine in the History of Islamic Medicine. Another article by Enis ULUCAM, Nilüfer GÖKÇE and Recep Mesut is about Turkish Anatomy Education From The Foundation of the First Modern Medical School to Today. The tenth article by Rosanna GORINI is about Al-Haytham the Man of Experience, First Steps in the Science of Vision. The eleventh paper by Salma ALMAHDI is about Muslim Scholar Contribution in Restorative Dentistry. The twelfth paper by Aysegül Demirhan Erdemir is on The Application of Ayurvedic Therapies in Turkey and The Importance of Ginger Use From The Point of View of Ayurvedic Principles.

Wishing October 2003 Issue of the Journal of ISHIM, to be beneficial to all readers and colleagues.

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

Majnoon Lila

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Summary

The love story of *Majnoon Lila* is well known across all levels of society in the Arab world. The story is famous in Arabic literature as well as in Arab folk stories. In this paper, the poems of Quasis are analyzed and made a diagnosis of organic heart disease from his complaints. *"Love"* in the history of medicine is described and decided to summarize it for *Heart views*.

Key Words, Majnoon Lila, Love Sickness, Love in Arabic and Islamic Medicine, Love in Greek Medicine.

Case History

A 30-year-old male poet, desert dweller called Qais, complained that intense love was driving him to madness.

At the age of ten, while taking his family goatherd to a grass area at the periphery of his town, he met a girl of his age, who also was taking her family's goats to graze. The girl was a relative named Lila. She was from his town. After several such a daily meetings over several months, he fell in love with her. He recalled those early days in one of his poems:

I fell in love with her
When she was small
Her breasts did not bud
As her playmates could recall

That day was remote
But tears choked my throat
When I remembered
How we tended a small goat

Our love, like us, grew
It is old, it is new;
I wish neither of us grew,
Nor did the goats too

As Lila grew older she was not allowed to graze the goats. Qais used to visit Lila while she was sitting with the other girls of the neighborhood.

One day Qais rode his camel and went to visit Lila and her girlfriends in an open area near the town. Qais was a poet but wrote only love poems. He recited his poem to the girls. When the girls got hungry, he butchered his camel and sat up a fire. Lila helped him cut the meat. While he was talking to Lila and cutting the meat, he cut his hand. She took the knife from his hand and tied his wound with a piece from her cloth. He was totally unaware of the cut and did not feel pain. Lila chose a piece of meat over the fire for herself. She asked Qais to see if the meat was cooked. He stretched his bare hand in the fire, turning and examining the piece of meat without feeling the heat. Lila had to pull his hand out of the fire.

Lila also loved Qais. Once, Qais' father sent him to Lila's house to ask for some oil for guests. Qais carried out his father's request with pleasure. His uncle, Lila's father, ordered Lila to pour oil for Qais. While she was pouring from their container to Qais' container, they were talking and they forgot what they were doing. So, most of the oil spilled and soaked their feet over the sand.

Qais' love poems for Lila spread all over their town. Lila's father was unhappy with the exposure of his daughter as a love figure in Qais' poems. Arab tradition does not view a girl praised in poems with respect. When Qais' father asked Lila's father the hand of Lila for Qais, he refused. He considered it shameful to allow his daughter to marry a man who had written poems about her. He forbade his daughter from seeing Qais. He obtained a proclamation that Qais may be killed if he met with Lila. Qais cried day

and night. He said:

My life to Lila, I gave.
If from Lila I am deprived,
Bring my coffin and dig my grave
Because my death has arrived.

Qais became very disturbed. He cried with excessive tears. He could not eat or sleep. He became very thin and weak. Many traditional doctors saw him. He was treated with witchcraft, fire sticks and some elixirs. Nothing helped. Once, he forced himself to sleep in the hope that he and Lila will meet in the dream. He mentioned the incident in a poem dedicated to Lila:

I lay down under the moon's beam,
While love thoughts flowed in a stream.
I forced myself to sleep,
Hoping to see you in my dream

Lila and her family migrated away from Qais town to prevent Qais from visiting Lila. She was forced to marry another man.

Qais became absent minded. He could not concentrate on anything other than Lila. He was totally obsessed with his love for Lila. No one could draw his attention unless Lila's name was mentioned. He became alert and talked normally only when he heard Lila's name.

In his poems, he expressed his intense love, his feelings and sensations such as palpitations, fainting, tears, sadness, anxiety, despair, sleeplessness, weight loss and his death wish.

Qais father took him to Mecca to pray for him near the holy *Ka'aba*. He told Qais to touch the *Ka'aba* and say: *O' God, cure me of my love for Lila*. Qais obeyed his father, touched the *Kaaba*, but said: *"O' God make me love Lila more and never let me forget her."*

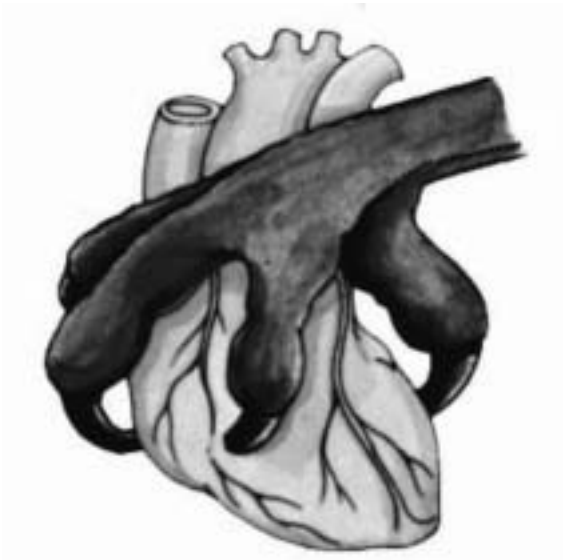
Qais left his family and lived in the desert, away from people. He refused to talk to people or return to town. Some people would trick him by mentioning Lila's name or tell him that they saw Lila. His family sent food and water to him and left them at a place where he could see them.

Lila was not happy with her husband. Her love for *Qais* made her husband jealous. She missed Qais very much. She fell ill and became seriously sick. She was treated by a local physician but she did not get well. A man passing through the desert informed Qais that Lila was ill and sad. Qais fainted when he heard the news. When he regained his consciousness he cried and said:

Lila, they say, is ill
And in a sad condition.
I wish I were,
Her treating physician.

Lila's family took her to Iraq where the old traditional Babylonian physician practices mainly witchcraft medicine. She did not recover from her illness despite all types of traditional treatment. She died.

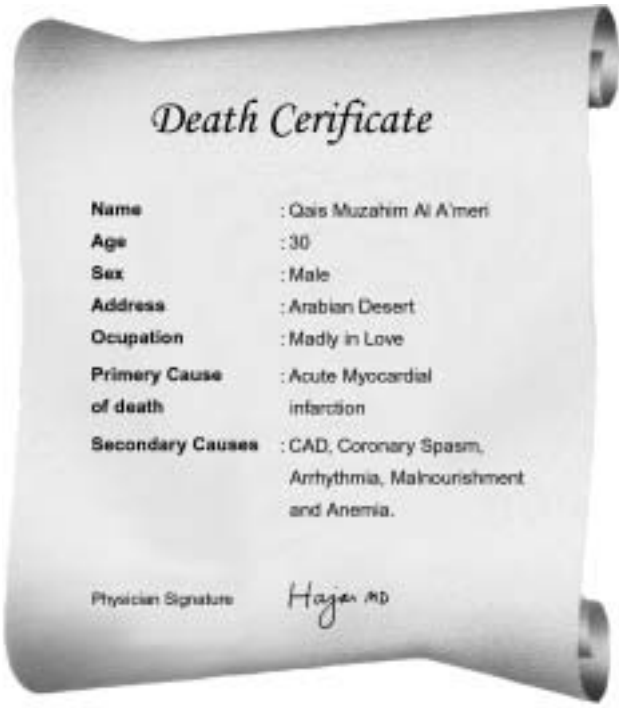
Shortly after Lila's death, Qais was found dead in the desert. When he was bathed before burial, a piece of rug containing his last poem was found in his cloth. The poem read:



My heart is firmly seized
By a bird's claws.
My heart is tightly squeezed,
When Lila's name flows.

My body is tightly bound,
When the wide world I found
Is like a finger ring around.

Based on the above information I had to issue the following death certificate for



Qais:
Name: Qais Muzahim Al A'meri
Age: 30
Sex: Male
Address: Arabian Desert
Occupation: Madly in love
Primary cause of death: Acute myocardial infarction.
Secondary causes: CAD, Coronary spasm, Atrial arrhythmia, Ventricular arrhythmia, malnourishment and anemia.

Love in the history of medicine

I am mad with love and desire
And my heart burns with fire.
(Qais, or Al-Majnoon)

The above love story of *Majnoon Lila* is well known across all levels of society in the Arab world. The story is famous in Arabic literature as well as in Arab folk stories. The first time I heard the story was when I was seven years old. A lady was reading the story to a group of women including my mother. The sad parts of the story made me cry at that early age of my life. The women told my mother: "Your child will fall in love."

I recently analyzed the poems of that poet, Qais, and made a diagnosis of organic heart disease from his complaints. I reviewed *"Love"* in the history of medicine and decided to summarize it for *Heart views*. However, I thought it appropriate to present an example of an Arab love story before discussing the topic. The *Majnoon Lila* story I described above is the best case for such a purpose.

I will summarize the story again as follows: A young man, a poet, named Qais fell in love with a girl called Lila in the 8th century A.D. The girl also loved him. Her father refused to allow Qais to marry her because Qais' love poems about her had spread among the Arabs, which embarrassed and angered her father. It was not honorable for a traditional Arab, even today, to have his daughter described by a lover in public. Arab poetry at that time was the mass media of the Arabs. They had no newspapers or any other means to spread their news, glory, major events etc. A good poem is memorized and transmitted fast across the Arab lands.

Lila was forced to marry another man against her wish and moved away from Qais' town. When Lila left, Qais lost his ability to concentrate and listen to people. He lost interest in family, friends and the society. He ran away in the desert, living among the animals, almost naked. He was considered sick with "love madness." A mad man in Arabic is called "*majnoon*" and therefore he became well-known in literature as the "*Majnoon*" or *Majnoon Lila*, which means "crazy about Lila." He avoided people and fled to the desert. The only way to draw his attention was to mention the name Lila. Then he would communicate appropriately hoping to hear more about Lila. He would recite his love poems about her.

In his poems he described his tears, sleeplessness, lack of appetite, weight loss, fast respiration, racing heartbeats or palpitations, and fainting episodes. Those descriptions were made in very sad verses with musical rhythms. When he died, people found in his cloth his last poem to Lila, which he had written on a piece of cloth.

In the poem he stated that he felt as if his *"heart was gripped by a bird's claws."* When the name "Lila" he hears, the claws' grip *"squeezes his heart tighter."* The whole wide world seemed like *"a ring around him, it neither gets longer nor wider."*

The poem is an excellent description of an anginal attack before his death. I translate this poem, as well as a few others from his numerous poems, preserving some of its original rhymes as much as I can:

My heart is firmly seized
By a bird's claws;
My heart is tightly squeezed,
When Lila's name flows.

My body is tightly bound,
When the wide world I found
Is like a finger ring around.

I concluded from the above and his other poems that the poet had coronary artery disease, episodes of arrhythmia, and most likely, he died of a myocardial infarction.

Does love cause such sickness and destruction? It probably does.

Love in Greek Medicine

The Greek physicians considered falling in love a disease that may lead to death. There are Arabic translations of the ancient Greek physician's thoughts about falling in love. This is well illustrated by Hunayn Ishaq.

Hunayn ibn Ishaq was the most productive translator of Greek medical and scientific treatises into Arabic. He was a Nestorian Christian originally from Southern Iraq who spent his working life in Baghdad, the center of the great 9th century Greek-into-Arabic translation movement. Hunayn is known to Europeans as Johannitius.

In his book *"Nawader Al Falasifah",* Hunayn stated that Hippocrates said:

"Love could occur between two smart persons and does not occur between the stupid or mentally deficient persons. The two wise persons could make agreement to go on one certain way while the mentally deficient cannot make such an agreement together. In those afflicted with love sickness, the heart is subjected to two emotional problems: Worry and sadness. Worry is concern with the future, which may interfere with the ability to sleep. Sadness is caused by what happened in the past . . . the heart contains blood that is considered solid and the "worry", will increase the heart and body heat. That heat will melt the blood."

The ancient Greek physicians considered the heart as the "oven of the body" and love increases the heat in the heart.

In Arabic poetry, there are plenty of descriptions of love causing "heat in the heart" that could "melt metals." The quotation from *Majnoon Lila* above was an example. Al Majnoon wrote:

When some one calls Lila's name,
My chest will burn with fire's flame.

The Arabs probably took the concept that love generates heat in the heart from the Greeks.

Hippocrates (460-377 BC) thought of the intense love as "greediness" created in the heart, and the stronger the intensity of love, the more a person becomes anxious and worried. The increased anxiety causes sleeplessness and the blood will "burn" and become dark. The "dark blood" spoils the person's thoughts causing "mental deficiency", which may lead to "insanity or madness." This madness might cause a person in love or love addict to kill himself. Also, the person in love might get together with his loved one and then might die because of excitement and happiness. "You could observe", he said, "that this love addict, when he hears the name of the person he loves, his blood escapes and his color changes."

Galen later said about those who are in love: "Concern or worry causes the death of the heart while their "sadness" is considered a "heart disease" in itself. He considered "falling in love" as a state of passionate liking combined with greediness or possessiveness. He stated that "falling in love" is created by the "*alnafs"*, which is the Arabic word for what we now refer to as the psyche. "*Alnafs*" was thought by Galen to dwell inside the brain, the heart and the liver.

Galen (129-210 A.D.) stated that in the brain, there are three residing "powers in the head": 1) Imagination in front; 2) Thoughts in the middle; and 3) Memory in the back. So, if the person in love leaves his loved one, then his brain will be "preoccu-

pied" with thinking about him or her. The heart as well as the liver will be preoccupied with thoughts about the loved one. Therefore, the love addict might have less appetite because the liver is preoccupied with the loved one. He also suffers from sleeplessness because the brain is preoccupied with thoughts of the loved one. So, the "places" [organs] concerned with *"alnafs"*, i.e. the heart, the liver, and the brain, will be preoccupied. If these are not preoccupied with the loved one, then the person is not really in love in Galen's judgment. These places will be vacant when the lover meets his loved one (1).

All the ancient physicians agreed that love addiction is hard to cure with medication. The translator Hunayn Ishaq who was fond of Galen said that Galen had written on his ring, "those who hide their illness are difficult to cure."

Love in Arab and Islamic Medicine

Greek thinking on love was actually based on theories from more ancient civilizations before them. The Greeks expanded and developed it further. The ancient Egyptians made the connection between love and the heart. The Babylonians made the connection between liver and love. I think the Arabs probably also have taken from the Babylonian directly the idea of linking the liver with love. The Arabs credited both the heart and the liver as the seat of love. An old Arabic poem states, *"Our children are our livers walking on the ground."*

The theories explaining the physiology of falling in love by the Arab and Moslem physicians are influenced by Greek thinking.

Ibn Sina (Avicenna 980-1037) is one of the foremost physician and philosopher of the golden age of Islamic civilization. In his famous book, *The Canon,* he considered falling in love as a *"disease of sadness"* and he called it "*melancholy.*" The person inflicted that problem on himself by concentrating his thoughts on certain characteristics and appearance of a loved one. The sexual desire may or may not be involved in his opinion. He enumerated signs of falling in love as follows:

"Deep-seated eyes, dryness of the eye, except when the person is crying, frequent movement of the eyelid, staring as if the person is looking at something very pleasant or hearing something pleasant, increased respiration, fluctuation in mood between happiness and sadness when hearing love poems. The body is thin, looks malnourished except the eyelid, which looks larger probably because of lack of sleep. His pulse is usually irregular, worse when he hears the name of the loved one, then the irregularity and the speed will increase. Feeling the pulse is a trick, which could be used to discover if the person is in love."

Ibn Sina claimed that he had tried that "trick" to diagnose love sickness several times. He also said there was no successful treatment except getting the two loved ones together. *Ibn Sina* warned: "this intense love will decrease the power" *(I understand that to mean decrease the power of fighting disease).* He had seen people who got cured of this disease and their "meat" returned back after getting together with the loved one.

Ibn Sina's description of the signs and symptoms of love may have been influenced by reading the life story of Majnoon Lila. That was the classical case example of a love sufferer.

Ibn Al Nafis (1213 - 1288 A.D); the first physician in history who described the pulmonary circulation did not really add much more to Ibn Sina's descriptions and thoughts. He followed the same thoughts, but he considered falling in love as a disease that is peculiar to the single, idle, and to a common person. He also described the way to diagnose it by holding the hand of the victim, put the finger on the pulse, and mentioning the names and characters of the people in the area. When there is a change in the pulse and it speeds up accompanied by a change in the color of the face, then, that person mentioned is the loved one. He also stated that there is no treatment except getting the two together. That is the only successful useful therapy (1).

Love in modern medicine

When reviewing a modern Textbook of Psychiatry (2), the above-mentioned love addiction sounds like Anxiety Neurosis, which is characterized by anxious over- concern extended to panic and frequently asso-

ciated with somatic symptoms. The clinical characteristics are feelings of tension and nervous discomfort associated with cardiac symptoms as follows: awareness of changes in the heartbeats, which become more rapid and forceful; sharp and sticking chest pain that lasts for a few seconds only, unrelated to exertion, not relieved by cessation of activity and may come on while the patient is in bed, resting. Even the respiration symptoms are dominated with discomfort, a sense of not being able to get enough air into the lungs, a feeling of fullness in the chest, and inadequate respiration. The patient often breathes more rapidly and more deeply and may feel compelled to run out of doors to get more air. Hyperventilation may cause respiratory alkalosis. The CNS symptoms are as follows: dizziness is described as awareness of irregular blurring and swimming motion of the surroundings. There is usually a sense of light-headedness and faintness (2).

A modern psychiatrist, Richard B. Rosse, who seemed to have studied the phenomenon of love problem, calls it "Love Trauma Syndrome." He wrote:

"Love Trauma Syndrome is a form of traumatic grief that does not have to involve the death of a desired and loved person. Like its diagnostic cousins Post-traumatic Stress Disorder and traumatic grief, many patients with "Love Trauma Syndrome" present "on the surface" with more conventional diagnoses such as depression, anxiety and substance use disorder. It can be a serious condition with considerable psychosocial impairments. Sometimes, Love Trauma Syndrome is associated with suicidal or homicidal ideation. It can also be associated with considerable dissociation and symptoms of hyperarousal (e.g., insomnia). Love Trauma Syndrome can be associated with anger, irritability, and revenge fantasies" (3).

The same author has written a book titled, *Love Trauma Syndrome* (4). He wrote:

"Love is one of the most exhilarating emotions we experience, unfortunately, it is also one of the most painful and sometimes traumatic. The unresolved emotional scars from a broken heart can manifest as a "love trauma syndrome". At times, the syndrome can seriously diminish the sufferer's quality of life, and dramatically impair social, academic, and occupational activities. Patients may end up committing suicide. A few become so obsessed by their lost loves that they are driven to stalk, attack... and ultimately commit suicide. Most patients however, suffer alone and in silence without ever resorting to an act of physical violence.

Love Trauma Syndrome is a clinical disorder of "too much memory" in which the past intrudes upon the present to influence thoughts, feelings, and behaviors to a much greater extent than is expected. It can also be associated with a variety of other behavioral problems: the avoidance of future loving relationships, nervousness, feeling "unreal" or out of place, anger, and sleep disturbances" (4).

Galen's theory that the loved one "preoccupied" a place in the brain of the lover seems to be substantiated nowadays with fast MRI. The activity in the brains of 17 subjects who were deeply in love was scanned using fMRI, while they viewed pictures of their partners, and compared with the activity produced by viewing pictures of three friends of similar age, sex and duration of friendship as their partners. The activity was restricted to foci in the medial insula and the anterior cingulate cortex and, subcortically, in the caudate nucleus and the putamen, all bilaterally. Deactivations were observed in the posterior cingulate gyrus and in the amygdala and were right-lateralized in the prefrontal, parietal and middle temporal cortices. The combination of these sites differs from those in previous studies of emotion, suggesting that a unique network of areas is responsible for evoking this affective state. This leads us to postulate that the principle of functional specialization in the cortex applies to affective states as well (5).

The cardiology literature (6) states that psychosocial factors contribute significantly to the pathogenesis and expression of coronary artery disease (CAD). This evidence is composed largely of data relating CAD risk to 5 specific psychosocial domains: (1) depression, (2) anxiety, (3) personality factors and character traits, (4) social isolation, and (5) chronic life stress. Psychosocial stress can lead, probably via a mechanism involving excessive sympathetic nervous system activation, to exacerbation of coronary artery atherosclerosis as well as to transient endothe-

lial dysfunction and even necrosis. Acute stress triggers myocardial ischemia, promotes arrhythmogenesis, stimulates platelet function, and increases blood viscosity through hemoconcentration. Acute stress also causes coronary vasoconstriction. Hyperresponsivity of the sympathetic nervous system, manifested by exaggerated heart rate and blood pressure responses to psychological stimuli, is an intrinsic characteristic among some individuals (6)

Recently, chemical transmitters have been found to be associated with romantic love. Platelet serotonin 5-HT transporter in the early romantic phase of a love relationship was found to be significantly lower than in the normal controls (7).

Endocrinological investigations of the neurobiology of attraction have found involvement of several chemical processes. Several observations have highlighted the role of monoamines and of neuropeptides, in particular oxytocin, vasopressin and opioids; but this is only the beginning of the story. Love, the most typical human feeling, can be viewed as a dynamic process that represents the result of different components probably sub-served by distinct neural substrates at different times. As such, some steps can be identified, in particular its beginning, which is the process of attraction, followed by the attachment process that, in some cases, can last forever (8).

Love and digoxin

Finally, the most fascinating finding of this year is the involvement of digoxin in love and affection (9). The researchers found that the hypothalamus produces digoxin. You fall in love because your hypothalamus produces less digoxin. The human hypothalamus produces an endogenous membrane Na+-K+ ATPase inhibitor, digoxin, which can regulate neuronal transmission. The digoxin status and neurotransmitter patterns were studied in individuals with a predilection to fall in love. It was also studied in individuals with differing hemispheric dominance to find out the role of cerebral dominance in this respect. In individuals with a predilection to fall in love, there was decreased digoxin synthesis, increased membrane Na+-K+ ATPase activity, decreased tryptophan catabolites (serotonin, quinolinic acid, and nicotine), and increased tyrosine catabolites (dopamine, noradrenaline, and morphine). This pattern correlated with that obtained in left hemispheric chemical dominance. Hemispheric dominance and hypothalamic digoxin could regulate the predisposition to fall in love (9).

I wonder how much love and affections of our patients with heart failure we ruined with digoxin! I also wonder if the passionate love or love sickness that afflicted *Majnoon Lila* could have been cured with our once miraculous drug digoxin. In the history of medicine, we have seen wonder drugs become popular, fade, and then “rediscovered” as wonder drugs years later. Aspirin was such a drug. Who knows, the historical drug, digoxin, might evolve again to the wonder drug it once was.

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The Valuable Contributions of Al-Razi (Rhazes) in the History of Pharmacy During the Middle Ages

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Summary

Al Razi was a Hakim, an alchemist and a philosopher. In medicine, his contribution was so significant that it can only be compared to that of Ibn Sina. Some of his works in medicine e.g. *Kitab al- Mansoori*, *Al-Hawi*, *Kitab al-Mulooki* and *Kitab al-Judari wa al-Hasabah* earned everlasting fame. Al-Razi was the first in Islam to write a book based on home medical (remedial) advisor entitled *Man la Yahduruhu Teb* for the general public.

In his book *Mnafi' al-Aghthiyyah*, al-Razi followed a pattern that had been introduced earlier by Galen but in it, al-Razi attempted to correct several errors made by Galen himself.

The development of professional pharmacy, as a separate entity from medicine, started in Islam under the patronage of the early' Abbasiyyah caliphs in Baghdad. This first clear-cut separation of the two professions, and the recognition of the independent, academically oriented status of professional pharmacy materialized in the Abbasiyyah capital (Baghdad) and Al Razi was one of the few pharmacists who added very valuable contributions to medicine and pharmacy while most of Europe was still living in the dark ages.

Key Words; Rhazes, History of Pharmacy, Middle Ages.

Arabic pharmacy (*Saydalah*) as a profession with a separate entity from medicine was recognized by the ninth century. This century not only saw the founding and an increase in the number of privately owned pharmacy shops in Baghdad and its vicinity, but in other Muslim cities as well. Many of the pharmacists who managed them were skilled in the apothecary's art and quite knowledgeable in the compounding, storing, and preserving of drugs. State-sponsored hospitals also had their own dispensaries attached to manufacturing laboratories where syrups, electuaries, ointments, and other pharmaceutical preparations were prepared on a relatively large scale. The pharmacists and their shops were periodically inspected by a government appointed official (*al-Muhtasib*), and his aides. These officials were to check for accuracy the weights and measures as well as the purity of the drugs used. Such supervision was intended to prevent the use of deteriorating compounded drugs and syrups, and to safeguard the public. This early rise and development of professional pharmacy in Islam (over four centuries before such development took place in Europe) was the result of three major occurrences: 1- the great increase in the demand for drugs and their availability on the market; 2- professional maturity; and 3- the outgrowth of intellectual responsibility by qualified pharmacists.

In this study, only certain important aspects of the influence of Al-Razi on the development of pharmacy and medical therapy in the ninth century will be briefly discussed.

Abu Bakr Mohammad Ibn Zakariya al-Razi (864-930 C.E.) was born at Ray, Iran. Initially, he was interested in music but later on he learnt medicine, mathematics, astronomy, chemistry, pharmacy and philosophy. At an early age he gained eminence as an expert in medicine and alchemy, so that patients and students flocked to him from distant parts of Asia. He was first placed in-charge of the first Royal Hospital at Ray, from where he soon moved to a similar position in Baghdad where he remained the head of its famous *Muqtadari* Hospital for along time. He moved from time to time to various cities, specially between Ray and Baghdad, but finally returned to Ray, where he died around 930 C.E. His name is commemorated in the Razi Institute near Tehran.

Al Razi was a Hakim, an alchemist and a philosopher. In medicine, his contribution was so significant that it can only be compared to that of Ibn Sina. Some of his works in medicine e.g. *Kitab al- Mansoori*, *Al-Hawi*, *Kitab al-Mulooki* and *Kitab al-Judari wa al-Hasabah* earned everlasting fame. *Kitab al-Mansoori*, which was translated into Latin in the 15th century, comprised ten volumes and dealt exhaustively with Greco-Arab medicine. Some of its volumes were published separately in Europe. His book *al-Judari wal Hasabah* was the first treatise on smallpox and chicken-pox, and is largely based on al-Razi's original contribution: It was translated into various European languages. Through this treatise he became the first to draw clear comparisons between smallpox and chicken-pox. His book *Al-Hawi* was the largest medical encyclopaedia composed by then. It contained on each medical subject all important information that was available from Greek and Arab sources, and this was concluded by him by giving his own remarks based on his experience and views. A special feature of his medical system was that he greatly favoured cure through correct and regulated food. This was combined with his emphasis on the influence of psychological factors on health. He also tried proposed remedies first on animals in order to evaluate in their effects and side effects. He was also an expert surgeon and was the first to use opium for anaesthesia.

The best survey of al-Razi's works from the medieval period seems to be an epistle by al-Biruni written about 1037. Through this epistle, can be seen concealed sides of al-Razi's life and his contributions as a prolific author and compiler to pharmacy and medical therapy. To understand and appreciate him fully, however, one should look upon him as the product and in the context of his time. For in the West and Byzantium this was "an age of faith", important to our discussion here, therefore, is his courageous attack of errors in the medical and philosophical teachings of the ancients. It was al-Razi who wrote a book, *Shukuk 'ala Nazariyyat jalinus*, in which he doubted the accuracy in many medical, physiological and therapeutic concepts, theories, and procedures as stated by Galen and which were blindly accepted and transmitted by his followers and later compilers and commentators.

On the professional level, al-Razi introduced many useful, progressive, medical and psychological ideas. He also attacked charlatans and fake doctors who roamed the cities and the countryside selling their nostrums and 'cures'. At the same time, he warned that even highly educated doctors did not have the answers for all medical problems and could not cure all sicknesses or heal every disease. Al-Razi exhorted practitioners to keep up with advanced knowledge by continually studying medical books and expose themselves to new information. He further classified diseases into three categories: those which are curable; those that can be cured; and those which are incurable. On the latter, he cited advanced cases of cancer and leprosy which if not cured, the doctor should not take blame.

Al-Razi was the first in Islam to write a book based on home medical (remedial) advisor entitled *Man la Yahduruhu Teb* for the general public. He dedicated it to the poor, the travellers, and the ordinary citizens who could consult it for treatment of common ailments when the doctor was not available. This book, of course, is of special interest to the history of pharmacy since books on the same theme continued to appear and has found acceptance by readers to the present century. In its 36 chapters, al-Razi described diets and drugs that can be found practically every where in apothecary shops, the market place, in well-equipped kitchens, and in military camps. Thus, any intelligent mature person can follow its instructions and prepare the right recipes for good results. Some of the illnesses treated are headaches, colds, coughing, melancholy, and diseases of the eye, ear, and stomach. In a feverish headache, for example, he prescribed, '*two parts of the duhn (oily extract) of rose, to be mixed with part of vinegar, in which a piece of linen cloth is dipped and compressed on the forehead'*. For a laxative, he recommended '*seven drams of dried violet flowers with twenty pears, macerated and mixed well, then strained. To the filtrate, twenty drams of sugar is added for a draft*'. In cases of melancholy, he invariably recommended prescriptions including *either poppies or their juices (opium) or clover dodder (Curcuma epithymum Muss.) or both. For an eye remedy, he recommended myrrh, saffron, and frankincense, two drams each to be mixed with one dram of yellow arsenic and made into tablets. When used each tablet was to be dissolved in a suffi-*

cient quantity of coriander water and used as eye drops. Al-Razi followed the same method in his book *Bur as-Sa'ah*, in which he prescribed remedies to cure ailments in one hour, or at least in a short time, so that the patient did not need frequently to call on his doctor and to pay larger fee.

In his other book on diets, their uses and disadvantages, *Mnafi' al-Aghthiyyah*, al-Razi followed a pattern that had been introduced earlier by Galen. In it, al-Razi attempted to correct several errors made by Galen and to introduce new data missed by the latter. Ibn Masawayh was another physician who wrote on the same topic. According to al-Razi, Ibn Masawayh did more harm than good in his exposition of the subject. These misgivings challenged al-Razi to undertake the writing of a comprehensive study, *Mnafi' al-Aghthiyyah* which is of great interest not only to pharmacy and medicine but to the history of the culinary art as well. Emphasizing specific matters and general regulations for healthy living, al-Razi discussed breads, waters, dairy products, fruits, vegetables, spices, meats, and fishes. He explained in detail their kinds, methods of preparation, physical properties, and therapeutic modes of action, and pointed out when they were useful and when not. He described the disadvantages of frequent consumption of wines leading to alcoholism, 'which often causes many serious diseases as epilepsy, paralysis, senile tremor in older people, cirrhosis, hepatitis, mental disorders, visionary distortions, obesity, debility, and impotence.

While al-Razi paid much attention to curing the body's ills, he did not ignore cures for infirmities of the soul. The proof of his concern for psychotherapy seems quite evident. On completing his medical encyclopaedia, *al-Mansuri*, on the diagnoses and treatment of body diseases, he filled in the gap by writing a counterpart *at- Tibb ar-Ruhani* on the medicine of the soul. His concern for, and penetration into, human nature, its complexities, and the directions leading into it, confirm his appreciation of the importance of psychotherapy and psychology as two important parts of the healing art.

In his famous *al-Mansuri,* however, al-Razi devoted four out of the book's total of ten treatises, to diets and drugs, medicated cosmetics, toxicology and antidotes, amelioration of laxatives, and compounded remedies, all of which are of pharmaceutical interest. Al-Razi's last and largest medical encyclopaedia is his *al-Hawi fit-Tibb*, which embraces all areas of medical knowledge of the time. It included sections related to 'pharmacy in the healing art', materials arranged in alphabetical order, compounded drugs, pharmaceutical dosage forms and toxicology. It also included numerous medical recipes and tested prescriptions that influenced 'medical therapy' in Islam and in the West during the Middle Ages. In his use of mineral drugs as external and internal remedies, including vitriols, copper, mercuric and arsenic salts, sal ammoniac, gold scoria, chalk, clay (as in the terra sigillata and Armenian clay), coral, pearl, tar, and bitumen, al-Razi, encouraged and pioneered chemotherapy in Islamic medicine.

Although he recommended poppies and opium internally as somniferous agents and to quiet coughing, and externally to relieve eye and wound pains, he warned against their deadly effects (two drams are fatal).

Conclusion

The development of professional pharmacy, as a separate entity from medicine, started in Islam under the patronage of the early' Abbasiyyah caliphs in Baghdad. This first clear-cut separation of the two professions, and the recognition of the independent, academically oriented status of professional pharmacy materialized in the Abbasiyyah capital (Baghdad) and Al Razi was one of the few pharmacists who added very valuable contributions to medicine and pharmacy while most of Europe was still living in the dark ages !

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The Indian Muslims Red Crescent Society's Aid to the Ottoman State During the Balkan War in 1912

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Summary

The war that was declared in 1912 against the Ottoman Empire by Serbia, Montenegro, Bulgaria and Greece brought other disasters with it. The cholera outbreak that started during the war and spread rapidly among the Bulgarian Turks who were fleeing to Turkey left the Ottoman Empire in a difficult position. In these difficult days the Red Cross and the Red Crescent came to their aid. The Indian Muslims sent the money they had collected to the Red Crescent. Also the Indian Muslims who came to Istanbul along with the health staff gave excellent service. The help of the physician and statesman Dr. Muhtar Ahmed Ensârî Bey, who had fought for the independence of India, continued at the front and behind the front lines. Together with Muhammed Ali and Zafer Han he created a project funded by the Indian Muslims that would create a place for the immigrants to stay in Anatolia. The assistance of the Indian Muslims was not confined just to the Balkan War, but continued during World War I and the War of Independence.

Key Words; Indian Red Crescent, Ottoman Red Crescent, Balkan War (1912), Balkan War and Health Services (1912), Muhtar Ahmed Ensârî, Pakistan.

Introduction

The Red Cross and Red Crescent were founded to assist wounded soldiers, but in the ensuing years, services were expanded to assist humanity in other areas. The outbreaks of contagious diseases and the migrations of large populations were also added to the duties of the Red Cross and Red Crescent, as these were disasters caused by wars. In the last issue, aid from the Egyptian Red Cross to the Ottoman Empire during the Balkan War was discussed and in this issue help from the Indian Muslims to the Ottoman Red Crescent Foundation will be discussed.

The Ottoman Empire faced very difficult days during the 1912 Balkan War. Declaration of war by Montenegro on October 8, 1912, by Bulgaria and Serbia on October 17, and Greece on October 19, was the cause for many disasters for the Ottoman Empire. When the Eastern Army of the Ottomans was defeated by the Bulgarians and retreated to Çatalca, a cholera outbreak occurred. The cholera outbreak spread rapidly over a large area. (1,2,3), and the Ottoman Empire lost in this war due to the cholera outbreak (4).

Due to the war the refugees, whose numbers were in the hundred thousands, migrated from Bulgaria to Istanbul and Anatolia. The problem of the wounded, the outbreak of cholera and the refugees who were left out in the open during the cold winter started a chain of disasters. There were so many wounded and sick in Istanbul that, including barracks and police stations, many government buildings were turned into hospitals, and mosques were given to the refugees.

The Military Medical Corps and the Ottoman Red Crescent Foundation worked very hard during the Balkan War and the Red Cross from Germany, America, Belgium, France, Holland, England, Sweden, Romania and Russia together with the Red Crescent that had been formed in Romania, England, Egypt and India came to help out (5). All the medical teams that had been sent by the different countries' Red Cross and Red Crescent were joined by the Ottoman Red Crescent and, according to the Military Medical Corps, they were placed in the area where they were most needed.

The medical teams that had tents and necessary medical supplies built mobile hospitals near the war zones. The teams that did not have tents and medical supplies were placed in hospitals in Istanbul. The teams were managed by either the Military Medical

Corps or the Red Crescent depending on which hospital they were working at treating the wounded and sick soldiers in Istanbul.

The Indian Muslims, now compromising the present-day country of Pakistan, had helped Turkey greatly during Tripoli (1911), World War I and the War of Independence (1914-1922) (6,7). The Indian Muslims also reacted immediately to help during the Balkan Wars. The team from India, headed by Dr. Muhtar Ahmed Ensârî Bey[2], assisted on the front lines and behind them, for six months in Istanbul. The medical teams they had sent during the Balkan War were very successful. Dr. Ensârî Bey and his friends travelled around Anatolia and by publishing in Indian newspapers what they saw enlightened the Indian population about Turkey. They were working together with the Ottoman statesmen to establish living quarters for the refugees who had immigrated to Turkey. The establishment of the "Foundation to Assist Rumeli Refugees" was a direct result of the suggestion of Muhammed Ali and Zafer Ali. After Dr. Muhtar Ahmed Ensârî Bey and Zafer Ali Han had been around Anatolia they decided that Adana was the most suitable place and they sent the money to Istanbul that had been collected in India to finance this project by the start of World War I. The Indian Muslims felt so close and loved the Ottomans Turks so much that the students cut rations of their food and the women sold their gold and jewellery to help the Ottomans defend themselves (6,7). Just one of the donations that came from the Indian Muslims to the Ottoman Red Crescent Foundation was 185,000 Ottoman liras. The Ottoman Red Crescent Foundation received the donations of the Indian Muslims through the consulates and embassies.

Figure 1- Dr. Ensârî Bey, Head of the Indian Red Crescent Medical Team *(Osmanlı Hilâl-i Ahmer Cemiyeti 1329-1331 Sâlnâmesi, (Ottoman Red Crescent Yearbook) p.: 210).*

[2] Muhtar Ahmed Ensârî Bey (1880-1936): The physician and statesman Muhtar Ahmed Ensârî Bey, who worked for the independence of India, was a great friend to the Turks and a philanthropist. Ensârî Bey who came from a deeply rooted family went to secondary school at the Gazipur Victoria High School and to the Muir Central College in Allahabad. The Haydarâbâd Council who noticed his work sent him to England for medical school. He became the first Indian to work at one of London's more prestigious health institutions. He returned to India in 1910 to fight for the independence of his country. He worked with many famous people such as Gandhi, Nehru, Ecmel Han, Muhammed Ali and Sevket Ali Han. During the Balkan Wars the Indian Muslims started to assist Turkey. Ensârî Bey and the medical team he headed worked in Istanbul on and behind the front lines for six months. Ensârî Bey also assisted the refugees who immigrated to Turkey due to the Balkan Wars. After World War I, during the War of Independence he created committees to help the Turkish Red Crescent and even added Gandhi to these committees. Ensârî Bey also travelled across Anatolia and had his impressions published in Indian newspapers, informing the Indian people about Turkey. During his struggle for independence he was arrested by the British and thrown into prison. In Ensârî Bey's thesis for the struggle he wanted the independence of India without breaking its unity. Gandhi had said, "He is our right arm" about Dr. Ensârî. Abdur Raheem Kidwai: Muhtar Ahmed Ensârî; Encyclopaedia of Islam by the Turkish Islamic Religious Foundation Vol. 11. Besim Omer Akalin: We Have Lost a Great Friend; Awakening, Servetifunun, No. 2082/397, July 16, 1936, 46(80/16): 114.

هندستان بومبای قرای اسلامیه هلال احمر هیئت صحیه‌سی
اورتده قاپوطلی سرطبیب محمد حسین

Figure 2- The Bombay Red Crescent Medical Team for Assisting the Poor Muslims. In the middle, Head Physician Mehmed Hussein with a military greatcoat on *(Osmanlı Hilâl-i Ahmer Cemiyeti 1329-1331 Sâlnâmesi, p.: 317).*

But those who wanted to help did not have to go through consulates and embassies. Some of the names of people who donated are as follows: Hack Mehmed Asaf and partners from Madras; (Arabic); Kamer Sah; Haci Ismail Han; Mehmed Haci Nuri Mehmed from Calcutta; Zafer Ali Han, owner of the Zamandar newspaper from Lahore; Mehmed Fazil, owner of the Elmesir newspaper from Meradabad; the Serampur Red Crescent Foundation in Calcutta; Encumen-i Muhammed-ul Islam from Calcutta; Polikal newspaper from Bombay; Haci Kasim Arif Efendi from Calcutta; the Mesrutiyet newspaper from Lahore; Mehmed Efendi and Mehmed Ibrahim Veziri Efendi from Lahore; Haci Abdullah Harun Efendi from Karachi; بهو بال حاکمه سی حضر تلر ی; Kamer Sah from Rampur; Vatan newspaper from Lahore; Ali Tahsin Efendi, owner of the Vekil newspaper from Lahore; Munure Hanımefendi, head of the Arab and Turkish Women in Bombay; Ekrem and Mehmed Nafi Efendi from Delhi; Han Mehmed Omer, Bami Efendi and Ahmed Minla Davud Efendi from Bombay. One of the people that handed these donations over at Babiali was Zafer Ali Han. The names of the people that donated money are listed in the Prime Ministry's Ottoman Archives and the Yearbook of the Red Crescent Foundation (5,7).

The Indian Muslims sent to Istanbul 3 separate medical teams of which they paid all their costs. These teams were headed by Dr. Muhtar Ahmed Ensârî Bey.

The First Indian Medical Team

This first team consisted of young volunteers who were from rich families in India and were studying in London. They paid for all their own expenses including the costs of the Egyptian physician Selim Bey to come to Istanbul. They worked at the Haydarpasha Military Hospital at first and then they served at the front near Omerli.

The Medical Team consisted of:

Dr. Selim Bey, Egyptian, London

Abdulhak Bey, South Hydarâbâd, student at Oxford

هند هلال احمر سیار خسته‌خانه‌سنده برچادر

Figure 3- A tent from the Indian Red Crescent Mobile Hospital *(Osmanlı Hilâl-i Ahmer Cemiyeti 1329-1331 Sâlnâmesi, p.: 238).*

Seyyid Al Umran; Sincor Province, student at Oxford

Seyyid Mehmed Hussein; South Hyderabad, student at Oxford

Seyyid Husnabid Ceferi; Akra in Delhi Province, student at Oxford (5).

The Second Indian Medical Team

"The Bombay Medical Team for Assisting the Poor Muslims" created with funds that were collected by "The Islamic Youth Foundation" and the "Ziya-yi Islam Council" from the city of Bombay, arrived in Istanbul on December 17, 1912. The medical team was placed at the Red Crescent Darulfunun (Charitable) Hospital. During the negotiations they stayed about one month and treated about 100 bed-ridden and accepted 135 patients.

The medical team that had excellent tents and mobile hospital equipment, established a mobile hospital with 100 beds near Çatalca at the chief front of Omerli, and accepted sick and wounded soldiers.

Many important people visited the mobile hospital that was established at Omerli and wrote down their gratitude in the hospital ledger.

Medical Team consisted of:

Dr. Feyzi; *(director)*

Dr. Mehmed Hussein Bey; *(chief physician)*

Dr. نیمقار Nimkar

Dr. مو لکه ن

Dr. Nizar Ahmed

Dr. Selim

Pharmacist: Ruşen

Secretary: Seyyid Abdulvacid

Head nurse (man): Seyyid Mehmed Şerif Meshedi

Officier: Hekim Seraceddin

Cashier: Abdullatif

13 nurse (man) and three vice-nurses

The Third Indian Medical Team

The medical team that was established as "El vefd-el tibbi min bilad-el Hind", "الو فد ا لطبی من بلا دا لهند" by the Indian Red Crescent in Delhi, was headed by Dr. Muhtar Ahmed Ensârî Bey and arrived in Istanbul on January 9, 1913. During the negotiation period they

هند هلال احمر ایکنجی سیار خسته خانه‌سی
خسته‌لر و مأمورین تنفسده

Figure 4- Patients and staff from the second Indian Red Crescent Mobile Hospital *(Osmanlı Hilâl-i Ahmer Cemiyeti 1329-1331 Sâlnâmesi, p.: 230).*

stayed in a hospital in Kadırga, and then they established a mobile hospital in Omerli. When the war started for the second time, a group of them went down to Gallipoli to establish another mobile hospital.

Medical Team consisted of:

Dr. Muhtar Ahmed Ensârî (chief physician)

Dr. Ali Ezher Feyzi Bey (chief physician assistant)

Dr. Mehmed Naim Ensârî

Dr. Seyyid Abdülrahman

Dr. Seyyid Şemsülbari

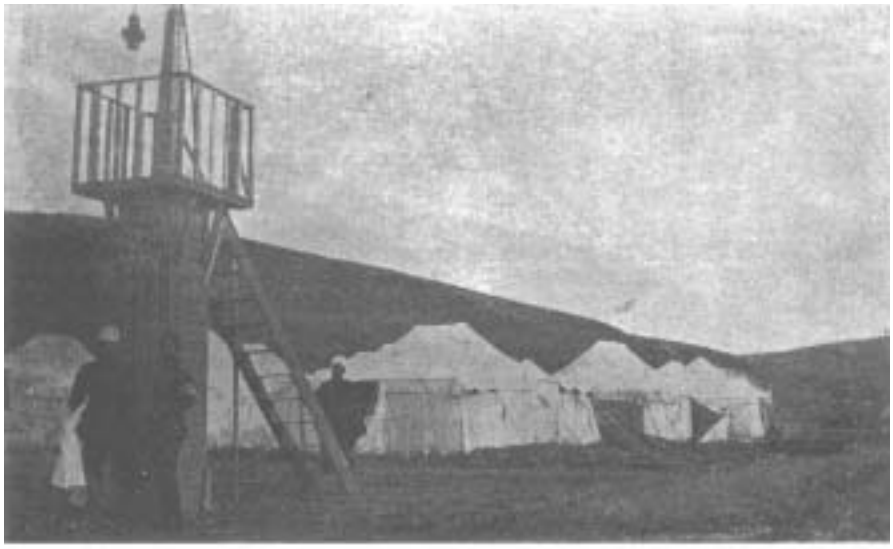
Dr. Mahmudallah

Dr. Mirza Rıza Khan

Pharmacist Gulam Ahmed Khan, Nurulşems, Abdülvahid Khan, Hâmit Resul, Seyyid تونكر Hussein.

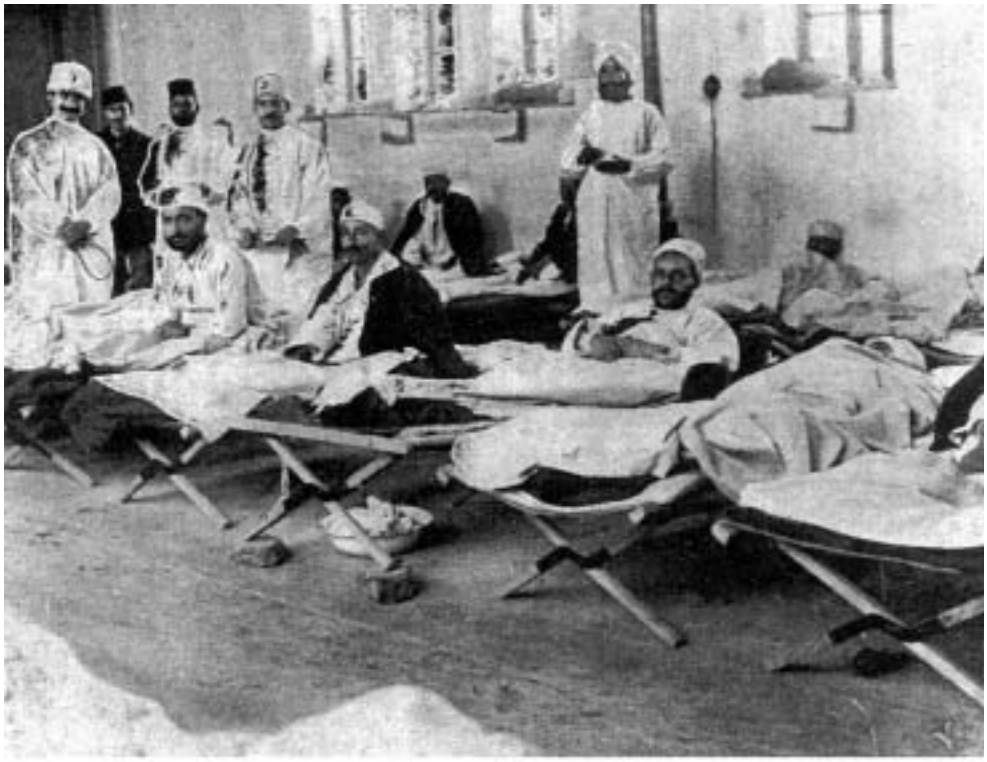
12 nurse (men) and two translators. (5,7,9).

After his service at the front, Dr. Ensârî Bey stayed in Turkey with a few of his friends, and together with Turkish statesmen he searched for a



هندستان پومبای فقرای اسلامیه هلال احمر هیئت طبیه‌سنك سیار خسته‌خانه‌سی
جامع شریف چادری ومناره‌سی

Figure 5- The Bombay Red Crescent Medical Team for Assisting the Poor Muslims' Mobile Hospital, Mosque and Minaret *(Osmanlı Hilâl-i Ahmer Cemiyeti 1329-1331 Sâlnâmesi, p.: 323).*



هند هلال احمر خسته‌خانه‌سنده بر قغوش

Figure 6- A ward in the Indian Red Crescent Hospital. Behind on the left, Dr. Ensârî Bey with a white kalpak on *(Osmanlı Hilâl-i Ahmer Cemiyeti 1329-1331 Sâlnâmesi, p.: 221).*

هند هلال احمر هیئت صحیه‌سی یکده

Figure 7- The Indian Red Crescent Medical Team at dinner *(Osmanlı Hilâl-i Ahmer Cemiyeti 1329-1331 Sâlnâmesi, p.: 213).*

suitable area in Anatolia to place the immigrants as has been mentioned above. He returned to India 6 months later and was given a white Ottoman kalpak (fur cap) with a crescent on it. Together with the gift and the speech he gave at the Foundation he was connected with regarding his insights of the War, he created great interest. We remember with gratitude the Indian Muslims and this great man who was a friend of the Turks and who fought for the independence and unity of India.

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Islamic Medicine History and Current Practice

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Summary

Considerable confusion exists in literature regarding the definition of '*Islamic Medicine'.* This is mainly because each author that writes about '*Islamic Medicine'* is actually writing about an aspect of Islamic Medicine. Thus the definition can vary depending upon the perspective. The context can be historical, cultural, scientific, pharmacological, therapeutic, religious or even a geo-political. In this monograph we shall be examining this body of knowledge mainly from its historical, scientific, therapeutic and application viewpoints.

The greatest challenge of Islamic Medicine is not in its practice, therapeutics or application but in adaptation to modern day needs. Thus it is my belief that the fundamental challenge is not the way in which Islamic Medicine is practiced but the way in which it is defined.

Key Words; History of Islam, History of Islamic Medicine, Hospitals, Physicians.

Introduction

Considerable confusion exists in literature regarding the definition of '*Islamic Medicine'.* This is mainly because each author that writes about '*Islamic Medicine'* is actually writing about an aspect of Islamic Medicine. Thus the definition can vary depending upon the perspective. The context can be historical, cultural, scientific, pharmacological, therapeutic, religious or even a geo-political. In this monograph we shall be examining this body of knowledge mainly from its historical, scientific, therapeutic and application viewpoints.

The main source of all inspirational knowledge in Islam is *'The Holy Quran'*. This book is considered by Muslims or followers of Islam to be the word of Allah or God, revealed by Him to the Prophet of Islam: Mohammed. A secondary source of a Muslims' inspiration is the *'Hadith or Sunna', which* are the recorded and authenticated sayings and traditions of the Prophet of Islam: Mohammed.

As such not much medicine is mentioned in the Quran except for beneficial effects of some natural foods viz. honey and abstinence from intake of alcohol or other intoxicants proscribed on every Muslim, yet the Quran is the guiding spirit that every Muslim has to follow, including the physicians in treating their patient and the patients in handling their illness. However very early in the Islamic era, the Hadith literature had accumulated a number of sayings and traditions of the Prophet under a collection called the 'Prophetic Medicine'. These edicts expounded on virtues of diet, natural remedies, and management of simple ailments like headache, fever, sore throat, conjunctivitis, etc. More importantly however injunctions were prescribed against contact with persons having a contagious disease for instance leprosy or entering or leaving an area of an epidemic or plague, thus helping to limit the disease. In addition a large number of traditions were collected under the title of '*Spiritual Medicine'.* These were a collection of the verses of the Quran or prayers to the Almighty, which invoked blessings and which had to be recited when affliction was to be expurgated.

Prophetic Medicine

'Prophetic Medicine' although popular amongst the masses of Muslims because of its doctrinal and theological contents was considered by most Muslim historians and physicians as distinct from scientific

and analytical Islamic Medicine. Ibn Khaldun (1332-1406 AD) a well known medieval Muslim jurist, historian, statesman in his *'Muqaddimah'* states:

'The Bedouins in their culture, have a kind of medicine which they base primarily on experience restricted to a few patients only, and which they have inherited from their tribal leaders and old women. In some cases it is correct, but it is not founded on natural laws, nor is it tested against (scientific accounts) natural constitution (of peoples). Now the Arabs had a great deal of this type of Medicine before the advent of Islam and there were among them well known doctors like al-Harith ibn Kalada and others. Their Medicine that has been transmitted in the Islamic religious works (as opposed to those works which were considered scientific works) belong to this genre. It is definitely no part of divine revelation (to the Prophet: Mohammed) but was something customarily practiced by the Arabs. This type of Medicine thus is included in his biographies, just as are other multitudinous of matters of sociological importance like the natural life and customs of the Arabs, but forms no part of religion of Islam to be practiced in the same way.'

Definition

Islamic Medicine in its true context, can thus be defined as a body of knowledge of Medicine that was inherited by the Muslims in the early phase of Islamic History (40-247 AH/661 -861 AD) from mostly Greek sources, but to which became added medical knowledge from, Persia, Syria, India and Byzantine. This knowledge was not only to become translated into Arabic, the literary and scientific lingua franca of the time, but was to be expounded, assimilated, exhaustively added to and subsequently codified, and 'islamicized'. The Physicians of the times both Muslim and non-Muslim were then to add to this, their own observations and experimentation and convert it into a flourishing and practical science, thus helping in not only in curing the ailments of the masses, but increasing their standards of health. The effects of its domineering influence extending not only in the vast stretches of the Islamic lands, but also in all adjoining nations including Europe, Asia, China, and the Far East. The span was measurable not only for few centuries, but also perhaps for an entire millennium, 610 to 1610 AD. During which time, Europe and rest of the extant civilized nations of the world were in grips of the 'dark ages'. It also to set the standards of hygiene, and preventative medicine and thus was responsible for the improvement of the general health of the masses. It was to hold sway until decadence finally set in, concomitant with the political decline of the Islamic nation. With the advent of Renaissance in Europe, at the beginning of the 17th century AD, it was finally challenged by the new and emerging science of modern medicine, which was to finally replace it in most of the countries, including the countries of its birth!

Historical Background

In order to understand the period in which Islamic medicine was born, one has to understand the salient events in the advent of Islam and a few events just preceding the Islamic era. Arabia which was a large area covered mostly by an arid desert that was roamed by nomadic tribes of Bedouins. Certain communities had been established where the trade routes intersected and water was available. Mecca was along the Yaman-Damascus trade route. It was considered a holy city and a sanctuary. The Kaaba or house of worship was replete with idols of different gods each representing a tribe or community. These Bedouins had their own tribal moral or ethical codes of conduct and idolatry was in practice. Blood feuds were common and attacking caravans along trade routes was a way of life. Sacrifices were often offered to appease the gods and burying of live female children was common practice. Family feuds were common and settling scores in order to uphold tribal honor led to frequent bloody encounters in which many people were killed. Women and children were treated as 'chattels' or private possessions and became the property of the winner. This era of Arabia is frequently referred by Muslims as *'Jahilliya'* or age of ignorance. Islam was not only to bring dramatic changes in the religious practices of these warring nomadic tribes but also unite them into an unprecedented social and cultural nation that very quickly was to develop into a strong political entity, with its own system of administration, justice, and military power, all under one leadership. The first leader of the Islamic State was no doubt the Prophet of Islam,

Mohammed but then his four successors called the '*Pious* Caliphs' were to quickly consolidated and expand the nation. Within one hundred years of coming into existence, the Islamic empire had spread from Spain in the West, to China in the East, and encompassed in its midst, the whole of Northern Africa, Egypt, Syria, Palestine, Transjordan, Central Asia and parts of Western India. Later it was to be even carried further by the Muslim merchants to the shores of the far east including the Malaysian peninsula, the islands of the East Indies and Indonesia. In its early era and for several centuries, the Islamic empire was centrally governed by a leader or 'Caliph' and administered by provincial governors. The first four Caliphs were elected democratically but the later the Caliphate became dynastic. Later still a western Caliphate was established in Spain. In later history the Islamic Nation was to break up into various kingdoms, as the provincial rulers become more autonomous and independent of the center and was ultimately to be overrun by the Sejluk Turks who were the forerunners of the Ottoman empire.

It was during the early Caliphates of the 'Ummayads' and the 'Abbasids' that the maximum development of Islamic Medicine took place. It was also during this time and under the patronage of these Caliphs that the great physicians both Muslim and non-Muslim thrived, accumulated the wealth of medical knowledge and cultivated a system of medicine that was to be later called 'Islamic Medicine'.

The early era of Islamic Medicine and the School of Medicine at Jundishapur:

Jundishapur or 'Gondeshapur' was a city in Khuzistan founded by a Sasnid emperor Shapur I (241-272 AD) before the advent of Islam. It was to settle Greek prisoners, hence the name 'Wandew Shapur' or 'acquired by Shapur.' In present day Western Persia the site is marked by the ruins of Shahbad near the city of Ahwaz. The town was taken by Muslims during the caliphate of Hadrat Umar, by Abu Musa Al-Ashari in (17 AH/738 AD). At this time it already had a well established Hospital and Medical school.

Many Syrians took refuge in the city when Antioch was captured by Shapur I. In fact the latter nicknamed the city 'Vehaz-Andevi Shapur' or 'Shapur is better than Antioch.' The closing of the Nestorian School of Edessa by Emperor Zeno in 489 AD led to the Nestorians fleeing from there and seeking refuge in Jundishapur under patronage of Shapur II, which got an academic boost as a result. The Greek influence was already predominant in Jundishapur when the closing of the Athenian school in 529 AD by order of the Byzantine emperor Justinian drove many learned Greek physicians to this town. A University with a medical school and a hospital were established by Khusraw Anushirwan the wise (531-579 AD) where the Greeco-Syriac medicine blossomed. To this was added medical knowledge from India brought by the physician vizier of Anushirwan called 'Burzuyah.' On his return the latter brought back from India the famous 'Fables of Bidpai', several Indian Physicians, details of Indian Medical Texts and a Pahlavi translation of the 'Kalila and Dimma.' Khusraw was even presented a translation of Aristotleian Logic and philosophy. Thus at the time of the Islamic invasion the school of Jundishapur was well established and had become renowned as a medical center of Greek, Syriac and Indian learning. This knowledge had intermingled to create a highly acclaimed and state of the art Medical school and hospital. After the advent of Islamic rule the University continued to thrive. In fact the first recorded Muslim Physician Harith bin Kalada, who was a contemporary of the Prophet acquired his medical knowledge at medical school and hospital at Jundishapur.

It is likely that the medical teaching at Jundishapur was modeled after the teaching at Alexandria with some influence from Antioch but it is important to note that '*the treatment was based entirely on scientific analysis, in true Hippocratic tradition'*, rather than a mix-up with superstition and rituals as was the case in Greek '*asclepieia*' and Byzantine '*nosocomia*'. This hospital and Medical Center was to become the model on which all later Islamic Medical Schools and Hospitals were to be built. The School none the less thrived during the Ummayid caliphate and *Sergius of Rasul'ayn* translated medical and philosophical works of both Hippocrates and Galen into Syriac. These were later

to be translated into Arabic casting an everlasting imprint onto all the future of Islamic Medicine.

It was during the Abbasid Caliphate that Caliph al-Mansur the founder of the city of Baghdad invited the then head of the Jundishapur School to treat him. This physician was Jirjis Bukhtyishu, a Christian whose name meant 'Jesus has saved'. He treated the Caliph successfully and got appointed to the court. He however did not stay permanently in Baghdad returning to Jundishapur before his death, but the migration to Baghdad had begun. Thus his son Jibrail Bukhtishu established practice in the city and became a prominent physician. Another family that migrated from Jundishapur to Baghdad was the family of Masawayh who went at the invitation of Caliph Harun-ul-Rashid and became a famous Ophthalmologist. Most famous amongst his three sons who were physicians was Yuhanna ibn Masawayh (Mesue Senior). He wrote prolifically and 42 works are attributed to him. By this time second half of 2nd century after hijra (8th century AD) the fame of Baghdad began to rise as also the political power of the caliphate. Many hospitals and medical centers were established and tremendous intellectual activity was recorded. This culminated into the period of Islamic Renaissance and the golden era of Islamic Medicine of which description is given under a separate section.

The resources for development of Islamic Medicine: The Bait-ul-Hikma or 'The House of Wisdom'

'Bait-ul-Hikma' or House of Wisdom was founded in 214 AH 830 AD by the Caliph Al-Mamun an Abbasid Caliph. *Ibn Al Nadim*, who was the son of a bookseller and whose famous catalogue of books 'Firhist of Nadim' tells us of many of the Books of his time, relates this story of the Caliph: Aristotle appeared in the dream of the learned Caliph and told him that there was no conflict between reason and revelation. The Caliph thus set about searching for books and manuscripts of the ancient Greek philosophers and scientists. He sent an emissary to the Byzantine Emperor to get all the scientific manuscripts that were apparently stored in an old and dilapidated building. After initially turning him down the emperor granted him his request. Among the emissaries sent to select the works was the first director of the house of wisdom Salman, who was the one that led the delegation. Others in it were al Hajjaj Ibn Matar, Ibn al Batrik. They brought back with them many Greek scientific works and manuscripts. Translations of all of these was immediately started. However the translation of the medical works of the Greeks had started earlier during the reign of Caliph Harun al Rashid, with the building of the first hospital under the Caliph's patronage.

Ibn Nadim lists 57 translators associated with he House of Wisdom. The one's who formed the first delegation to the Byzantine King have already been named. Other famous ones are as follows:

1. al Hajjaj ibn Yusuf ibn Matar completed translation of Euclid's elements. Other Greek authors including Aristotle, Archimedes, Pythogras, Theodesius, Jerash, Apollonius, Theon and Menelaus all were translated.
2. Muhammad ibn Mujsa al-Khwarizimi born in Khiva systematically explored arithmetic and algebra. The latter derived its name from his discourse: 'Kitab al-Jabr wa al-Muqabla.' Algebra was derived from the second letter and meant 'bone setting' a graphic description of operations on solving quadrantic equations.
3. The knowledge of geometry flourished and with it architecture and design. Ibn Khaldun was later to describe geometry as a science that 'enlightens the intelligence of man and cultivates rational thinking.'
4. Mamun's court astronomer was Musa ibn Shakir. His three sons Muhammad, Ahmad and al-Hassan devoted their lives to the search of knowledge. They exemplified the Prophetic traditions and dicta: 'Seek learning even if it be in China.' 'The search for knowledge is obligatory on every Muslim.' 'The ink of scholars is worth more than the blood of martyrs.'
5. The works of these learned men or 'Sons of Musa" were exceptionally creative. They wrote on: celestial mechanics, the atom, the origins of earth, Ptolemic universe, the properties of the

ellipse, planes and spheres, the knowledge of geometry served in practice to create canals, bridges and architectural designs.

6. Muhammad ibn Musa on one of his travels met Thabit ibn Qurra. The latter was master in three languages. Greek, Syraic and Arabic and soon got appointed to become the court astrologer to Caliph al-Mutadid. He was invaluable addition to the House of Wisdom. In 70 original works he wrote on every conceivable subject including mathematics, astronomy astrology, ethics, mechanics, physics, philosophy, and published commentaries on Euclid, Ptolemy, and other Greek thinkers and philosophers.

7. The two sons of Thabit ibn Qurra also became famous. Sinan was a famous physician in Baghdad. He was director of several hospitals and was court physician to three successive caliphs. His son Ibrahim also became a prominent scientist. He invented sundials and wrote a special treatise on this subject.

8. The greatest medical mind in the House of Wisdom was Hunain ibn Ishaq. Born in Hira Hunain was the son of an apothecary. He soon translated entire collection of Greek medical works including Galen, Hippocrates. Hunain was an extremely gifted and talented translator. From being just a literal translator he tended to be more scientific and duly interpreted the original text by cross reference, annotation and citing glossaries. His original contributions included 10 works on ophthalmology which were extremely systematic. He rose to the highest honor by being appointed the director of the House of Wisdom by Caliph al Mutawakkil.

9. Qusta ibn Luqa was another accomplished translator and scholar. He has 40 original contributions to his credit. He wrote on diverse subjects such as ‘mirrors, hairs, fans, winds, logic, geometry and astronomy to name a few.

10. Yuhanna ibn Masawaih (Mesuse senior) was an early director of the House of Wisdom. He served under four caliphs. Al Mamun, al-Mutassim, al-Wathik and al-Mutawakkil. He wrote about medical especially gynecological problems.

11. The effect of the House of wisdom was tremendous. Islamic Science, philosophy, art and architecture all felt its effects. Agriculture, Government, prosperity and economic wealth were the benefactors. It ultimately was responsible to produce figures like Al-Kindi, Al-Farabi, some of the greatest thinkers, scientists and philosophers of Islam. Also some of the greatest Islamic Physicians had available to them all the knowledge of ancient Greece, Syria, India and Persia available to them and in turn they contributed by their astute observation and originality. The giants of Islamic Medicine and their achievements are described elsewhere.

Hospitals during the Islamic era

The idea of a hospital as an institutional place for the caring of the sick has not been recorded in antiquity. There were sanatoria and ‘travel lodges’ that were attached to temples where the sick were attended to by attendant priests. Most of the therapy in these sanatoria consisted of prayers and sacrifices to the gods of healing especially to Aaescalapius. Cures that ocured were thought to result from divine interventions.

A large number of hospitals were developed early during the Islamic era. They were to be called *‘Bimaristan’ or ‘Maristan’*. The idea of a hospital as a place where sick could get attention was totally adopted by the early Caliphs. The first hospital is credited to Caliph Al-Walid I an Ummayad Caliph (86-96 AH 705-715 AD), by some it was however considered no more than a leprosoria because it allowed the segregation of lepers from others. It did have on staff ‘salaried doctors’ to attend the sick.

The first true Islamic hospital was built during the reign of Caliph Harun-ul-Rashid (170-193 AH 786-809 AD). Having heard of the famous medical institution at Jundishapur already described above the Caliph invited the son of the chief physician, Jibrail Bakhtishu to come to Baghdad and head the new ‘bimaristan’ which he did. It rapidly achieved fame and led quickly to developments of other hospitals in Baghdad. One of these the ‘Audidi’ hospital was to be built under the instructions of the great Islamic Physician Al-Razi. It is said that in order to select the best site for the hospi-

tal he had pieces of meat hung in various quarters of the city and watched their putrefaction and advised the Caliph to site the hospital where the putrefaction was the slowest and the least ! At its inception it had 24 physicians on staff including specialists categorized as Physiologists, oculists, surgeons and bonesetters. When Djubair visited Baghdad in 580 AH/ 1184 AD he recorded that this hospital was 'like a great castle' with water supply from the Tigris and all appurtenances of Royal Palaces.

One of the largest hospitals ever built was the Mansuri Hospital in Cairo it was completed in 1248 by the orders of the Mameluke ruler of Egypt, Mansur Qalaun. It was most elaborate. It had a total capacity of 8000 people ! The annual income from endowments alone was one million dirhams. Men and women were admitted to separate wards. Irrespective of race religion and creed or citizenship (as specifically stated in the Waqf documents) nobody was ever turned away. There was no limit to the time the patient was treated as an inpatient ! (what a contrast from present HMO's !) . There were separate wards for men and women and medicine, surgery, fevers and eye diseases had separate wards. It had its own pharmacy, library and lecture halls. It had a mosque for Muslim patients as well a chapel for Christian patients !

The Waqf document specifically stated: '*The hospital shall keep all patients, men and women until they are completely recovered. All costs are to be borne by the hospital whether the people come from afar or near, whether they are residents or foreigners, strong or weak, low or high, rich or poor, employed or unemployed, blind or signed, physically or mentally ill, learned or illiterate. There are no conditions of consideration and payment; none is objected to or even indirectly hinted at for non-payment. The entire service is through the magnificence of Allah, the generous one*.'

As to the physical conditions of these hospitals especially those established by princes, rulers and viziers it can be stated that some of these were luxurious and were actual palaces that had been converted to hospitals. Even contemporary Europe could not boast of a single hospital that came close to the facilities that were provided in these institutions. Some of them especially in Baghdad, Egypt and Syria had furnishings were similar to those in the palaces. Most of these being under the patronage of the viziers, sultans and caliphs were no doubt inspired by the Islamic teaching of the welfare of the poor and needy. The Quran tells us: *'You shall not attend to virtue unless you spend for the welfare of the poor from the choicest part of your wealth'* (3,92) and again: *'O you who believe spend (for the poor) from the worthiest part of what you have earned and what your crop yields, and do not give away from its unworthy parts- such that you yourselves will not take until you examine the quality minutely- and know that Allah is not in your need and all praise belongs to Him.' (2,267).*

As to the salaries of Physicians here is some information from authentic sources. The annual income of Jibrail ibn Bakitshu who was the Chief of Staff at a Baghdad hospital during the reign of Mamun ArRashid (d c.e 833/218 A.H.) as recorded by his own secretary was 4.9 million dirhams. His son also a doctor lived in a house in Baghdad that was air-conditioned by ice in summer and heated by charcoal in winter ! A resident by comparison who was supposed to be on duty for two days and two nights a week, was paid 300 dirhams a month. (Remind you of Denton Cooley and his fellows ?).

The great physicians of Islamic Medicine

The era of Islamic Medicine produced some very famous and notable physicians. These physicians were not only responsible to get all the existing information on Medicine of the time together but add to this knowledge by their own astute observations, experimentation and skills. Many of them were skilled in medical writing and produced encyclopedic works which became standard texts and reference works for centuries. With the coming of European Renaissance they formed the basis on which the European authors gained insight into the medicine of the 'ancients' or early Greek authors whose works were only preserved in Arabic. In addition many re-discoveries took place which had already been recorded by the Islamic physicians but hitherto had been unknown until recently uncovered. The classical example of the discovery of Pulmonary circulation originally given to Servetus was found to have been succintly described by Ibn

Nafis an Islamic Physician who lived centuries earlier. Ibn Nafis repudiated the earlier concepts held by Galen and described the lesser circulation so succinctly that nothing more could be added until Malphigi could describe the alveoli and the pulmonary cappillaries with the advent of the microscope discovered by Anthony Von Luwenheek in mid 19th century. Some of them form the basis of instruction of students of Tibb and Hikma the traditional Islamic Medicine practiced in the subcontinent of India and Pakistan, even today under the banner of Tibb or Unani Medicine.! It would be out of scope for us in this chapter to describe the accomplishments of each of these physicians, however we will proceed with giving you the salient accomplishments of some of the most notable amongst them. For sake of classsification the historic periods of the Islamic Physicians can be divided into three parts: 1. The period of Islamic Renaissance: From the beginning of Islam to the end of the Abbasid dynasty. 2. The period of Islamic Epoch: When all sciences including Medicine reached the pinnacle of development under the Islamic patronage. 3. The period of decline: during which the knowledge of Islamic Medicine was translated into European languages and became the basis of further development and discoveries and ultimately led to basis for the development of Modern Medicine.

The Period of Islamic Renaissance

The notable physicians during this period were as follows:

Bukhtishu family of Physicians. The oldest amongst these was Jibrail Bukhtishu who was the Chief Physician at the Hospital in Jundishapur. He came from a Christian family and was summoned to the court of Caliph Mamun (148AH/765 AD) when the latter fell ill. After having treated him successfully he was invited to stay in Baghdad and head a hospital there but he declined and returned to his native Jundishapur.(152 AH/769 AD) It was his son Jurjis Bukhtishu who was later invited by Caliph Harun-ul-Rashid to come to Baghdad to treat him (171AH/787 AD) and then offered to be the Chief Physician and head a hospital in Baghdad which he did till he died in 185 AH/801 AD).

Masawaih is another family of physicians associated with early Islamic History. During the reign of Caliph Harun-ul-Rashid the elder of the family migrated from Jundishapur to Baghdad and become a celebrated Ophthalmologist. He wrote the first Arabic treatise on ophthalmology. His son known to the west as Mesue Senior with real name of Yuhanna ibn Masawayh wrote several medical works in Arabic while translating other works from Greek. He is known for somewhat of a sarcastic temperament none the less commanded great respect because of his medical expertise.

Hunayn ibn Ishaq who was a student of Ibn Masawayh became the greatest translator of Greek and Syriac medical texts during the 3rd century AH/9th century AD. He was responsible for masterly translations of Galen, Hippocrates, Aristotle into Arabic. He also improved the Arabic Medical lexicon giving it a rich technical medical language to express medical terminology and thus laid the foundations of the rich medical expression in Arabic language far superseding the later translations from Arabic to Latin. He was himself an astute physician and wrote two original works on ophthalmology.

The credit of the first sytematic work on medicine during this era goes to a Muslim physician Ali ibn Rabban al-Tabbari hailing from Persia but settling in Baghdad in the first half of the 3rd century AH/9th century AD. His work called *'Firdaws a—Hikma' or 'Paradise of Wisdom'* contained extensive information from all extant sources including Greek, Syriac, Persian and Indian and contained an extensive treatment of Anatomy.

The Period of Islamic Epoch

The most famous and notable physician of this time and perhaps of the entire early Islamic era is no doubt Muhammad ibn Zakariyya al-Razi(born 251 AH/865 AD; died 312 AH/925 AD) called Rhazes by his Latinized name. Born in Rayy in northern Persia not much is known about his early life or his medical education. His fame starts with the establishment of a hospital in Baghdad of which he was the chief. The story of how he picked the site of the Hospital when asked to select one, has become one of the classical legends of Islamic Medicine. He had pieces of meat hung in various quarters of the city and had them examined for putrefaction and recommended the site

where the meat had decayed the least as the most suitable site thus making him the first physician to infer indirectly the bacteriologic putrefaction of meat, and suggesting the environmental role that contaminated air plays in the spread of infection, predating by centuries the modern concept of air borne infection.

But besides this astute observation Al-Razi is known for numerous other original contributions to the Art and Science of Medicine. Although not the first to describe the differences between Small Pox and Chicken Pox and give an in depth description of measles in his famous work Kitab al Jadari wa'l-hsbah (Tretise on Small Pox and Measles) his was the one that became well known in the west because of frequent translations. He described allergy to roses in one of his classical cases. The famous Islamic historian and scientist al-Biruni has listed 56 medical works of al-Razi the most famous being al-Hawi or the Continents which is an Encyclopedia of medical knowledge based on his personal observations and experiences. A scribed copy of this book was recently exhibited by the National Library of Medicine in Bethesda, Maryland USA celebrating 900th Anniversary of its completion by an unknown scribe., and recorded as the third oldest Medical manuscript preserved in the world today. A shorter medical textbook was dedicated to al-Mansur and hence called Kitab al-Mansuri.

Besides these and other original contributions of which most have all been published and some survive to this day al-Razi devoted a lot of his time to teaching, bedside medicine and attending to the royalty and court. The impact of these publications on Islamic Medicine was tremendous. His books became an invaluable addition to the armamentarium of a medical student of the time and remained standard texts until the appearance much later of texts by al-Majusi (see below) and by Ibn- Sina: '*Qanun fil Tibb'* 'The Canon of Medicine' of which description will be given later.

In the 4th century of Hijra, 10th century AD another Islamic physician gained prominence in Baghdad. His name al-Majusi or Haly Abbas to the west (d 384 AH/994 AD). He became the director of the Aduddawlah Hospital .It was to its founder that al-Majusi dedicated his medical work entitled *Kitab Kamil al Sina al-Tibbiyah' or ' The complete book of the Medical Art '* also called '*al-Kitab al-Maliki'* or *'The Royal Book'*. This book (of which again a copy is preserved in the NLM at Bathesda) is very well systematized and organized. Divided into two basic volumes one covers theory and the other practical aspects. Each of these has 10 chapters. The first volume deals with historical sources, anatomy, faculties, six primeval functions, classification and causation of disease, symptoms and diagnosis, urine, sputum, saliva and pulse as an aid to diagnosis, external or visible manifestations of disease and internal diseases like fever, headache epilepsy and warning signs of death or recovery. The second volume deals with hygine, dietics, cosmetics. Therapy with simple drugs. Therapy for fevers and diseases of organs viz of respiration, digestion, reproduction etc. There is a chapter on surgery, orthopedics, and finally treatment by compound medicaments.

About the 2nd century AH/ 8th century AD a great center of knowledge learning and culture had been developing in the western part of the Islamic empire. This was in Spain or '*Andalusia*'as it was called by the Arabs.Spain had been invaded and conquered by the Muslims in 93 AH/714 AD. When the Ummayad dynasty ended in Baghdad the last of Ummayad princes had escaped to Spain where they established a great dynasty called the Western Caliphate. The rulers of this dynasty laid the foundation of the Muslim rule of Spain that was to last for seven centuries. The epoch of this period was to come during the reign of Amir Abdar-Rahman Al-Dakhil in 138 AH/756 AD. During his reign Cardoba also called '*Qurtuba'* became a great center of International learning. A great library containing more than a million volumes was established. Sciences flourished and great men of learning and physicians worked under the Royal patronage. Later this center was to shift to Granada, under the patronage of the great Ummayad ruler Abd al-Rahman III al-Nasir (300-350 AH/912-961 AD). Perhaps the most famous physician and surgeon of the era was *'Abu al-Qasim Khalaf ibn al-Abbas Al-Zahrawi'* known to the west as Albucasis (318 AH/930 AD to 403 AH/1013 AD). He gained great fame as a physician. He wrote a major compendium of extant medical knowledge

called *'Tasrif'.* It comprised of thirty volumes. The initial volumes dealt with general principles, elements and physiology of humors and the rest deal with systematic treatment of diseases from head to foot. The last volume is perhaps the most important in that it deals with all aspects of Surgery. It was the first textbook of Surgery with illustration of instruments used in Surgery to be ever published. It gained such great fame that it became the standard textbook of surgery in prestigious universities in the west and was most widely read. He emphasized that knowledge of Anatomy and physiology was essential prior to undertaking any surgery: *'Before practicing surgery one should gain knowledge of anatomy and the function of organs so that he will understand their shape, connections and borders. He should become thoroughly familiar with nerves muscles bones arteries and veins. If one does not comprehend the anatomy and physiology one can commit a mistake which will result in the death of the patient. I have seen someone incise into a swelling in the neck thinking it was an abscess, when it was an aneurysm and the patient dying on the spot.'* Some operations described by him are carried out even today in the manner he described them almost 1000 years ago!. These would include operations on varicose veins, reduction of skull fractures, dental extractions , forceps delivery for a dead fetus to mention just a few. Surgery was raised to a high level of science by him, at a time when the Council of Tours in Europe declared in 1163 AD: *'Surgery is to be abandoned by all schools of medicine and by all decent physicians'*

However the greatest physician of the Islamic era was Avicenna or *Ibn Sina* his full name being: *'Abu Ali al-Husayn ibn Abdallah ibn Sina'.* Some historians of medicine acclaim him to be the greatest physician that has ever lived . That is because Ibn Sina was not only a *physician par excellence* but his knowledge and wisdom extended to many other branches of science and culture including philosophy, metaphysics, logic, and religion. As a result of his great wisdom, he has been awarded the titles: al-Shaykh al-Rais (The chief master) and al-Muallim al-Thani (the second philosopher after Aristotle)..

Ibn Sina was indeed a prodigy. At the age of 10 he had memorized the whole Quran.By age of 16 he had mastered all extant sciences that appealed to him including mathematics, geometry, Islamic law, logic, philosophy and metaphysics. By age 18 he taught himself all that was to learn in medicine. Born in city of Bokhara in what is now central Asia in the year 370 AH/980 AD he rapidly rose in ranks and became the vizier (prime minister) and court physician of the Samanid ruler of Bukhara Prince Nuh ibn-Mansur.The Royal Library was opened to him and this enlarged the knowledge of Avicenna to new dimensions. He began writing his first book at age 21. In all, in the short span of 30 years of writing this man had written over a 100 books of which 16 were on medicine. His magnum opus is one of the classics of medicine ever written. The Canon of medicine as it became known in the west was written with the title of *'Kitab al-Qanun fi al-Tibb'.* This voluminous compendium of medical knowledge revealed one written earlier by al-Razi and al-Majusi and indeed surpassed both of these in the content and originality. It was composed of five volumes: Volume I contained the general principles Volume II Simple drugs Volume III Systematic description of diseases from head to foot Volume IV general maladies viz fevers and Volume V Compound drugs. The Canon was translated into Latin by Gerard of Cremora and Andrea Alpago and remained the standard textbook of medicine in Louvain and Montpellier until the 17th Century. A complete copy is in the archives of National Library of Medicine in Bethesda, Maryland. The effects of the systematic collection of hitherto unorganized Greco-Roman medicine and adding to it by personal observation and experimentation of these physician brought medicine to a new pinnacles of practice.

Writes Prof. Emile Savasge Smith, professor of history at the Welcome Library of Medicine in a monograph that accompanied an exhibition of the oldest Arabic manuscripts in collection at the National Library of Medicine: *'The medicine of the day was so brilliantly clarified by these compendia (especially those of Ibn Sina and al-Majusi) and such order and consistency was brought to it that a sense of perfection and hence stultifying authority resulted.'*

The Basic Sciences in Islamic Medicine

Contrary to popular belief, basic sciences were highly developed in Islamic Sciences. For instance Oriental historians of Medicine have erroneously

emphasized that science of anatomy, during the Islamic era was rudimentary ,and did not progress much further than the discoveries already made and described by the Greeks or 'the ancients'. It was popularly held that the Islamic physicians did not challenge the anatomic concepts of the 'ancients'. Secondary to the religious proscription of dissection and thus lacking in their own observations they relied heavily on observations of Galen, Aristotle, Paul of Agaeia and other Greek sources. However after recent discoveries of manuscripts by an Egyptian Physician Mohiuddin al-Tatawi, that had been hetherto unsrutinized, it has become evident that Islamic Physicians not only possesed excellent knowledge of anatomy but they added some challenging new concepts that were revolutionary to the then understanding of anatomical concepts laid down by the 'ancients'. The example that has now become well known is that of the discovery of the lesser or pulmonary circulation by Ibn Nafis (d 687 AH/1288 AD) Until then the credit of the discovery of the lesser circulation was given to Servetus and Colombo, who described it in much similar terms as Ibn Nafis only two hundred years later. The description given of the pulmonary circulation by Ibn Nafis challenged the fundamental concept held by Galen. In fact it suggested that there existed a pulmonary capillary bed where the blood was 'purified ' before being brought back to the heart by the pulmonary artery, thus predating the discovery of pulmonary capillaries long afterwards, following the discovery of the microscope by Anthony Von Luwenheek.. It has to be noted that it has been documented that Ibn Masawaih or 'Masseuse Senior' his latinized name had with the special permission of the Caliph built a house on their banks of the river Tigris where he dissected apes, to learn their anatomy and extrapolated the information to human anatomy. That the knowledge of anatomy was pre-requisite for the surgeon has been emphasized by Al-Zahrawi in the surgical section of his book 'Tasrif' where he writes in the introduction:

'Now this is the reason why there is no skilful operator in our day: the art of medicine is long and it is necessary for its exponent, before he exercises it, to be trained in anatomy as Galen has described it, so that he may be fully acquainted with the uses, forms, temperament of the limbs; also how they are jointed, and how they may be separated, that he should understand fully also the bones, tendons and muscles, their numbers and their attachments; and also the blood vessels both the arteries and the veins, with their relations. And so Hippocrates said: ' Though many are doctors in name, few in reality, particularly on the surgical side.'

As regards the physiological concepts embodied in the Islamic Medicine they were based on the Hippocratic and Galenic concepts of elements natures and humors. The theory expounded being that harmony in the body prevails when all the humors are in proper balance and it is their imbalance that creates disease. Under this principle then, disease is a state of imbalance of humours and needs the restoration of balance, to bring the organism back to its normal healthy state. Under modern medicine such a concept would be unacceptable or at least untenable; because in modern medicine causation of disease is related to etiological agents or factors. However it was Claud Bernard's concept of the '*milleu interior'* which can in modern terms be compared to the Jabirean concept of innate harmony as expanded by Islamic medicine. In order to further exemplify the factors affecting this balance the theory of Islamic Medicine expounds the concept of elements and temperaments. Basic elements are broken into: earth , fire, air and water and each of these is given a temperament: viz earth is dry and cold; water is humid and cold; fire hot and dry heat, air is humid and hot. Even further each of the four essential body fluids like blood, phlegm, yellow bile and black bile are assigned a respective temperament. Each dietary food, medicine or climatic environment can thus then modify or temper the humors of the body and it is an interplay of these that can restore health from sickness or cause the sickness to worsen.

Such a theory was understandably ill understood and even laughed at and ridiculed by the scientists of the west. Yet the same scientists have now begun to look at the human organism from different insights. To give an example: until recently the theoritical basis of Accupuncture would not have been acceptable to any physician trained by principles of western or modern medicine and yet today this is being looked at with new insight and accepted because the

application have shown practical results which would otherwise be unexplainable by modern principles of anatomy and physiology. For a further exposition of the theories of Islamic Medicine the reader is directed to read an exposition by O.C. Gruner and a desertation on the subject by Hakim Mohammed Said.

More importantly however it was the fundamental belief of a Muslim Physician that the organic body alone cannot manifest life being innate and devoid of a life force. That it was the instillation of this life force or *'Ruh'* which give its vibrance and vitality of spirit. Thus without the *'ruh'* no function of the body is possible. It is the *'Ruh'* which descends from the Almighty to mix with the anatomic and physiologic body to make a complete human being. It is thus essential when treating a diseased state to take into consideration the *'Ruh'* or the Soul, a concept totally alien to the followers of Modern Medicine.

Pharmacy, Pharmacognosy, Materia Medica and Therapeutics

One of the greatest sciences that had a great impetus on Islamic medicine was the development of pharmacy and pharmacognosy. Chemistry or *'Alchemia'* had been studied by most Islamic Physicians and scholars. This study was furthered by concomitant development of techniques to refine drugs, medications and extracts by process of distillation, sublimation, crystallization. Druggists or Attarin became commonplace in Islamic lands and their proliferation ultimately required the institution of licensing of pharmacists and druggists.

Pharmacological drugs were classified into simple and compound drugs, *'the mufraddat and the murakkabat'.* The effects of these were detailed and documented. The earliest Islamic works on pharmacognosy were written before translation of the Greek works of Dioscorides. Titles such as *'Treatise on the power of drugs their beneficial and their ill effects'* and then again *The Power of simple drugs'* were written in the third and fourth century AH/ ninth century AD. Most medical texts contained chapters on the use of both these types of remedies, thus Razi's al-Hawi mentions 829 drugs.

Materia Medica and texts containing compendia of drugs their effects appears frequently during the era of Islamic Medicine. Notable amongst these is the contribution of Abu Bakr ibn Samghun of Cardoba on *'The Comprehensive book on views of the Ancients as well as the Moderns on Simple Drugs'* Ibn Juljul made a commentary of drugs and plants described by Dioscorides and added a number of newer ones. Al-Zahrawi's Tasrif mentioned earlier in reference to its surgical volume also had a section on plants and drugs. The second book of the Canon is devoted to the discussion of simple drugs and the powers and qualities being listed in charts. One of the most authoritative book on drugs was written by famous scholar and philosopher al-Biruni entitled '*The Book on drugs'* which contains a huge compendium of drugs, their actions and their equivalent names in several languages.

Even today perhaps the most extensive pharmacotherapy especially as related to plant medicinal and herbal preparations can be attributed to modern day Islamic or Tibbi Medicine and finds great favor in the Indian subcontinent often being as popular as western or synthetic medicine. In fact western pharmaceutical companies have often 'invaded' into this domain, the classical example being of the extract of *'Ruwalfia Serpentina'* a root that yielded a potent anti-hypertensive which was a very popular remedy for hypertension in the sixties and which had been known to the Hakims for several centuries before being exploited by the west. No doubt in this pharmacopoeia there are other drugs equally effective in other diseases that need to be scientifically analyzed by random studies and double blind clinical trials for their effectiveness!

Contemporary Practice Of Islamic Medicine

Islamic Medicine continues to be practiced in many of the Islamic countries today. However western traditional modern medicine has replaced the core of the health care systems in most of these countries. The only countries where it has to some degree enjoyed an official status is the Indian Subcontinent. The three main countries of the Indian subcontinent are India, Pakistan and Bangladesh. Thus in India there have been established medical schools where 'Tibb or Unani' medicine (translated as Natural medicine or Greek medicine) continues to be taught. These schools give their students a formal diploma in

'Tibb or Unani' medicine; which enables their students to be licensed practitioner of 'Tibb or Unani' medicine. These students are instructed in 'Unani' concepts of medicine. They then utilize this knowledge and therapeutics in their practice. Their certification, licensing and supervision is controlled by the Indian Medical Council. In India both in rural and urban communities one finds practitioners of 'Unani or Tibbi' medicine. In Pakistan in the middle sixties the government under the then President Muhammed Ayub Khan ordered the official registration and licensing of the traditional Hakims (much to the chagrin of practitioners of modern medicine)! Tibb also enjoys favor of public popularity in other countries including Afghanistan, Malaysia and countries in the Middle East. In the latter it has recently had a resurgence in practitioners.

Conclusion

The greatest challenge of Islamic Medicine is not in its practice, therapeutics or application but in adaptation to modern day needs. Thus it is my belief that the fundamental challenge is not the way in which Islamic Medicine is practiced but the way in which it is defined. Somewhere in the late 16th century and 17th century a dichotomy developed between Islamic medicine and Modern or Western Medicine. This dichotomy was mainly related to the development of one civilization and concomitant decline of another, a cycle that is an ongoing fact of history. This upsurge of one, and slide of another civilization is no doubt an ongoing phenomena that has its effect on the great cultures of mankind. To say that one system of medicine is superior to another is akin to committing the folly of labeling one antibiotic superior to another. Although one of them may have been discovered earlier and one later each antibiotic continues to play its role in a given ailment. The challenge then would be to study and define the interrelationships between these and precisely define when one is more useful than another. Exactly the same would apply to these two different systems of medicine. The roles of each of these needs to be defined, each needs to be studied in depth and in the light of each others progress, and each needs to be supplemented so that humanity can benefit from the good of each.

Truth-Telling Information and Communication with Cancer Patients in Turkey

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Summary

Within the scope of medical ethics, the subject of "telling the patient the truth" has undergone some important changes in our country in the last years. It cannot be denied that the information brought to light in the field of medical ethics has participated in the change that has been experienced in health care services in general and in physician attitudes towards cancer in particular. This change is in the form of patients taking an active role in the diagnosis and treatment for their illnesses and changing from physician-centered to patient-centered physician-patient relationships. In medical conditions such as cancer, illnesses in their terminal phases, and fatal illnesses, physicians experience a dilemma of whether or not to tell the truth. The inclination among physicians for telling the patient the medical truth can be characteristic of the country's health care policies and traditional physician attitudes, in the same way that differences can be seen in every country's own ethical, social and cultural structure. In addition to this the method of informing patients about their cancer diagnosis will also change with the patient's characteristics and the coping strategies that they use. The case study that will be presented in this article will discuss telling the cancer patient the truth with related ethical, social, and cultural elements, and some conclusions will be reached by evaluating the ethical-legal process and practical situations.

Key Words; Medical Ethics, Truth Telling, Physician-Patient Relationships, Physician Attitudes Towards Cancer, Ethical-Legal Process.

Introduction

Telling the patient the truth ensures that the correct information is given and the correct choice for the patient is made. Explaining the truth to the patient is more of a very complicated process than simply giving information. In this process the physician's attitude is important; a physician who has developed communication skills and knows approaches for informing can give desired messages that give the amount of information that the patient wants and when the patient is ready. The subject of truth telling may vary from country to country and culture to culture. The reason is reflected in different ethnic roots, religious beliefs, cultural differences and legal regulations (1, 2, 3)

Case Study

A 52-year-old male patient came to the emergency services with a complaint of involuntary movements that had begun with his left foot and spread to his leg. A presumed diagnosis of epilepsy was made in the neurologic evaluation and he was admitted to the hospital for further tests. The patient's EEG results were consistent with temporal lobe epilepsy and a total brain MRI revealed an edematous mass localized in the right temporo-parietal area. After consultation with the neurosurgical staff a decision was made that the mass was operable. After necessary preparations the patient underwent surgery, the mass was removed and sent for pathologic evaluation. The result was a adenocarcinoma metastasis with the lung as the probable primary site (4).

The patient was a young, lively architect. His one bad habit was to smoke nearly a pack of cigarettes a day and to drink a small amount of alcohol socially. He had played basketball until he was 30 years old and regularly played tennis. His wife who loved him very much hid the diagnosis of cancer from him. The guidance of the neurosurgeon, who explained that a metastatic cancer's prognosis is very bad, had an important part in this decision. The patient was told by his wife and physician that he had a blood clot that had been treated with surgery. Because no pathology was seen on chest films and at the patient's family's

insistence no further investigation was felt necessary and the patient was discharged. After surgery the patient's speedy recovery improved his morale. There was no hypertension, diabetes or secondary illness that could have caused the blood clot. The event was forgotten by everyone and no one was unhappy (4).

Seven months passed. Symptoms of coughing and bloody sputum appeared in the patient. A pulmonary medicine specialist was seen. This time a mass was seen on the chest films that were taken. A biopsy obtained from the mass with bronchoscopy revealed the adenocarcinoma of his brain metastasis's primary site and the patient was sent to an oncologist. Before the patient was seen by the oncologist he was warned by the patient's wife and the neurosurgeon not to tell the patient that the mass removed from his surgery was cancer. Whatever needed to be done to keep this information from the patient was to be done. The oncologist scathingly explained to the patient's wife all of the wrongs that were done in the dramatic side of this scene of excessive pressure. He told her that the patient still had a chance at recovery because there was no recurrence in the brain and there were no other metastases found outside the lungs. Of course he added that if the mass had been found in the lungs 7 months previously and treatment had been begun his treatment chance would have been higher than it was then (4).

The patient's wife did not like the warnings or recommendation from the oncologist. She was only concerned about how she was going to explain to her husband what she had kept hidden seven months previously. She tried to place all the responsibility on the neurosurgeon who did the surgery. However the surgeon had a relationship with the oncologist and told him the patient's wife had insisted that he keep the diagnosis secret. As a result the sides could not come to an agreement. The patient, who had an operable lung tumor with no other distant metastasis and no recurrence of brain tumor seen on the last MRI, was never seen by the oncologist and disappeared. The reason is probably because the patient's wife found another oncologist who was willing to keep the secret and condition from the patient. In fact in this entire event the patient has been out of sight. What is seen is his wife who has the authority to make decisions on his behalf, the physician and the patient's records.

Evaluation of the Case

It is necessary to emphasize four important points in this case. The first of these is that the patient was not told the truth and the probable results of this. In our case study, without determining how the patient would confront and react to a diagnosis of cancer by a professional, the truth was hidden from the patient by an amateur making a completely emotional decision. Here keeping the diagnosis secret from the patient was a situation that would hold someone responsible for the results and which needs to be given legal sanctions. This attitude that is said to be only for the benefit of the patient can never be considered right. The process that kept the patient who had possible treatment from receiving that treatment must absolutely be given legal sanctions.

In the physician-patient relationships in our country the one who is primarily responsible for making decisions about the patient's treatment is not the patient but the patient's next of kin. In particular when the diagnosis is cancer this situation is very clear. The family members who see that they have the authority to make decisions in the patient's place give their motives as the patient's morale, that is would negatively effect them psychologically, or that their condition would worsen if they were told their prognosis. Essentially the physician's negative attitudes also play a role in this understanding becoming taking hold. Sometimes the diagnosis is known by everyone except the patient but the patient is not able to receive this information without requesting it.

An important second point is the condoning of this situation by the neurosurgeon from the beginning where his decision to operate was made not by the sufficient and autonomous patient but without his knowledge by someone else. The patient's right to respect for his autonomy was abused and the physician's responsibility to get informed consent was not practiced. On the other hand the patient had the right to know the whole truth about himself. Interventions during medical care and decisions that are appropriate to ethical concepts and values require that the physician has great care and sensitivity. In fact the original problem, beyond what type of method and the kind of approach the physician should implement when faced with ethical problems, the medical pro-

fession's ethical side in its actual form is the endeavor and goal to pass on life.

The third important result is knowing the patient's treatment to leave him without it. The situations that need to be questioned is the search for the primary site in the period after surgery and the interference of the patient's wife's decision on giving necessary treatment to the primary site found in the lungs seven months later. There was an obstruction in the patient's meeting with his physician and making his own decision about treatment with his own free will.

The important final point however is the decision made by the neurosurgeon who removed the brain mass in the first surgery without consulting a specialist, an oncologist. The prognosis was wrongly interpreted and perhaps the patient's next of kin was wrongly directed. Both when the diagnosis was determined and when the neurosurgeon did not request consultation from an oncologist and a pulmonary disease specialist in jointly planning the patient's treatment program the attitude was one inappropriate to showing respect for the specialties. In this way a treatment process based on cooperation was obstructed from the beginning. This can create a situation where the physician is held legally responsible.

Physician Attitude towards the Patient with Cancer

Physician's attitudes towards patients with cancer have changed rapidly in recent years. In this change there has been a change in physician-patient communication models and an important patient-centered look that the field of medical ethics has brought to clinical medicine. Two separate negative attitudes have been defined for physicians who care for cancer patients. The first is the excessive guardian, protector, and paternalistic attitude in that the physician actually tries to prevent death, and is a denial of death. The other attitude again at the foundation is a denial of death, is the attitude of the physician who escapes from, distances himself from, the patient (5).

In oncologic illnesses telling the patient the truth is a process that is much more complex that simple information giving and requires effort. In cases such as cancer, illnesses in the terminal phase, some neurologic diseases, and AIDS, physicians and other health care workers experience dilemmas, arguments and problems on the subjects of whether or not to tell the truth or how to do this and who should inform. Like there are those who defend that the patient should be told the truth no matter what the situation there are also those who defend that the truth should be withheld to not cause harm. The thinking underlying the not telling the diagnosis to the cancer patient is the belief that the cancer patient will not be able to endure this information, that they will experience emotional problems and that it will negatively effect the prognosis of the illness. However informing the patient at every phase of the illness is important for patient adaptation. The foundation is the establishment of a participatory kind of communication that includes active listening to the patient and empathy. The subject of telling the patient the medical truth is effected by country's' sociocultural and economic structures and by medical practice and the form of health structures.

It is important how the patient and family, physician and ancillary health care personnel and society perceive the word cancer. Attention that focuses on the word cancer can do more than disturb the patient and the patient's next of kin. Today cancer is still the most feared disease in society because a significant part of society sees AIDS as an illness of those on the edge of society and not affecting them. In general, although incorrect, the word cancer is equated with death. The majority of patients and, in general, societies are tied to this wrong perception, are afraid of cancer and show similar reactions. However the truth is that the same type of cancer develops differently in different patients. The other side of this argument in spite of the fact that the course, complications and therapy are different in many different illnesses, it is acknowledged that cancer that is gathered under one disease name causes deep fear in patients and their next of kin and is equated with death. The duty of the clinician, without considering these exceptions, is to carefully analyze the person's cancer awareness and calculate their expectations. It is obvious how a person who has information gained from society by word of mouth and individual examples will respond to the diagnosis of cancer. Even if this person is in the

very early stages and has a good chance of recovery from the kind of cancer they have developed, they will be negatively effected by the diagnosis. For this reason it is important to inform. The life expectancy is much higher for patients who embrace life and do not lose their will to survive.

Some Inferences about Truth-Telling in Our Country

Together with the characteristics of the physician-patient relationship and the expectations of the physician and patient, is the physician's duty and responsibilities, the process of informed consent and ethical medical practice and whether or not it is consistent with legal standards. In this relationship, the goals of the physician-patient interaction, the physician's requirements, the role of the patient's values and the concept of patient autonomy are all extremely important.

In solving clinical ethical problems in our country the question can be asked of whether or not the guiding ethical principles' priority and evaluation is different from those in the West. Can the practices in the West that gives priority to the developed knowledgeable participation and the principle of respect for a person's autonomy as a part of that be left to the interpretation of one's culture and practices? When we look at these questions from the aspect of basic ethical principles we can say that it is necessary to agree on the concepts of universal values like respect for an individual's autonomy that has developed in the West. We cannot leave to the culture's own interpretation and practices the need to examine basic ethical principles; that is, the evaluation and structure of ethical principles in our country related to our subject will not be any different that in the US, Canada and Western European countries. However there can be a difference in the prioritizing and weighting of the principles. For example the principles of "do no harm and beneficence" take priority for us over the principles of "respect for autonomy and justice" because of the structure of society, our customs and traditions and our sociocultural structure. This situation also creates the substructure for hiding the diagnosis of cancer from patients. In that manner in oncology clinics that we have often witnessed where everyone knows the patient's diagnosis and the treatment that will be given except the patient not even one patient (even if they request) will be told the truth. The majority of the patient's next of kin (as in our case study) take an active role in the process of hiding the truth. As in other countries that have a clear paternalistic societal structure, in our country also the physician is generally the authority figure in the physician-patient relationship. In this way whether it is natural or not the relationship between physician and patient, rather than collaborative is more one directing the other. Because different examples of this type of relationship are often met in society in every area of life and it is something that has developed based on that, this type of physician-patient relationship is not regarded as strange and the majorities do not see a need to change the existing system. The majority of patients in our country during medical treatment are not in the position to be "knowledgeable and effective participants in the treatment," they are people in the position of not knowing who gives them information about themselves or with which physician's treatment at which level they are responsible for or what their rights are. Conditions like cancer which require a continuous collaborative relationship between the physician and patient do not change this fact. Patients try to get information about the clinical diagnosis and treatment process from their nurses or interns or residents. However particularly in chronic illnesses it is a foremost condition for a "collaborative" type of relationship where the treatment method is chosen taking into consideration the patient's values and that the patient is informed about possible risks, the patient requests this information, makes the most appropriate choice based on their own values and knows their own rights in this process, requesting they be honored when necessary. In our country the patient accepts that the physician is the "authority" with information, experience and expertise. The patients do not think they have the right to ask questions, but that they have to answer every kind of question that is asked and that they are forced to accept every kind of treatment the physician recommends. Requests for information and desire for active participation in their treatment is minimal. Physicians also consider that patients generally have a lower sociocultural and intellectual level and for this reason there is no place for this time-consuming practice of informed consent, and continue the belief that they will always make the right decision for

the patient and that the social security system that the patient is bound to does not offer many choices for treatment. For this reason it is understandable that the situation is that most physicians are not skilled in cooperating with patients, in establishing or maintaining a collaborative relationship with patients and that patient also do not have any expectations. When a request for a relationship like this does not come from patients it is important for the physician to initiate it. However before everything the physician must believe that this kind of relationship is beneficial and that there is value in helping the patients be effective participants (6, 7).

Data from a Research Study Related to this Subject

Data from a limited research study done at Ankara University Medical Faculty Ibn Sına (Avicenna) Hospital related to the approach of physician candidates and physicians on the subject of informing patients about their diagnosis of cancer will shed light of the situation in our country. Although this study was only done at one hospital, because it is a referral center and teaching hospital it would not be wrong to say that it reflects the attitudes of physicians in our country. This study was done with a questionnaire given to 58 physicians and 150 medical students. In addition interviewing face-to-face 82 newly diagnosed cancer patients on different services their level of information was determined. At the end of the study it was seen that 52% of the physicians and medical students have a "protector, guardian" approach to the cancer patients. Also it can be accepted that the medical students having a paternalistic approach is an indicator that this attitude will not be changing in the near future in our country. In the face-to-face interviews with the patients the facts show that the patients had been informed at a level far below that of Western standards, 52 of the 82 patients did not have information about their disease (63.4%). It was seen that the patients who had a high chance of recovery had been informed at a higher rate than the others. The level of informing patients also increased with an increase in the patient's socioeconomic level and educational level (8).

When looking at the research results on the subject of truth-telling and general practice what are the reasons for the differences in the situation in our country from that in Western countries? Although there are signed international agreements at various levels in our country it can be said that the necessary legal foundation and control does not exist currently on this subject. On the other hand it seems that it will be difficult to change the "protector, guardian physician attitude" that our cultural and social foundation brings and that is supported by the Islamic religion's "fatalistic world view." In fact there is a large number of physicians who insist that it is not right to say "worrying" things to people with terminal illnesses. In addition during medical education physicians are not given sufficient information about "giving the patient bad news" and "informing the patient."

Legal Regulations in Our Country about Truth-Telling

When looking at legal documents related to truth telling in Turkey, we see that the decision is a sovereign understanding that is left entirely to the physician. However from the point of view of principles of medical ethics we see the principle of beneficence and doing no harm are given weight in evaluation.

When we look at these legal regulations' related articles that support the physician's paternalistic attitude, we can say that it is important that the 14th Article in the **Turkish Medical Deontology Regulation** is related to truth telling. According to this article it is necessary that the patient be clearly told their diagnosis and the necessary precautions that should be taken related to their diagnosis, however the disease's bad prognosis should be hidden from the patient. If the patient desires the possibility of the patient's abandonment should be considered and the diagnosis can be told to the family.

In the **Patients' Bill of Rights**, dated 1998, the 19th Article that is related to truth-telling, the decision about whether to tell the patient the truth is left entirely up to the physician. It states that *"When there is a possibility of worsening the patient's illness with a bad effect on the patient's spiritual make-up and when the course and result of the illness is serious it is advisable that the diagnosis be kept hidden from the patient."* In addition when the patient does not request it this kind of diagnosis is told to the patient's family.

Conclusion

Telling the truth is just one step in the physician-patient relationship and in the process of communication. There is an effect from many other factors in the cooperation of the patient with the physician in the process of mature communication. Telling the truth is an important step in treatment and we can never exempt ourselves from the responsibility to be honest with our patients by looking at our culture and our special situation. The most important condition of physician-patient relationships is mutual trust. The physician who makes important life affecting decisions for the patient should never be misleading. At the foundation of "collaboration" between physician and patient we again see the concept of "patient rights" in clinical medical activities emerging as a product of the relationship that is formed. When physicians tell patients the truth when making decisions related to their own bodies and lives they recognize their rights and human values and show respect for the patient's rights. The cancer patient's responsibility for his own health is closely related to his education, cultural situation, and economic status. For this reason patient/patient's family education in society as well must be in the manner that will develop their level of responsibility for their problems and behaviors and will ensure that autonomy is a concept that is perceived by the patient.

In that case the subject that needs to be considered should not be "Should I tell the patient the truth?" but "How can I give the news in an appropriate manner?" It is necessary to give bad news in a manner that the patient can accept the information about the illness and by preserving hope. The physician giving the message that he/she is willing to talk, when the patient is ready to learn the truth about the diagnosis, giving the amount of information that the patient wants, being patient and tolerant, being honest, understanding the patient, are important in giving a guarantee to the continuity of the relationship.

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Child Health as Viewed by Ibn-Sina

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Summary

Ibn-Sina, or Avicenna as known in the west, was born in the year 980 A. D. in Afshana near Bukhara in Turkistan, which is now called Uzbekistan. He left Bukhara when he was 21 years of age, and spent the rest of his life in various towns in Persia. He composed 276 works; all of them written in Arabic except very few small books written in his mother tongue Persian. Al-Qanun Fit-tib (or Code of Laws in Medicine) represents the most important work of Ibn-Sina, and as Osler described it, the most famous medical textbook ever written. In the first book Ibn-Sina devoted a special part for talking about children bringing up and their diseases, and he called it (The first education in bringing up). This part consists of four chapters: The first chapter is for the management of the newborn until the walking age. In the second chapter he talks about milk feeding, the characters of the good wet nurse and weakling. In the third chapter he talked about pediatric diseases and their treatments. The fourth chapter was devoted to children management until adulthood.

In al-Orjozah fi-ttib, Ibn-Sina devoted fifty-six verses for talking briefly about prenatal and postnatal care, delivery, newborn baby care and how to choose the suitable wet nurse.

The aim of this study is to highlight child health as viewed by Ibn-Sina, and to present his contribution in this field of medicine.

Ibn Sina

Ibn-Sina, or Avicenna as known in the west, was born in the year 980 A. D. in Afshana near Bukhara in Turkistan, which is now called Uzbekistan. He left Bukhara when he was 21 years of age, and spent the rest of his life in various towns in Persia. When he died in the year 1037 he was known as one of the greatest philosopher in Islam, and in Medicine he was highly regarded that he was compared to Galen, so he was known as the Galen of Islam. Because of his great celebrity, many nations disputed and competed to celebrate his anniversary. Turkish were the first who revive his anniversary in 1937, when they held a great meeting for the occasion of nine hundred years since his death. Then Arabs and Iranians followed them by holding two festivals in Baghdad in 1952, then in Tehran in 1954. To appreciate his contribution in developing the philosophical and medical sciences, in 1978 UNESCO invited all its members to celebrate the anniversary of one thousand years since his birth. All the members participated in the celebration, which was held in 1980.

Ibn-Sina composed 276 works; all of them written in Arabic except very few small books written in his mother tongue Persian. Unfortunately, most of these works were lost, but there are still 68 books or treatises available in the eastern and western libraries. He composed in all branches of science, but he was more interested in philosophy and medicine. Some recent historians consider him as a philosopher more than a physician, but others consider him as a prince of the physicians during the Middle Ages.

The classification of Ibn-Sina works according to their content is as follow:

43 works in medicine, 24 in philosophy, 26 in physics, 31 in theology, 23 in psychology, 15 in mathematics, 22 in logic, 5 in the Holy Koran interpretation. In addition, many treatises in asceticism, love, music and some stories.

Al-Qanun Fit-tib: (or Code of Laws in Medicine) represents the most important work of Ibn-Sina, which is written in Arabic, and as William Osler described it, the most famous medical textbook ever

written. This book is considered a unique reference or document containing all medical knowledge, as it accumulated through many civilizations until the time of Ibn-Sina himself.

In his way of explanation Ibn-Sina was very close to the way which modern medical textbooks follow regarding classification, causes of diseases, epidemiology, symptoms and signs, treatment and prognosis. In this respect we can say that the excellence in its arrangement and comprehensiveness made al-Qanun book the most widespread in the Islamic and European countries. Al-Qanun book was known to the Europeans through the Latin translations of Gerard of Cremona in the 15th century, and remained in use in medical schools at Louvain and Montpellier until the 17th century, and according to the Journal of UNESCO, October issue, 1980, the Qanun book remained in use in Brussels University until 1909.

By the 12th century awareness set in that these compendia were too large to be really useful for ready reference. Consequently, epitomes of the Qanun were produced to make the ideas more quickly accessible, and commentaries were written to clarify the contents. The most popular of all the epitome of the Qanun was that called Kitab al-Mujiz fil Tibb or the Concise Book in Medicine. It was written in Syria by Ibn-al-Nafis, who died in 1288.

Ibn-Sina begins his book al-Qanun by definition medicine by saying: Medicine is a science, from which one learns the states of the human body, with respect to what is healthy and what is not, in order to preserve good health when it exists, and restore it when it is lacking.

Al-Qanun book consists of five books, the first concerned with general medical principles. The second with materia medica. The third with diseases occurring in a particular part of the body. The fourth on diseases not specific to one bodily part (such as fevers), in addition, to traumatic injuries such as fractures and dislocations of bones and joints. With the final book containing a formula giving recipes for compound remedies.

In the first book Ibn-Sina devoted a special part for talking about children bringing up and their diseases, and he called it (The first education in bringing up). This part consists of four chapters:

The first chapter is for the management of the newborn until the walking age. In this chapter we can find the concepts of Ibn-Sina and all other physicians before him regarding issues, which are necessary to be carried out for every newborn baby. He says that after delivery the umbilical cord should be cut for a distance of four fingers breadth, and ligated by using a wool string, then a bandage dipped by oil applied on. All of his body should be washed, with a necessity of dropping inside his eyes, and the nose orifices should be cleaned. Then Ibn-Sina talked about the newborn bathing, dressing and sleeping.

In the second chapter he talks about milk feeding, the characters of the good wet nurse and weakling. In this regard Ibn-Sina stresses on the necessity of doing all efforts to keep the newborn on his mother milk-feeding as possible, because it is in its essence like his feeding during the embryonic stage. Regarding weakling Ibn-Sina says that it should be gradually, and should be given first light foot such as light meet with soup. Then he stressed on the necessity of not enforcing the baby to sit or stand before he could perform that by him self.

In the third chapter he talked about pediatric diseases and their treatments. Among these diseases are: gum tumors, aphtha, xophthalmous, thrush, ear pain and discharge, difficult breathing, cough, common cold, throat tumors, diarrhea, vomiting, hiccup, abdominal cramp, rectal prolapse, tenismus, worms, crying, sleeping disorders, bad dreams.

The fourth chapter was devoted to children management until adulthood. In this chapter Ibn-Sina talks about the moral and emotional education of the children, revealing his opinions in this regard.

In the other chapters of al-Qanun book we can find some remarks related to pediatric diseases such as: bed wetting, convulsions, measles, smallpox and some congenital deformities.

When he talked about traumatic dislocation of the hip, Ibn-Sina says that this dislocation may develop before or just after delivery, mentioning to what is known now congenital dislocation of the hip.

Al-orjozah fi-ttib (Medicine in a poem)

This is considered the second most important medical works of Ibn-Sina after al-Qanun. Ibn-Sina

composed a popular poem included all branches of medicine in a very interesting and easy way. This is called Orjozah (taken from the name of the poem meter or measure, which is called al-Rajaz). Indeed, many Orjozah are attributed to Ibn-Sina, but the most famous one is the long poem and consists of 1337 verses. The next famous Orjozah consists of 146 verses in which Ibn-Sina talked about health management in the four seasons.

The long Orjozah is considered as a revision of al-Qanun book, and Ibn-Sina intended to make it as a quick reference for the medical students, in addition to be easily memorized.

Ibn-Sina divided this poem into two parts, the first one is theoretical, while the second is practical exactly as he did in his book al-Qanun.

Many medical students in the middle ages benefited because of this Orjozah. Ibn-Zuhr praised it and said it contained the most important medical principles, so it is possible to dispense with so many other medical textbooks.

Ibn-Sina begins the long Orjozah:

حِفظُ صحةٍ برءُ مرضْ من سببٍ في بدنٍ منذْ عرضْ

While he begins the second Orjozah which is devoted for talking about health preserve during the four seasons:

يقولُ راجي ربَه ابنُ سينا و لمْ يَزلْ باللهِ مستعينا
يا سائلي عَنْ صحةِ الأجسادِ اسمعْ صحيحَ الطبِ بالإسنادِ

Ibn-Sina devoted fifty-six verses for talking briefly about prenatal and postnatal care, delivery, newborn baby care and how to choose the suitable wet nurse.

Regarding prenatal care he says:

الطفلُ يُحفظُ ببطنِ أمهِ كيْ لايصيبَ آفةٌ في جسمهِ
فاحتطْ على الحاملِ في معدتِها كيْ لا ترى الفسادَ في شهوتِها
ويصلحُ الدمُ ويَنقى الفضلُ ذاكَ الذي يكونُ منهُ الطفلُ
إنْ هاجَها الدمُ فلا تقصدها بلْ بالبرودِ والتطافي اقصدْها
أو هاجها خلطٌ فلا تُسهلها بل بتلطيفٍ لهُ عاملها

The Orjozah explanations: Ibn-Sina Orjozah contains some clear verses and easily to be understood, while some others contains difficult meanings for many medical students. The first who composed an explanation for it was Ibn-Rushd who died in 1198. After that some explanations were appeared, but the most famous are:

1. Al-Sharif al-Sakalli explanation, who died in 1434.
2. Musa Ibn-Ibrahim explanation, who died in 1465.
3. Muhammad Ibn-Ismail, who died in 1575.
4. Muhammad al-Jabali, who died in 1865
5. Dr. Shebli al-Shameel, who died in 1887.

Translation of the Orjozah into Latin and Hebraic:

Gerard of Cremona translated this Orjozah into Latin in the year 1180. The first translation into Hebraic was carried out in the year 1265 by Suliman Ibn-Yousef al-Garnati, a copy of this translation is kept in the National Library of Paris under the number 1135. Another translation into Hebraic was accomplished by Musa Ibn-Tabbon; a copy is kept in the British Museum under the number 893.

During labor:

فإن دنا وقت لوضـــع حملها فشب أمورَ وضعها لســهلها
الدلك في الحمام للإ حضـــار وما يلي الحمــلَ من الإ قطار
بالدهن كيما يستلين العصب ولا يكون عند وضـــع تعب
واجعل غذاءها من الســمين وأحســـها من مرق دهين
واحذر عليها صيحة أو وثبة أو روعة أو صرخة أو ضربة
وأسقها في وضعها من شدة طبيخ تمرة فيه ماء حلبـــة
واجعل لها قابلة ذي فطنـــه تمد رجليها بغير حنـــــه
ثم إذا تقيمـــها من مـــره عاصرة لبطنها بحكمـــــه
إن سال منها زائد من الدمـــا فأسقها أقرصة من كهربـــا
أو لم يســل منها دم من ضر فأســقها أقرصــة من مــر
وإن مشــيمة بهـا لم تنــزل فاســتعمل التبخير بالمحلل
كالمر والقطران او كـالأبهــل ومثل كبريت ومثل حنظـــل

In choosing the wet nurse:

واختر له من المرضع من فتاة في ســنها من متوســطات
لحمية ليس بها من رهـــل مزاجـــها يقرب من معتدل
جســـيمة عظيمة الثديين نقية الرأس مــع العينيـــن
ســـالمة من كل ضر داخل صحيحة الأعضاء والمفاصـــل
ذات لبـان ليس باللطيـــف في رقة وليس بالكثيـــف
أبيض لون حلـــو طعم طيب لامتنن متصل إذا يســـكب
وغذها بالحلو والدهيـــن والسـمك الرطب مع الســمين

In the management of the child during the nursing period:

ادهنه بالقابض عند شـــدّه | حتى ترى صـــلابة في جلده
وحمّه تنظفه من أخـلاطـــه | ووســط الشـــد على قماطه
ولا ترضـــعه كثيرا يتـــخم | ولا تمانعه زمانا فيحـــم
ولا تعامله بشـــيء يقلقه | يمنعه المنام أو يؤرقـــه
ألزمه إن أردت أن ينامـــا | مهدا وطيئا يره الظلامـــا
وامزج له الخشخاش بالطعام | إن منع الضـــر مـــن المنام
ألزمه فـــي يقـظته الضياء | كيما يرى النجوم والســـماء
أكثر له الألوان بالنهـــار | لكي تغريه على الإبـصـــار
ناغيه بالأصوات فـــي تعليم | كيما تغريه على التكليـــم
ألعقه من عسل أو حنكـــه | وامســـح به لســـانه وادلكه
واجعل قليل ربّ ســوس فيه | وكندر وخلـــة فـــي فيـــه
واسعطه من هذا لكي تشفيه | من سدّة في الأنف أو تصفيه
لأن هذا مصلح إحســاســـه | وصوته ومطلق أنفاســـه

At the end, I would like to conclude my presentation by a word of truth, written by the European doctor De Poure who declared: Medicine was absent till Hypocrites created it, dead till Galen revived it, dispersed till Rhazes collected it, deficient till Avicenna completed it. Also, in the west it has been said: any one who wants to be a good doctor must be Avicennist.

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Development Of The Foundations Of Quarantine In Turkey In The Nineteenth Century And Its Place In The Public Health

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Summary

Infectious diseases such as leprosy, cholera, thyphus etc were seen in Turkey in the nineteenth century, Moreover, the concept of contagion was known in the nineteenth century.. Physicians treated their patients in the separate departments of the hospitals in that century. Patients with leprosy were also hospitalized in the hospitals of leprosy. These hospitals are called as darüsshifa in the Ottomans' Period. It means the house of healing. The first leprosy hospitals were seen in the fourteenth and fifteenth centuries in Anatolia. Thus,the first leprosy hospital was also established in Edirne in Turkey in the fifteenth century. Another hospital was Karacaahmet Leprosy Hospital. It was established in 1514. The nineteenth century is the period of the first modern quarantine foundations in Turkey.Thus, the first modern quarantine foundation was also founded in Istanbul in the nineteenth century. Mustafa Behchet who was a Turkish physician wrote a book called Cholera Pamplet in the nineteenth century For the first time, the ships which came to Istanbul from the Black Sea were quarantined. In the nineteenth century. This was the first modern quarantine application in Turkey. During Cholera epidemic, the first quarantine foundation was established in Canakkale in 1835. Moreover, another Quarantine Management was also founded in Istanbul in 1837. This Management consisted of two boards. One of them was High Quarantine Assembly. Another Board was Quarantine Bureau. Moreover, the centers of Quarantine were also established in some cities of Turkey. Some knowledge about these centers are recorded in the Ottoman Archives' Documents. Quarantine Regulation with the date of 1851 contained some knowledge about quarantine personnel, the duties of quarantine doctors etc. The general directory of health of coast was founded instead of the management of quarantine in the Turkish Republic Period. Today, the centers of health of coast are under the order of this general directory.

In this paper, Ottoman Archives' documents about quarantine foundations are used as a material and are studied.

Introduction

Infectious diseaes have been seen since ancient ages. Some foundations of quarantine were established for these diseases in many countries Patients with infectious diseases were separated in these foundations for **40 days** (1). This application has been made both in Turkey and in other countries for years. We know that quarantine word in English means 40, quarante in French. This word also means quarantane in Italian and curantena in Spanish. In Turkish, it is used as karantina. **Ahmet Mithat Efendi** who was a famous author used quarantine word (karantina in Turkish) as a separation of 40 days in the nineteenth. century (2). Quarantaine (karantina) word is also written in a dictionary of **Sherafeddin Magmumi** called **Kamus-Tıbbi** with the date of 1910 (3). The same descriptions are also found in **Dictionaire Medical Français-Turc** (4).

Muslim physicians studied on contagious diseases in the Middle Ages and some Islamic physians like **Ibn Sina**, **Razi** etc wrote some books on this topic (5). Thus, leprosy hospitals were found in these countries in the Middle Ages. Many European countries were also interested in epidemic diseases in the Middle Ages. For example, a Leprosy Hospital was founded in Lyon in 1472. The first quarantine foundation was established in Sainte Marie, Venice in the fourteenth century. Moreover, quarantine was also applied in Genoa in 1467 and then in Milano. In United Kingdom, some applications on quarantine were accepted in 1498 and in 1499. In Europe, we see many qurantine foundations and applications in the

fifteenth, sixteenth, seventeenth, eighteenth and nineteenth centuries (6,7)

The first leprosy hospitals of Anatolia were also established in the fourteenth and fifteenth centuries.. Infectious diseaes such as leprosy cholera, thyphus etc were seen in the Ottoman Period in Turkey. The concept of contagion was known at that time. Physicians treated their patients in the separate departments of the hospitals. For example, patients with leprosy were also hospitalized in the hospitals of leprosy. These hospitals are called as darusshifa in the Ottoman Period. **Darusshıfa** means **the house of healing.** In Turkey, the first leprosy hospital of Europe was also established in Edirne in Turkey in the fifteenth century. Another hospital was **Karacaahmet Leprosy Hospital** (8,9). It was established in 1514. In these hospitals, the patients with leprosy were separated from healthy persons (10). Namely, they are accepted as a quarantine foundation (11).

Development of the Foundations of Quarantine in Turkey in the Nineteenth Century and its Importance from the Point of View of the Public Health

In Turkey, the first modern quarantine foundations were established in the nineteenth century. The first modern medical school was opened in 1827 in İstanbul in Turkey Moreover, the first studies on cadavers were made in 1842. We see that many modern military and civilian hospitals were also established in the nineteenth century. As a parallel to these developments, we see many foundations such as vaccination institutions, quarantine foundations. So, the nineteenth century is a century of the developments in the field of public health in Turkey.

The first cholera pandemy came to İstanbul in 1831 and **Mustafa Behchet** who was a Turkish physician wrote a book called **Cholera Pamphlet**.. At that time, for the first time, the ships which came to İstanbul from Black Sea were quarantined. This is the first modern quarantine application. During cholera epidemic, the quarantine foundation was established in Canakkale in 1835. This foundation which was in tents was transitory and was closed after epidemy. Moreover, another quarantine management was also established in İstanbul in 1837. This management

Figure 1- A Document About Quarantine

consisted of two boards. One of them was High Quarantine Assembly. Another board was High Quarantine Bureau.. The director of High Quarantine Assembly was the Minister of Foreign Affairs.

We see some fanatic persons who didn't accept quarantine precautions in the nineteenth century in Turkey.. According to a document with the date of 1839, at that time, these fanatics were punished with exile (13) From time to time, the centers of quarantine were also. established in some cities of Turkey A center of quarantine was founded in Tekirdag in 1839 (14). Other centers followed this.. In these centers, guardians, physicians and clerks were present (15,16). Some knowledge about these centers are recorded in the Otoman Archives. Moreover, **Quarantine Regulation** with the date of 1851 contained some knowledge about quarantine personnel, the duties of quarantine doctors etc. According to this

regulation, travelers with contagious disease were quarantined in the rooms and the guardians watched over the patients. In this regulation,the salaries of the guardians and physicians were written (17).

The general directory of health of coast was founded instead of management of quarantine in the Turkish Republic Period and this foundation carried to Ankara in 1927.

This is modern quarantine foundation of today and coast health centers, bacteriology foundations, contagious diseases hospitals, air stations etc are under the order of this general directory. Moreover, the Code of General Preventive Medicine with the date of 1930 is the main code of Turkey in the preventive medicine and it contains some knowledge in the field of quarantine.

Result

We can say that concept of microbe was known in Turkey in the nineteenth century and the patients with epidemic disease were separated in the hospitals. Today,epidemic diseases are seen very little because of the applications of preventive medicine and quarantine foundations in Turkey.

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Spiritual Medicine in the History of Islamic Medicine

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Summary

Spiritual Medicine has two components: Distant Healing and Self-care. It is known that the spiritual elements also play an important role in the recovery process from acute or chronic sickness. Spiritual healing techniques frequently can support or complement conventional health care modality. It has been known for centuries, that the "placebo effect" is substantial and has positive influence over the body.

In this paper, the relation between religion and health is emphasized and the importance of spiritual medicine is defined.

Key Words; Spiritual Medicine, History of Islamic Medicine.

The articles of faith in Islam are: 1. Tawhid or belief in the Oneness of Allah (SWT) 2. Salat or contactual prayer 3. Siyam or Fasting during the month of Ramadan 4. Zakah or charity 5. Hajj or pilgrimage to Mecca.

History has recorded that Babur, Mughal Emperor of India, prayed for his son, Humayun's health who was seriously ill or almost near death. Hence Babur asked Allah (SWT) to spare his son's life and take his (Babur's) life in lieu thereof.

Recent scientific research indicates that affirming belief in God or Allah (SWT) makes a critical contribution to our physical health. When people call upon faith, they activate neurological pathways for self-healing.

The Muslim prayer consists of contact prayer (salat), Zikr (Dhikr) or remembrance of Allah and recitation of the Qur'an. These elicit the physiologic relaxation response. The Prophetic saying is "Worship in the congregation is more excellent than Worship alone, by twenty seven degrees." Hajj and congregational Prayers serve to buffer the adverse effects of stress and anger, perhaps via psycho-neuro-immunological pathways. It is speculated that congregational prayers may trigger a multi-factorial sequence of biological processes leading to better health. Studies have shown higher degrees of social connection (through family and friends or congregational prayers in the Masjid) consistently relate to decreased mortality.

Zakah is altruism and in sharing the wealth, apart from the socio-economic benefits, the Muslims also garner better health. Doing good to others is also Zakah and those who volunteer their work find marked improvement in their health.

Several studies have already documented the health benefits of fasting during the month of Ramadan.

The National Institute of Health, in Bethesda, Maryland, a few years ago opened an Office of Alternative Therapies, which encourages Homeopathy, Ayurveda, Aromatherapy, and other "alternative" therapies.

Recently there is a tremendous surge in interest and publications in the field of spiritual medicine in the United States. An abundance of articles (1-8), books, and conferences in recent years have addressed the impact of spirituality on patient, physician, and health care. For example Dr. James S. Gordon, MD who is the founder and Director of the Center for Mind-Body Medicine at Georgetown University, Washington, D.C. published "MANIFESTO FOR A NEW MEDICINE: Your guide to

healing partnerships and the wise use of alternative therapies (Addison-Wesley, 1996). Dr. Gordon wrote that medical education is long on technical mastery but short on issues of personal and spiritual growth. Dr. Gregory Plotnikoff, MD who is the medical director of the University of Minnesota's Center for Spiritual Care and Healing advocates care for the body and the soul (9). " Timeless Healing: The Power and Biology of Belief," by Herbert Benson, M.D. (Scribner, 1996) draws on Benson's work at Harvard's Mind/Body Medical Institute. Benson's prescription for doctors and patients contains three ingredients: 1. identifies each other's important beliefs and motivations, 2. discuss and act on those beliefs, and 3. let go and believe. Religious belief and faith are the vehicles for his prescription.

Dr. David Larson, MD who is the president of the National Institute for Healthcare Research (NIHR), Rockville, Maryland awarded five $10,000 grants in 1996 to Medical Schools to incorporate classes on Religion and medicine into their Curricula. He is the author of the 1995 book, "The Neglected Factor." Dr. Ornish, MD has documented the reversal of coronary artery occlusion by diet and meditation.

This message-that health care has a spiritual component-flies in the face of modern Western health care culture, which holds to a biomedical model for healing and recovery.

Spiritual Medicine has two components: Distant Healing and Self-care (that is healing by patient's own efforts). Distant healing is defined as any purely mental effort undertaken by one person with the intention of improving physical or emotional well being in another. In clinical practice, healing may involve a mental effort in or out of the healer's presence, with or without his or her awareness, and with or without touch. This broad definition would also include petitionary prayer or Du'a in which the practitioner generates a mental request for a particular outcome or that God's "will be done."

What is spirituality

An individual has biological, psychological, and social dimensions and yet there is a spiritual dimension, which connects to all of these and contributes to an individual's sense of wholeness and wellness. Experiences such as joy, love, forgiveness and acceptance are manifestations of spiritual well being. Imbalance in one of the several dimensions led to disease and exacerbating illness. It is known that the spiritual elements also play an important role in the recovery process from acute or chronic sickness. Spiritual healing techniques frequently can support or complement conventional health care modality (3).

Spirituality is often defined as the experience of meaning and purpose in our lives-a sense of connectedness with the people and things in the world around us. For many, this connectedness encompasses a relationship with God or a higher power. For many American, spirituality is experience and expressed through religiousness. The terms "religiousness" and "spirituality" often are used interchangeably. Religiousness is adherence to the beliefs and practices of an organized place of worship or religious institutions. Spirituality provides a sense of coherence that offers meaning to one's existence as a human being. Sometimes a patient may experience states of consciousness that have profound spiritual and transformative impact, including near-death experiences, mystical states, and delirious states associated with alterations of brain chemistry. These events may have a positive impact on the individual or they may lead to distress. Reassurance and legitimization of the experience by a health care provider can be very therapeutic (10). Physicians are helping patients look beyond the physical dimension to find comfort, answers, and cures. The vast majority of Americans believe that spirituality influences their recovery from illness, injury, or disease, says one recent poll. Two thirds of the respondents indicated they would like physicians to talk with them about spirituality as it relates to their health or even to pray with them.

Religion and health

Religiousness may contribute to the enhancement of well being in a number of ways.

The relaxation response

A bodily claim that all of us can evoke and that has the opposite effect of the well-known fight-or-

flight response. The is called the "relaxation response" by Benson. In this state the blood pressure is lowered, and heart rate, breathing rate, and metabolic rate are decreased. The relaxation response yields many long-term benefits in both health and well being and can be brought on with Salat, Zikr and recitation of the Qur'an which are related lead to very simple mental focusing. These lead to the power of self-care, the healthy things that individuals can do for themselves. Our bodies are wired to benefit from exercising our beliefs, values, thoughts, and feelings. Patients who suffer from anxiety and panic after surgery or from a terminal illness have documented that they experience the wonderful physical solace after making Du'a (supplication) to Allah (SWT). This experience is the opposite effect of the edgy, adrenaline rush we experience in the stress-induced fight-or-flight response. Through Du'a patients have gained both emotional and spiritual balm. This tender comfort and soothing gained everyday makes one to regain confidence both in body and one's ability to face the twists and turns of life. Salat, Du'a elicit the relaxation response in patients resulting in mental equilibrium and help them to ward off disease by doing something to calm the body and the fears.

It has been known for centuries, that the "placebo effect" is substantial and has positive influence over the body. What is less known is that an individual's belief empowers the placebo. The fact that the patient, caregiver, or both of them believe in the treatment contributes to better outcomes. Sometimes affirmative beliefs are all we really need to heal us. Other times there is a need for the collective force of our beliefs and appropriate medical interventions. Every individual has the power to care for and cure him- or herself. Physicians are now paying special attention to the self-care that is on the inner development of beliefs that promote healing. The placebo effect was found to have a substantial impact on the commonly reported symptoms-chest pain, fatigue, dizziness, headache, back and abdominal pain, numbness, impotence, weight loss, cough, and constipation. In 1992 an Ohio State University study of patients with congestive heart failure, it was demonstrated that placebo treatment may also help more serious conditions. It has been shown that belief in or expectation of a good outcome can have formidable restorative power, whether the positive expectations are on the part of the patient, the physician or a caregiver or both. In a study pregnant with belief alone cured themselves of persistent nausea and vomiting during pregnancy. The women were given a drug and were told that it would cure the problem, but in fact were given the opposite-syrup of ipecac-a substance that causes vomiting. When patients *believed* in therapies that were fervently recommended by their physicians, this fervor worked to alleviate a variety of medical conditions including angina, asthma, herpes simplex cold sores, and duodenal ulcers. Good doctor-patient relationship is known to accelerate the healing. Two thirds of the patients got better after hearing the good news from their doctors even if the prescription is vitamins. Hence the bedside manner does matter. Studies show that surgical recovery is more quick if the patient's surgeon is upbeat, confident and kind.

In "psychosomatic" disease episodes of anger and hostility can translate into stomach ulcers and heart attacks. Our thoughts are intimately related to our bodies. The success the medical profession achieves is attributable to the inherent healing power within individuals. A patient's positive frame of mind can be exceedingly therapeutic.

Benson describes a renal cancer patient who could elicit relaxation response through per beliefs and prayer, refrained from pain medicine inspite of her great deal of pain, and was relieved of the terrible distress she had suffered before. When she died she was at peace, drawing upon this internal physiologic succor and the power of her beliefs during the final weeks of her life.

When the relaxation response is activated it provides a calm state in the mind-opposite of the fight-or-flight response-whenever the mind is focused for sometime through Salat or Zikr. In other words, when the mind quiets down, the body follows suit.

Recent scientific research indicates that affirming belief in God or Allah (SWT) makes a critical contribution to our physical health. When people call upon faith, they activate neurological pathways for self-healing.

The Muslim prayer consists of contact prayer (salat), Zikr (Dhikr) or remembrance of Allah and recitation of the Qur'an. These elicit the physiologic relaxation response.

Spiritual medicine in Islam

In Islam *Spiritual medicine* can be used to mean two different things, although both are allied and sometimes confused. One refers to the belief in a spiritual or ethical or psychological cure for diseases that may have physical or spiritual (or psychic). Thus, a physical illness may be cured, for example by recitation of the Qur'an or other prayers (Du'a). Most medical men of Islam even in the scientific tradition of medicine recognized this belief to an extent.

Ibn Sina is credited with psychic cures. Muslim physicians practiced various forms of psychotherapy such as shock or shame-therapy in the treatment of mental illnesses and this treatment was original. A famous Persian work titled *The Four Essays (Chahar Maqala),* written about 1155 AD for the ruler of Samarqand by his court-poet, Nizami-Ye 'Aruzi discusses administrators, astronomers, poets and physicians. Each chapter gives definitions of an ideal person in each category followed by ten illustrative anecdote (11). Ibn Abi Usaibi'a narrates about the treatment by Jibra'il ibn Bakhtishu' of a beloved slave-girl of the caliph Harun al-Rashid through schock-treatment (12).

Part of spiritual medicine in Islam is devoted to ethical well being, but from a practical point of view. Thus Abu Bakr al-Razi wrote *al-Tibb al-Ruhani* (Spiritual Medicine) which has been translated into English as *The Spiritual Physick of Rhazes.* (13).

In this work, al-Razi describes in detail the moral diseases and discusses with acute perception how these affect human behavior.

The Moghul emperor Jehangir once suffered from some illness, which his doctors were unable to cure. Frustrated, he repaired to the tomb of the Saint Mu'in al-Din Chishti at Ajmer and was cured. Ever since then he wore earrings in the name of the saint as a token of being his follower (14).

Volumes of spiritual prescriptions for cures exist. Most prayers and amulets contain verses from the Qur'an, to which high curative powers were ascribed. Very frequently, the recommendation is made that the patient shall write down certain Qur'anic verses on a piece of paper or on a glass (ceramic plate) and after soaking these writings in water drink the water. In south-east Asian countries, sick people stand outside the mosques and the believers who are coming out of the mosques after performing the salat, recite certain Qur'anic Surahs and blow air on the sick people.

Khawass al-Quran (Miraculous Properties of the Qur'an): The "miraculous properties" of practically each passage of the Qur'an are discussed including their curative properties for various diseases. It is said that when Surah 38 (Saad) is recited on a sleeping person it cures breathing problems; when written down and read during a patient's waking hours, it cures illness. A person who continuously recites it will be immune from all troubles at night (15).

Sufi Shaikhs or *pir* are said to cure (16):

* Sickness
* Infertility
* Problems with one's job
* Alleviate fear of failure in an exam
* Demonic possession (mental illness)

Al-Dhahabi (d.1348 AD)(17) says the benefits of the Islamic ritual prayers (salaat), which involve certain changing physical postures, are fourfold: spiritual, psychological, physical, and moral. He further says:

* Prayers cause recovery from pain of the heart, stomach, and intestines.
* Prayers produce happiness and contentment in the mind; they suppress anxiety and extinguish the fire of anger. They increase love for truth and humility before people; they soften the heart, create love and forgiveness and dislike for the vice of vengeance. Besides, often-sound judgment occurs to the mind (due to concentration about difficult matters) and one finds correct answers (to problems). One also remembers forgotten things. One can discover the ways to solve matters worldly and spiritual. And one can effectively examine oneself-particularly when one strenuously exercises oneself in prayers.

* Salaat is a divinely commanded form of worship
* Psychological benefit: prayers divert the mind from the pain and reduce its feeling.
* Besides the concentration of the mind, salaat is;
  Exercise of the body: postures of standing
  Upright, genuflexion, prostration, relaxation,
  And concentration; where bodily movements
  Occur and most bodily organs relax.

Al-Muwaffaq 'Abd al-Latif narrates in his book *Kitab al-Arba'in* that a number of people who led lazy lives because of their wealth, who nevertheless had preserved good health. The reason is they were given to frequent prayer and also regular *tahajjud* (midnight prayer) (18).

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Turkish Anatomy Education From The Foundation of the First Modern Medical School to Today *

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Summary

Anatomy education commenced as a distinct course at "Tıbhane-i ve Cerrahhane-i Amire", the first medical school, founded by Sultan Mahmut II in March 14th, 1827. It is possible to explain anatomy education in three periods.

1) Pre-dissection Period (1827-1841): In this period, anatomy education was given theoretically. Anatomical constitutions except bones were being displayed on charts and models.

2) Unmedicated cadaver period (1841-1908): After Sultan Abdülmecid had signed the imperial decree allowing dissections with the purpose of education; practical applications on cadavers began initially. Corpses of slaves and captives were used as cadavers for dissection. These corpses had no relations and dissections were made until they began to decay. For this reason, large scale of anatomy education was given theoretically again

3) Medicated cadaver period (1908-2003): In anatomy education by using the method of giving chemical substance through vein, cadavers began to be used initially for a long time without decay in this period. So, scale of practice in anatomy education increased considerably.

After 1945, the anatomy education has demonstrated a rapid development quantitatively. Today, 41 anatomy departments continue their activities.

Key Words: Anatomy, Education.

Turkish Anatomy Education From The Foundation of the First Modern Medical School to Today

During the Ottoman time anatomy education was done in a scholastic frame. Medical education was instructed in master-apprentice way and anatomy was explained theoretically with other courses. Sultan Mahmut II founded the first medical school, "Tıbhane-i Cerrahhane-i Amire (March 14th, 1827). Thus anatomy education commenced as a distinct course. With the appointment of instructors western style anatomy education was initiated. So it is possible to explain anatomy education in three periods (1-4).

1) Pre-dissection Period (1827-1841): In this period, anatomy was instructed theoretically. **Kanun** by Ibn Sina, **Tesrih-i Ebdan ve Tercüman-ı Kibale-i Feylesufan** by Itaki and **Miratü'l Ebdan fi Tesrih-i Aza-ül Insan** by Sanizade were the books taught in the medical school. Anatomical constitutions except bones were being displayed on charts and models, which were brought from Europe. Some knowledge on bones was taught by using skeleton models and bones taken out from graves. This can be regarded as a practical application however, as it was not yet allowed to work on cadavers, it was not adequate to regard as a practical application. The anatomy course was taught in the second year of the Medical School. Students were sitting on rush mats while listening their instructors. According to the Prime Ministership Archives' Documents, Osman Saib was the first anatomy teacher of pre-dissection period (death: 1863) (1,3). Osman Saib, who graduated from "**medrese**", which was similar to faculty in Ottoman

education system, was also well-informed on mathematics. As a second person, Dr. Konstantin Karatodori (1802-1879) who educated in Europe also taught anatomy courses. In pre-dissection period, the attitude on anatomy education was not of the necessary importance. Since the Medical School could not reach to an expected quality of education, it was moved to another location and was called as "**Mekteb-i Tıbbiye-i Shahane**" (1-3,5).

2) Unmedicated cadaver period (1841-1908): Anatomy experts was appointed in this period from abroad. First one was Dr. Charles Ambroise Bernard from Vienna (1808-1844) (1-6). For a long time, until after the first three years from the foundation of Mekteb-i Tıbbiye-i Shahane, it was not allowed to examine corpses because of bigotry caused partly from religion and ignorance. However, anatomy was a course that has to be learned by making applications of dissection on corpses. In order to search on natural location and organization of organs in human body dissection was of great importance. Dr. Bernard stated that the anatomy was the main course of medical education and it was necessary to search on cadavers in order to make anatomy lessons beneficial to the students. He made negotiations with the authorized people and the Sultan about this matter. First practical applications on cadavers began after Sultan Abdülmecid had signed the imperial decree allowing dissections for the purpose of education (1841) (1-10). In order to select well-informed experts, an examination was arranged and Dr. Sigmund Spitzer (1813-1895), an anatomy assistant with the knowledge of dissection, was appointed for the practical applications. He was the first person who made the first dissection in our country. (1,2,3,5,9). Corpses of slaves and captives were used as cadavers for dissection. These corpses had no relatives. In this period, anatomy courses were taught for three years beginning from the second year of Medical School. It was not an obligation to attend dissections. Therefore, large scale of anatomy education was still given theoretically. In Medical School, education language was French and the books were brought from France. First anatomy books were written at that time. Generally these books were translations from foreign sources. In 1871, Dr. Hafız Mehmet translated Bayle's anatomy book from French as "**Talim-üt Teshrih**". This book was the third anatomy book published during the Ottoman period after the books of Itaki and Sanizade (1,2,4).

We have to mention about an article published in 1953 by Prof. Dr. Feridun Nafiz Uzluk on Turkish anatomy books. In his article, he mentioned about Hanif Zade Ibrahim Nihali who lived in 18th century, but whom we do not have enough information about his life and works. Uzluk has informed us that this person had written a Turkish anatomy book in the European style. There is no another information about that book (14).

Hristo Stombolski (1843-1932), an anatomy lecturer who was of Bulgarian origin, published an anatomy book named "Miftah-ı Teshrih" in 1874. The book was a translation of the anatomy book by Prof. Dr. Moose, lecturer in Paris Medical Faculty. Stombolski added a chapter with 93 pages named "**Lügat-ı Teshrih**" to the end of this book including many anatomy terms with Turkish equivalence (2,14). Afterwards, Dr. Hasan Mazhar Pasha (1845-1920) published the 5th Turkish anatomy book named "**Ilmi Teshrihi Tasvifi**". In 1908, Mazhar Pasha who translated many anatomy books wrote and published "**Ilmi Teshrihi Topografi**", which demonstrated the specification of topographic anatomy first time in Turkey. On the other hand, he had a great effort on teaching anatomy courses in Turkish rather than French in Medical School. He made a lot of contributions and studies on translating anatomy terminology into Turkish (1,2,3,14). Mazhar Pasha is considered to be the founder of the modern anatomy in Turkey.

At that time, an increase was observed in the number of anatomy teachers. Some of lecturers of anatomy gave courses during that period .Greek Dr. Paleog, Armenian Dr. Davut, Austrian Dr. Joseph Warthbichler (1817-1852), Greek Dr. Kalyas (death: 1885), Dr. Yakovaki Aristidi (1835-1900), Dr. Mehmet Rasim Pasha, Ismail Besim Pasha, Yusuf Rami (1856-1916), Hikmet Emin and Mehmet Tahir (1881-1940) (1,3).

Even it was late, modern methods and sources, especially cadavers, began to be used in anatomy education at that time. Furthermore, anatomy books translated into Turkish began to be written.

3) Medicated cadaver period (1908-2003): In this period, Anatomy education gained new dimensions. Some students were sent to the European countries. These students had an opportunity to study with famous anatomists of the time. They not only brought anatomy knowledge but also investigation and education methods when they returned to Turkey. One of them was Prof. Dr. Nurettin Ali Berkol. He offered the method of preserving cadavers in icehouses or giving chemical substance (formol) through vein for the first time in Turkey. Cadavers initially began to be used in anatomy education without decomposition with those methods. This practice became a turning point in anatomy education. Thus, scale of practice in anatomy education increased considerably (1,2,3,9,15). Prof. Dr. Berkol also provided important contributions to the establishment of today's modern dissection laboratories during the university reform. After Mazhar Pasha, Prof. Dr. Nurettin Ali Berkol and Prof. Dr. Zeki Zeren can be counted among founders of the modern anatomy in Turkey. His contribution on translation of the anatomy terminology into Turkish was important. He published "**Osmanlıca Anatomi Sözlügü ve Türk Anatomi Terimleri**" in Latin-Turkish in 1946 (1,3,16).

Finding cadaver was a difficult problem in this period. And it is still a problem today. Therefore, anatomists tried to provide new approaches to anatomy education by closely following the new technological developments. As a result of the developments in computer and visualization techniques, variations came out on teaching methods. Anatomy subjects started to be explained visually via visualization techniques such as slides, data projectors and videos. Dissection laboratories also reached more modern configurations. In addition, some Turkish anatomy books that were not translated from other sources were written.

A second medical faculty was founded in Sam (Damascus) in 1903, but unfortunately this faculty couldn't have a chance for a long education term was closed in 1918 (17). In Damascus Medical School anatomy courses was taught by Ismail Hakkı. He translated an anatomy book called Leo Testut "Traite d'Anatomie Descriptive" from French into Turkish during those years. He came to Istanbul after Damascus Medical School had been closed.

Anatomy education demonstrated a rapid development quantitatively with the foundation of Ankara University, Faculty of Medicine in 1945. Ege University, Faculty of Medicine was founded as third faculty of medicine in Izmir. Today, 41 anatomy departments continue to their activities in Turkey. The number of instructors and lecturers in these departments has also gradually increased by the time.

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Al-Haytham the Man of Experience. First Steps in the Science of Vision

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Summary

Abu 'Ali al-Hasan ibn al-Hasan ibn al-Haytham (965-1039 A.D) was one of the most significant figures in the history of optics between antiquity and the 17th century. His explanation of the vision has been revolutionary in the history of medicine and vision. In his *Kitab al-Manazir* he studied optical illusions, the structure of the eye, perspective, atmospheric refractions etc. In particular his theory in which the principles of light and perspective are explained for the first time in the Middle Ages, had a great impact upon European culture of the medieval and modern eras.

Key Words; Al-Haytham, Kitab al-Manazir, Optics, Vision.

Abu 'Ali al-Hasan ibn al-Hasan ibn al-Haytham (965-1039 A.D), sometimes called al-Basri (from the city of Basra, his birthplace) or al-Misri (since he came from Egypt) is more often known in Europe as Alhazen or Alhacen (the latinization of al-Hasan) and Avenatan or Avennathan. He was identified towards the end of the 19th century with the Alhazen, Avennathan and Avenetan of medieval Latin texts (1). Little is known about al-Haytham's life. Most probably he was born in Basrah in Iraq, and was educated in Basrah and Baghdad. His father was a civil servant, so al-Haytham was sufficiently well educated. We know that he travelled a lot, especially in Spain, and that he spent a long period of his life in Cairo during the rule of the Fatimid caliph al-Hakim bi-Amr Allah (985-1021 A.D.). The munificence of al-Hakim to scholars and scientists, according to Sami Hamarneh had attracted al-Haytham into going to Fatimid Egypt (2).

According to Haidar Bammate, al-Haytham was the first to support the building of a dam near Aswan to raise the water level of the Nile (3). He submitted to al-Hakim a hydraulic plan for regulating the inundations of the Nile. We do not know if that project was refused by the caliph or if al-Hayhtam was not able to carry on it, perhaps for its expensiveness. In a 13th century report it is said that al-Haytham, after realizing that it was not possible to make his project concrete, pretended to be mad to avoid al-Hakim's anger and punishment. As a consequence he was confined in a house where he lived for many years, until the death of the caliph, twelve years later. After these events al-Haytham continued to live in Cairo near the al-Azhar University, until his death.

He was a very erudite man, like many medieval men. He expounded, among the others, the theories of Aristotle, Galen and Ptolemy and was devoted on philosophy, physics, medicine, optics, astronomy and mathematics. He wrote about one hundred books on these and other subjects. However his most important studies were related to the optic matter and his influence on the western thoughts is mainly due to his works in the field of optics, in which the basis lays of the otpical knowledge in later Christian and Islamic Middle Age. Hence, Al-Haytham is considered one of the most significant figures in the history of optics between antiquity and the 17th century. His explanation of the vision has been revolutionary in the history both of medicine and optics and has modified the idea that ancients had about light and their theories on the anatomy and the physiology of the eye (4).

The light has been the subject of various studies since antiquity and the nature of the physical relation between eyes and objects has been a considerable problem to the early 17th century. The Greek philoso-

phers and scholars speculated about this connection advancing some conflicting theories. The earliest form of the theory of vision, called "atomistic intromission theory" is due to Leucippus of Miletus (about 490/80-420 B.C.) and Democritus of Abdera (about 460-370 B.C.). They hypothesized that atoms streaming in various directions from an object produce visual sensations by entering the eyes of observers. An alternative theory, called "extramission theory", is due to other pre-Socratic philosophers such as Empedocle of Acragas (about 495/90-435/30 B.C.). They supposed that the eyes send out rays of light to view the objects. Plato (about 427-347 B.C.) tried to unify both the intromission and extramission theories and his pupil Aristotle (384-322 B.C.) advanced a "mediumistic theory" by which the eye receives rays rather than direct them outward. In particular, according to Aristotle, in the process of human vision the object being looked at somehow altered the medium between the object itself and viewer's eye. Thus it was possible to see the object because the medium's alteration propagated to the eye. The extramission theory was reviewed and extended by Euclid of Alexandria (about 325-265 B.C.), Claudius Ptolemy (about 85 B.C.-165 A.D.) and Galen (about 129 B.C.-210 A.D.) Al-Haytham clashed with the extramission theory and adfirmed that the rays emanate in straight lines towards the eyes from every point of a visible object. Starting from the observation that, when the eyes are injured by a strong light, the observer has a sensation of pain, followed by a persistence of the images he deduced that light must be an external agent which enters the eye and temporary modifies its structure. Moreover, basing himself on Aristotle's studies, he considered that the eye perceives only the light and the colours and that the estimate on the size, the distance and the shape of the observed objects derivates from more complex rational judgements.

The knowledge of the role played by the brain in interpreting what is seen by the eyes allowed Al-Haytham to explain optical illusions, including the "Moon illusion". This phenomenon through which heavenly bodies look bigger at the horizon than at the zenith, has been recorded and investigated since antiquity and it has been referred to as the "moon illusion" since it is particularly clear in the case of the moon. Al-Haytham explained why the moon and the sun appear larger on the horizon. He realized that our brain is deceived by objects like trees, hills or houses on the horizon, into thinking that the moon is getting bigger. When the moon is high in the sky, there are no references on the ground with whom we can compare it and thus it looks smaller. According to Ross & Ross al-Haytham was probably the first author to explain the moon illusion by the size-distance invariance principle (5).

His main book is a seven volume work, *Kitab al-Manazir*, which he completed between 1028 and 1038. Initially al-Haytham' s work was available in Arabic language and was therefore accessibile only to very few European scholars until the 13th century when, in 1270 *Kitab al-Manazir* was translated into Latin by the Polish scholar Witelio. It was widely available in Europe when it was first published by Frederick Risner at Basel in 1572 as *Opticae Thesaurus, Alhazeni Arabis libri septem.* In the Risner's edition the Gerard of Cremona's Latin translation *De crepusculis et nubium ascensionibus* and the *Optica* of Witelio are also incorporated (6). The *Kitab al-Manazir* - exemplary for combining natural philosophy and mathematics - inspired many books on optics from the thirteenth to the seventeenth century and exerted a great influence upon western scholars, as for example Roger Bacon (1214-1292/4 A.D.), Witelio (1230/35-1275 A.D.) and Johannes Kepler (1571-1630 A.D.). According to Howard, the *Kitab* formed the basis upon which Keplero solved the problem of image formation (7) and, according to the translation by Lindberg, Keplero says: "I say that vision occurs when the image of the whole hemisphere of the world that is before the eye is fixed on the reddish white concave surface of the retina. How the image or picture is composed by visual spirits that reside in the retina and the optic nerve, and whether it is made to appear before the soul or the tribunal of the visual faculty by a spirit within the hollows of the brain or whether the visual faculty like a magistrate sent by the soul goes forth from the administrative chamber of the brain into the optic nerve and the retina to meet the image, as though descending to a lower court - this I leave to be disputed by the physicists" (8).

In the East, two distinguished Persian scholars, Qutb al-Din al-Shirazi (1236-1311 A.D.) and Kamal al-din al-Farisi (1260-1320 A.D.), the commentator of the Kitab, followed up and extended al-Haytham's studies, helping in the popularization of al-Haytham theories in the Islamic world.

They also advanced theories on the rainbow superior to that of al-Haytham (6). Ibn al-Haytham initial theory concerning rainbow was that it origins by the reflection of light from the sun through clouds, before reaching the eye. They proposed a model where a ray of sun light is refracted twice by a water droplet with one or more reflections occurring between the two refractions (9). In medieval Islam in the 13th and 14th centuries there was an interest so great in rainbow, ('ilm qaus quzah) that a special science on it was built up (6).

In his *Kitab*, al-Haytham investigated, among other arguments, optical illusions, the structure of the eye, binocular vision, perspective, atmospheric refraction, comets, shadows, eclips, rainbow, mirages and the camera obscura. According to Winter al-Haytham was not the first to mention the camera obscura, whose action had been understood in an elementary way by the Chinese before 300 B.C. but he was the first to give of it a mathematical explanation (6). He expounded for the first time the use of camera obscura in the observation of solar eclipses (1).

According to the majority of the historians al-Haytham was the pioneer of the modern scientific method. With his book he changed the meaning of the term optics and established experiments as the norm of proof in the field. His investigations are based not on abstract theories, but on experimental evidences and his experiments were systematic and repeatable. As Rosmorduc affirms: Al-Haytham insists on the importance of "investigating by induction existing phenomena and in this way distinguishing the properties of individual things. From here, we may turn to research and comparison, in a gradual and orderly way, criticizing premises and being careful about results" (10).

In conclusion al-Haytham was an outstanding figure of scientist and his researches are characterized by a great experimental skill: he used particular precautions to do his work and he carried out every experiment with the best devices he could make. In particular in his *Kitab* al-Haytham new approach to the studies of optics in the Middle Ages is present starting from the basic physiological principle according to which sight (al-basar) consists of various layers, coats and bodies and its principle and origin are situated in the frontal part of the brain. His theory in which an important analysis of the physical process of sight can be found explains for the first time in the Middle Ages the two principles of light and perspective whose impact upon European culture of the medieval and modern eras has been very relevant.

As a proof of the relevance of his studies, there is on the moon, near the east margin of the Mare Crisium, a crater called Alhazen (15.9° N/ - 71.8°/E; diameter 33 km.).

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Muslim Scholar Contribution in Restorative Dentistry

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Summary

Initially Islamic Medicine was based almost entirely on the works of the Greek physicians. In the voluminouse body of Islamic literature which was so important for the development of western hygien, there are, in contrast for example, to treatment of the eyes, practically no works only on stomatology. Most text do, however, deal with problems of dental medicine, often in individual chapters.

The particular importance of Islamic Medicine for the further development of the healing arts lies in the fact that their Persian and Arabian authors repaid with compound interest the ancient treasures of the West, which they had preserved and increased, herewith they formed the fundamental bases for the European medicine of the high middle ages.

Key Words; Dental Medicine, Islamic Medicine, Middle Ages.

1. Abu Baker Muhammad Ibn Zakaria ar. Razi

The Persian ar. Razi, who was temporarily active in Baghdad in the beginning of the 10th century was said to have been a student of at-Tabari. He is regarded as a great clinician of the golden ages of Islamic civilization.

Ar. Razi cures carious defects with a wool compress dipped in boiling oil or also with special cauterizing iron, in accordance with Gibril ibn Bahtisu, he inserts asafetida or opiate into carious tooth while in accordance with Masih, he fills it with myrrh, he also uses a camphor filling or red arsenic boiled in oil, which is dropped into the root of the tooth.

Also ar. Razi recommends the method transmitted by the Galen from Archigens of opening the tooth with a drill, which if does not ease the pain alone, should be supplemented by repeating trickling of boiling oil into the drilled hole.

*.Khalifah: in 1937 Khalifah translated some interesting remarks on cavity formation and therapy from the "Al-Fahir", (The Glorious) text, which are ascribed to ar-Razi, although his authorship is not certain. From this, the quotation from Tabit ibn Qurra, a scientist active in Baghdad in the 9th century, is reproduced word for-word: Tabit says that the cause of the dental decay and crumbling of teeth is an acid moisture that comes to the teeth…if the teeth has been eaten away in part, fill it. This will prevent the moisture from getting to the tooth, destroy it and relieve the pain.

If the decay is insignificant, file away the decay part until the tooth is even, then cauterize several times with heat and with oil and marjoram matter.

The causes of the black stain on the tooth is the same as that of decay. According to Khalifa, "tancer" is recommended here as a filling material. He explained this as an Arabic word meaning the material that the tinman or plumber works with, or a metallic salt that exists with gold and copper on the surface. This mention of tooth filling with a metal stands alone in Islamic literature, because the occasionally mentioned sealing with gold foil has not yet been proven in the original literature (1).

2. Abu Gaafar Amed ibn Ibrahim ibn abi Halid al-Gazzar

An Arab active in north Africa in the 10th century, he wrote the "Kitab Zad al-Musafir wa qut al-Hadir", (provision for the traveler and nutrition for the sedentary), and it was translated into Latin in the 11th century by Constantine in Salerno under the title "viaticum".

He talked about restoring the carious, so he said : with caries purging must take place first, and then the teeth can be filled with gallnut, dyer's, buckthorn, terbinth resine, cedar resine, myrrh, pellitory and honey, or fumigated with colocynthis root.

Scheref ed-din Sabuncuoglu: cauterization of the dental pulp through a cannula 1465 (from Huard and Gremek)

He also said: The toothworm which causes caries usually is fumigated with mustard, henbane or a dog's tooth.

He also recommended arsenic compound in the prescription for holes in the teeth, caries, loosening, and against relaxing of the nerves as a result of too much fluids (2,3).

3. Abu- Ali al Husain ibn Abdullah Ibn Sina

Ibn Sina, whose name we recognize in its Latinized form as Avicenna, was born near Bukhara in 980, and died in 1037.

He was called the {prince of physicians} as he wrote {canon medicine} which was of five volume, and this book determined the medical thinking of the world for centuries.

Ibn Sina specialized many chapters in his book talking about the art of dentistry, so concerning restorative dentistry. Ibn Sina filled carious teeth with cypress, grass, mastix, myrrh, or styrax, among others with gallnut, yellow sulfur, pepper, camphor, as well as with the drugs for fighting pain, like application of wolf's milk and arsenic from al-Gazzar. Arsenic boiled in oil should be dripped into the carious defect itself.

The great Ibn Sina also firmly maintains the stereotype of henbane fumigation as a remedy for the toothworm, just as al-Gazzar: take four grains each of henbane and leek seeds and two half onions, knead it with goat fat until it is smooth, and make pills from it with a weight of dirham, burn one pill in a funnel under a covering of the patients head (4).

The Toothworm concept

The believe of toothworm was not accepted, as can be seen from the reports of a certain Gaubari, who lived around 1200, his "book of the Elite concerning the unmasking of mysteries and tearing of veils" contains a chapter about dentistry, in it there were revealed a quantity of tricks with which pretended toothworms (5).

Fruit maggots, dissected camel sinews were placed into the patients mouth and than shown as the toothworms which was causing the pain. These were things, therefore which in the opinion of the author, did not even exist.

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The Application Of Ayurvedic Therapies In Turkey And The Importance Of Ginger Use From The Point Of View Of Ayurvedic Principles

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Summary

In this paper, the importance of Ayurveda is pointed out . Moreover, the clinic of Hay in Turkey is also mentioned and some knowledge about some ayurvedic applications are given and the importance of ginger use is stressed from the point of view of Ayurvedic therapies.

Key Words: Ayurvedic Therapies, Ginger, Hay Clinic

Ayurvedic therapies are applied in some special clinics in Turkey. Ayurveda is an alternative medical application. We know some terms and concepts about this subject.

Ayurveda 1. The Indian philosophy that forms the basis for ayurvedic medicine; although the terms ayurveda and ayurvedic medicine are often used interchangeably, the former is more global and includes both the ayurvedic philosophy and those components of ayurveda that are applied in modern ayurvedic medicine; the major branches of ayurveda incorporated into current ayurvedic medicine are internal medicine, geriatrics, aphrodisiac medicine, and panckbakarma; the other branches of ayurveda-ophthalmology otorhinolaryngology, psychiatry, psychotherapy, pediatrics, surgery, and toxicology, have been largely abandoned in favor of the Western versions of these fields (1).

Ayurvedic healing means Ayurvedic medicine.

Ayurvedic herbal medicine Ayurvedic medicine, A therapeutic system based on the classification of foods and herbs into four groups: Energy-virya, taste-rasa, postdigestive effect-vipaka, and potency-vipaka; specific herbs are used to increase or decrease the doshas (kapha, pitta, and vata).

Ayurvedic massage Abhyanga, Ayurvedic lymphatic massage, marma therapy A form of massage, that stimulates spesific marma points, which are invisible but palpable junction points between mind and matter, analogous to the pressure points in acupuncture; abhyanga is performed by touch and using special oils and transcendental meditation.

Ayurvedic medicine Ayurveda, ayurvedic healing, ayurvedism, vedic healing, vedic medicine Alternative medicine Sanskrit, Ayur-Life, veda-knowledge, the oldest existing medical system in the world, which is practiced by approximately 300 000 physicians, primarily in the subcontinent of India; ayurvedic medicine encompasses aromatherapy, diet and nutrition, herbal medicine, massage, and vedic astrology; ayurvedic philosophy holds that disease is caused by an imbalance of homeostatic and immune mechanisms related to three physiological priciples or ‘doshas’ (2).

Doshas

Vata Dosha *Wind force, vata represents fluid and motion, and corresponds to the Western concepts of circulation and neuromuscular activity.*

Pitta Dosha Sun force, Pitta directs all metabolic activities, energy exchange, and digestion

Kapha Dosha *Moon force, Kapha represents structure, cohesion and fluid balance and, when*

deranged, predisposes toward respiratory disease, diabetes, atherosclerosis, and tumors

According to the ayurvedic constuct, there are four categories of diseases

Ayurvedic Diseases

Accidental, eg typhoon, elephant trampling

Mental, eg loss of mental harmony

Natural, eg aging, childbirth

External, eg weather, foods, and others

Ayurvedic Approaches To Therapy

Diet- Foods should be consumed slowly, in their natural season in a tranquil surrounding; occasional fasting, is thought to promote health

Medicine- The primary terapeutic and preventative arsenal is based in herbal remedies, which may be supplemented by homeopathy and conventional (western or orthodox) drugs

Practical- Behaviour modification, breathing exercises, mental counseling, enemas, transcendental meditation, yoga, and a 'healthy' life style (3,4).

Ayurvedic Remedies

Constitutional Remedies- Diet, mild herbs, mineral preparations, an lifestyle adjustments, which are intended to balance life forces, and return the body to its normal state of harmony

Clinical Remedies- Medication and strong herbs, coupled with purification practices, which include purgation, medicated enemas, therapeutic vomiting, nasal medication, and therapeutic bloodletting (5,6,7).

Some special clinics apply these ayurvedic methods to their patients in Turkey. Moreover, in these clinics, some drugs are used for some diseases. One of these Clinics is Hay in Turkey. It was founded in 1994. The director of this clinic is Dr. Ender Sarac.

The Application Of Ayurvedic Therapies In Turkey And Ginger Use

Ayurvedic therapies are applied in some special clinics in Turkey. Ayurveda isn't taught in Turkish medical faculties. But, modern Turkish doctors know the importance of this subject. An agreement about acupuncture is present in Turkey. But, a law or agreement with regard to Ayurvedic applications isn't found in our country. Some special clinics treat the patients according to ayurvedic principles. Turkish doctors learn ayurvedic treatments in some European countries such as Holland, Switzerland etc. by participating in some courses. Moreover, they also learn it from some American books on Ayurveda. Some of them go to India and also continue to some courses. We can give a special clinic as an example from Turkey. This special clinic called HAY is in Istanbul in Turkey. This clinic is a center of health. In this clinic, 4 specialist doctors in some fields of medicine, 1 physiotherapist, 15 beds and 20 personnel are found. Ayurvedic therapies, family physician-ship services, acupuncture, dermatologic treatments, diet application, physiotherapy, reflexology, esthetic applications, face sport are applied in this clinic. The director of this clinic is Dr. Ender Sarac. He graduated from Ege University, Medical Faculty. He is a ayurveda doctor. He obtained the first basic Ayurveda education in Switzerland in 1990. Afterwards, in 1991 and 1992, he graduated from Ayurveda courses in Holland and Switzerland. He educated on Panchakarma therapies. Panchakarma means an intense detoxification regimen used in ayurvedic medicine to enhance a person's prana, the living force of the universe; a panchakarma regimen may last one week, and is used once or twice per year to eliminate ama (impurities); a panchakarma may include a sneban-a cleansing herbal oil massage that focuses on spesific marma or pressure points, a sauna with herbal oils, which imparts vapors that are inhaled, aromatherapy, herbal tea, and music therapy.

In HAY Clinic, bronchitis, asthma, ulcer, hepatit, cholitis, stress, depression, eczema, allergy, tuberculosis, infectious diseases, rheumatism, osteoporosis, multiple sclerosis, fatness etc. are treated with ayurveda and other ways. 30-49 patients come to this clinic in a day. Modern pulse diagnosis is applied. Moreover, in this clinic, ayurveda, acupuncture, dermatologic therapies, diet, physiotherapy, esthetics are also applied In the department of ayurveda, some ayurvedic therapies are present. Ayurvedic therapies such as yoga, exercise, diet, transcendental medita-

tion, asana (any of a number of poses used in the practice of yoga, usually performed in the context of a routine of exercises, which are practiced daily for 10 to 20 minutes. This application is intended to stimulate the activity of certain organs. In this practice, massage is applied with some oils.) are also applied. Moreover, plant infusions are also administered to patient (8,9). Moreover abhyanga means ayurvedic massage. Abhyanga is performed by touch and using special oils and transcendental meditation. Plant infusions are also administered to patient. Pranayama means breathing exercises, in which an individual breathes through alternate nostrils by closing off one nostril, then the other by pressing a finger against it, pranayama is believed to enhance the prana, the universal life force.

According to Ayurvedic medicine, ginger stengthens digestive organs. Agni which is a metabolic fire causes some symptoms such as weakness, cold, fitness in the organism. Ginger is the best drug of these symptoms.

Ayurveda tells us that ginger is particularly good for Kapha types, and with Kapha foods. That is, in the diet it helps to absorb and balance watery and oily food, and prevents the heaviness and obesity arising from such foods, especially in a Kapha type of person. It will help to balance overly sweet foods, too much daily produce, too much to drink, too much fruit and too much meat.

Ginger is better at this than pepper or mustard which, though pungent, can be too drying. In general, ginger is good for Kapha types to counteract a tendency to lethargy, congestion and stagnation.

An importance concept in Ayurveda is that of Agni, or digestive and metabolic fire. If food and other inputs are properly burnt up, processed and digested, they will not create toxins, called Ama, which collect in deposits around the body. The furring up of the arteries with cholesterol is a king of Ama deposit, as is arthritic deterioration of the joints.

Ayurveda employs herbs, oils, yoga, massages, dietary principles, colours, gems, minerals and anything you can imagine as therapeutic tools. One of the many principles which will help us understand ginger better is that of the six tastes. Ginger has the stomachic and expectorant effects. Because, it contains volatile oil. This oil effects on digestive system. Furthermore, this drug is also used as an important spice in Turkey. Furthermore, Adeka Factory prepared ginger as an antiemetic drug and this drug has been used by doctors.

Result

As a result, in the ayurvedic applications, quackery shouldn't be made and these are accepted as alternative therapies (10).

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SCIENTIFIC EVENTS

14-17 May, 2003

Second Congress of Russian Confederation of Medical Historians (KIM) Moscow, Russia

Second congress of KIM will take place at the Sechenov Medical Academy in Moscow, Russia on May 14-17, 2003.

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Dr. Tatjana Zhuravleva, Secretary General of KIM

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25-28 June 2003

Turkish Society of Bioethics 3rd National Congress of Medical Ethics
(With International Participation)

Kervansaray Thermal Hotel/Cekirge, Bursa-TURKEY

3rd National Congress of Medical Ethics will be organised by Turkish Society of Bioethics in Cekirge in Bursa during 25-28 June 2003. The main topics in the fields such as clinical ethics,bioethics, research ethics will be discussed . Many scholars from Turkey and many places of the world will participate in this congress. This congress is with international participation. Oral and poster participations, conferences, workshops will take place. The congress of medical ethics will be held as international for the first time in Turkey.

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Oslo Conference

The VI th Conference Of The European Association for the History of Medicine and Health (EAHMH)

Health Between The Private And the Public Shifting Approaches

It will be held in Oslo during 3-7 September 2003.

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British Society for the History of Medicine 20 th Congress

It will be held in Reading, United Kingdom during 4-7 September. 2003

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Second International Meeting on the History of Medicine

It will be held in Mexico City during 17-20 September 2003

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First Balkan Congress of History of Medicine

It will be held in Ohrid, Macedonia during 23-25 September 2003

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36 rd International Congress for the History of Pharmacy

It will be held in Bucharest, Romania during 24-27 September 2003

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International Congress Ethical Issues in Brain Death and Organ Transplantation

It will be held in Tsukuba Science City, Tokyo during 1-3 November 2003

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Dr. Alireza Bagheri

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8th Congress on the History of Turkish Medicine

It will be held in 2004, in Divriği, Sivas, Turkey.

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39. International Congress on the History of Medicine

It will be held in Bari, Italy during 5-10 September 2004.

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The Seventh World Congresss of Bioethics

It will be held in Sydney, Australia during 10-15 November, 2004

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طلب إلتحـاق

Application for Membership

☐ **Regular member** ($25 or QR 95) ☐ عضو منتظم **(25** دولار أميركي أو **95** ريال قطري)

☐ **Student member** ($10 or QR36.50) ☐ عضوية الطلاب **(10** دولارات أو **36,5** ريال قطري)

Name : **الإسم :**

Occupation/work : **المهنـة :**

Postal Address : **العنوان البريدي:**

Tel : Fax: الفاكس : الهاتف :

E-Mail : **العنوان الإلكتروني :**

Personal Data : **معلومات ذاتيـة :**

(Attachment of a short CV copy is preferred) (يستحسن إرفاق نسخة من السيرة الذاتية مع الطلب)

Signature: .... :الإمضاء

Payments : طريقة الدفع :

☐ Credit Card number : ..... Exp. Date.....

☐ Visa ☐ Master card ☐ American Express

☐ Draft/Money order (payable to the: International Society for History of Islamic Medicine - ISHIM)

Bank details: QNB – Doha/Qatar (US$ Acct # 0055-068990-060 - QR Acct # 0055-068990-001)

Signature:.....

For Official Use : للإستعمال الرسمي :

Date : .... :التاريخ

Please send this application to:

Dr.H.A.Hajar Al Bin Ali
P.O.Box : 5666
Doha – Qatar
Fax: (974) 4443447

الرجاء إرسال الطلب إلى :
د.حجر أحمد حجر البنعلي
ص.ب : 5666
الدوحـة قطر
فاكس : (974) 4443447