Selected conceptual articles from the open access peer-reviewed journal of Traditional & Integrative Medicine

In The Name Of God

The Beneficent And Merciful

Selected conceptual articles from
The open access peer-reviewed journal of
Traditional & Integrative Medicine

TABLE OF CONTENTS

Part 1: Concept Definition

Part 2: Sample Disease Approach

Part 1

CONCEPT DEFINITION

TRADITIONAL AND INTEGRATIVE MEDICINE
Trad Integr Med, Volume 1, Issue 1, Winter 2016

Editorial

Integrative Medicine: Hope or Hype? A Need and Necessity

Hossein Rezaeizade[1]

[1] *Department of Traditional Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran*

Received: 14 Jun 2015 **Revised :** 24 Jun 2015 **Accepted:** 3 Jul 2015

Editor in Chief

Mainstream of the progress of medical knowledge, which is based on different medical schools of thought, is such that one school of thought takes the priority during a certain period and presents itself as the dominant mainstream. In this way, other approaches are marginalized as alternative or complementary methods.

Over the last few 100 years, the conventional medicine has developed based on atomism and diagnostic approach on the ground of the pathogenic agent and physical reactions at the level of tissue, cells, molecules, and genes, where the treatment is based on chemical medications or controlling highly complex mechanisms inside the body.

Other schools of thought and methods in medicine, including Iranian, Indian and Ayurveda, and Chinese medicine, as well as chiropractic, homeopathy, and osteopathy are also considered as alternative and complementary approaches alongside the dominant mainstream of medicine.

However, today there is a progressive and scientific view that respects every approach which is both safe and effective regardless of the background, root, or authenticity of each of the medical schools of thought that is able to respond to part of hygiene and health services and needs of people by following ethical and cultural principles in a society.

A key principle in the concept of application of integrative medicine is its effectiveness according to evidence so that we could be sure about its effectiveness by considering the safety of that therapeutic intervention. In this way, every safe and effective method belongs to medicine and regardless of all nonscientific prejudices; the pure term of medicine would not have any prefixes or suffixes.

However, one should note that medicine will teach us a king of integration that attend to the entire existence of human beings as a continual body along with all living and humane dimensions including the environment, the spirit, mind, though, and body together with the genetics and molecular and cellular performance. In this way, we are facing a totally complex human with highly special known dimensions and aspects that we will know in the future necessitating us to know him or her more and more every day.

It seems that in today's world, the best way to serve patients both in diagnostic and therapeutic stages is the application of integrative medicine. By following ethical principles and having on-going attention to proper investigations, this approach should be institutionalized at universities and among medical students and researchers.

Iranian medicine is also one of the longest serving medical schools of thought in the world being taught in Europe until 200 years ago. It's most important approach is an emphasis on prevention and reformation of lifestyle and then therapy using natural and herbal medicines and some manual interventions. Great Iranian scientists such as Ibn-E Sina, Zakariya Razi, and Ali-Ibn Abbas

Corresponding Author: Hossein Rezaeizade
Email: hosseinrezaeizade@gmail.com

Ahwazi have perpetuated this medical school of thought by writing important books including Al-Ghanoon, Al-Havi, and Kamil-o Assaneh. This school of thought itself has been an integration of traditional Iranian medical school, Greek medicine, and Indian medicine.

Today, by establishing the deputy of traditional medicine in the Iranian Ministry of Health and Medical Education and formation of traditional medicine faculties particularly in Tehran's University of Medical Sciences – as the largest medical science university in Iran – great hopes have been developed for development of the integrative medicine approach in Iran. Through novel diagnostic and therapeutic achievements accomplished in medicine and generation of scientific evidence-based on research in the Iranian medicine, this school would be recovered again. This type of medicine can also be benefited from for promotion of health and helping prevent and treat some diseases and to reform lifestyles.

Citation: Rezaeizade H. **Integrative Medicine: Hope or Hype? A Need and Necessity**. Trad Integr Med 2016; 1(1): 1-2.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 2, Issue 3, Summer 2017

Review

The Concept of Temperaments in Traditional Persian Medicine

Laila Shirbeigi[1], Azadeh Zarei[1], Ayeh Naghizadeh[1], Mahdi Alizadeh Vaghasloo[1]*

[1]*Department of Traditional Persian Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran*

Received: 23 Jul 2017 **Accepted:** 6 Aug 2017

Abstract

Temperament is a key concept in comprehending the fundamentals of traditional medicine, based on which individuals are classified as healthy and ill. This principle plays an important role in determining ways to maintain good health and also in treating diseases. Recently receiving increasing attention in conventional medicine, the trend has progressed towards treating the *individual* rather than the *illness* in general. Accordingly, studies have been conducted to investigate the relationship between temperament and proteomes in the human body. This article is an attempt to review the definition and classification of temperament, its modifying factors, and categorization of dystemperaments as discussed in Traditional Persian Medicine references. Clarifying this concept has a vital role in health recognition and maintenance, treatment of diseases as well as in traditional medicine studies.

Keywords: Temperament, Traditional Persian Medicine (TPM), Avicenna, Mizaj, Blood Production and Distribution Doctrine

Citation: Shirbeigi L, Zarei A, Naghizadeh A, Alizadeh Vaghasloo M. **The Concept of Temperaments in Traditional Persian Medicine**. Trad Integr Med 2017; 2(3): 143-156.

Introduction

Complementary medicine is considered as an acceptable, efficient method to treat diseases in accompaniment with conventional medicine; the position of which has been promoted in the recent years [1]. As demonstrated in a study in the US (2002), 62% of adults use at least one alternative medicine method per year [2]. Also, a high percentage of people in Asian and African countries benefit from complementary medicine for treatment [3]. One of the important roles of the health care system is to create equality in access to treatment services for all members of the public. Moreover, an essential role of social justice is to promote health in all divisions of the society with priority of prevention over treatment or health promotion [2]. This issue is crucially important and systematic in alternative medicine, especially in Traditional Persian

*Corresponding author: Mahdi Alizadeh Vaghasloo
Department of Traditional Persian Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran
Email: m-alizadehv@sina.tums.ac.ir
Tel: 021-88990837-105

Medicine (TPM). Meanwhile, complementary medicine also plays an important role in reducing treatment costs. TPM is considered a rich and known source in the healthcare field of medical history to the point that in a period of history, it has been used as an educational reference even at universities in European countries [4]. TPM, being comprehensive in the fields of prevention, disease control and treatment has rich and efficient advice on lifestyle, providing natural, safe and low-cost treatments [5]. Despite numerous similarities in terms of disease descriptions, symptoms, and involved organs, TPM has special and fundamental concepts that are not considered in conventional medicine. Temperament is a key basic factor in traditional schools of medicine applied in conceptualizing, diagnosing and treating diseases. This concept is generally accepted in conventional medicine in the form of individual differences in various physical, mental and personality traits among individuals [6]. Although genetics and pathophysiology have suggested some hypotheses for these variances [7, 8], the reason for such differences is still unclear. In Islamic literature, biodiversity is known to be a gift dedicated by the creator that not only displays his knowledge and ability in creation but also benefits to correlate and keep creations dependent on each other through their different needs and capabilities and thus enabling the formation of ecosystems and especially human social relationships and societies [9, 10]. It seems that understanding the concept of temperament will greatly help understanding these differences [11, 12]. Dissimilarities in body reactions against a pathogen and response to treatment arise from this concept. For this purpose - since 1950 continued up to present - many studies have been conducted in order to provide new models for temperament [13-15]; and to build new approaches to conventional medicine with respect to it [16]. Despite the popularity of these studies in conventional medicine, the use of temperament has still remained limited to psychiatric and psychological scopes. Moreover, conventional medicine has also recently replaced the use of "a similar treatment for all individuals affected by a certain disease" with "personalized medicine" [17], a principle constantly practiced by TPM physicians as a treatment based on temperaments. Due to the fundamental importance of temperament in TPM, introducing and defining the concept of temperament becomes mandatory for efficient use of the knowledge and recommendations of this medical school. The aim of this study is to describe the concept of temperament and its classification from the perspective of TPM masters.

Methods

To accurately comprehend the concept of temperament and its classification, we searched the electronic version of selected main resources of TPM by the Farsi/Arabic equivalent for temperament, termed ***"Mizaj"*** مزاج . In order to recognize the classifications listed in the studied books, the searched contents were read, reviewed and classified in a table consisting of definitions, categories, temperament of age, temperament of gender, temperament of seasons, temperament of waters, temperament of winds, temperament of cities, temperament of body organs and temperament causes.

In this study, ten main books of Persian Medicine sages of 10th-19th centuries who have written their books in Arabic or Farsi were used. These ten books included "*The Canon of Medicine*" (Avicenna, 11th century), "*Hidayat al-Muta`allemin Fi al-Tibb*" (Abu Bakr Rabee Ibn Ahmad Al-Akhawyni Bokhari, 10th century), "*Mofarah Al-Gholoob*" (Muhammad Akbar ibn Mir Hajji Muhammad MuqimArzani, 18th century), "*Kāmil al-ṣinā'ah al-ṭibbīyah"* (Ali Ibn al-Abbas al-Majusi, 10th century), "*Zakhire*

Khwarazmshahi" (Ismail Gorgani, 12th century), "*KholasatAlHekma*" (Aghili, 18th century), "*Kitab al-Mansouri fi al-Tibb*" (Abu Salih al-Mansur Al-Razi, 10th century), "*Bahr Al-Jawaher"* (Heravi, 16th century), "*Exir Azam*" (Nazem Jahan, 19th century), "*Al-Shamil fi al-Tibb*" (Ala-al-din abu Al-Hassan Ali ibnAbi-Hazm al-Qarshi al-Dimashqi, 13th century).

Results

Exploring the equivalent word for temperament, which is ***"Mizaj"*** **مزاج** in the above mentioned selected Arabic and Persian TPM references, we reached the following classification of data:

Definition of Temperament

In Persian Medicine, the four classical elements of earth, water, air and fire are the constituents of creation on earth. The names are only symbols to resemble and bring to mind the physical characteristics of each by comparing it with an external examinable object. These philosophical elements being considered non-degradable into a different substance are therefore not comparable with elements of the periodic table and thus yet to be discovered.

These four elements have four natures of warmness, coldness, dryness and wetness [18]. In fact, ***"elemental fire"*** **آتش عنصری** is extremely warm and then dry, while ***"elemental air"*** **هوای عنصری** is mostly moist and then warm, ***"elemental water"*** **آب عنصری** extremely cold and then moist, and finally the ***"elemental earth"*** **خاک عنصری** is extremely dry and then cold. The contact of these elements with each other followed by interactions between their opposing qualities, ultimately results in a compound with a new homogenous quality or ***"Mizaj"*** **مزاج**, meaning temperament [19]. It is therefore notable that temperament may be considered as a coordinate in a two dimensional quality spectrum plane with two axes of hotness and wetness (Figure 1). There are an infinite number of temperaments in the universe per all living and non-living creatures, since the elements may combine together in infinitive patterns of proportion.

Causes of Temperament

According to the sages, four factors are required for the appearance of any phenomenon in the universe. These four factors or causes include:

1. Material cause
2. Agent cause
3. Formal cause
4. Final cause

To make it clear with an example we might consider **a carpenter** - the agent cause - that works on **wood** - the material cause - to build **a wooden desk** - the formal cause - for **students to study on, in the library** which is the final cause and purpose.

In summary, the material cause of human temperament is food. Human food includes animal meat and plants, which are also made up of the four "*philosophical elements*". The temperament's agent cause is the innate heat or the ***"Haar"*** [20] **حار غریزی**, and its formal cause, the nine types of temperaments. "Issuance of activities" comprises the ultimate cause of temperament, and in human beings is classified into two categories of physical and mental actions and reactions. In other words, food is changed by the ***"Haar"*** to suitable blood that nourishes the tissues and gives them their optimum quality composition or temperament. A suitable temperament provides conditions for proper physical and mental actions and reactions [21].

Classification of Temperaments

Temperament is divided into two categories by a reasonable classification [22]:

1. Moderate Temperament مزاج معتدل
2. Non-Moderate Temperament مزاج خارج از اعتدال

Moderate temperament is also classified into groups of true moderate معتدل حقیقی and medical hypothetical moderate معتدل فرضی طبی. In the true moderate temperament, the quantity of opposite qualities is considered equal. This type of moderate temperament does not exist in reality, because the qualitative potency of different elements is not the same in similar quantities and thus, equalizing the quantities imbalances the qualities and vice versa; therefore, the quality and quantity of a compound cannot be adjusted to yield a truly moderate temperament. Despite the notion that the true moderate temperament does not exist, a physician needs a milestone to estimate the amount of deviation of a temperament from desirable coordinate in the quality spectrum. Taking into account different populations, the sages have considered several hypothetical moderate temperaments, which are mainly the modal points of each population. These eight temperaments are categorized into four pairs as follows [22]:

A. Typical Moderate Temperament

Typical moderate temperament is classified as the following:

1. External typical moderate temperament (معتدل فرضی نوعی خارجی): the temperament of mankind compared to other creatures, like inanimate objects, plants and animals, which is usually defined by their effect on the human body when consumed, or applied externally (Figure 1).

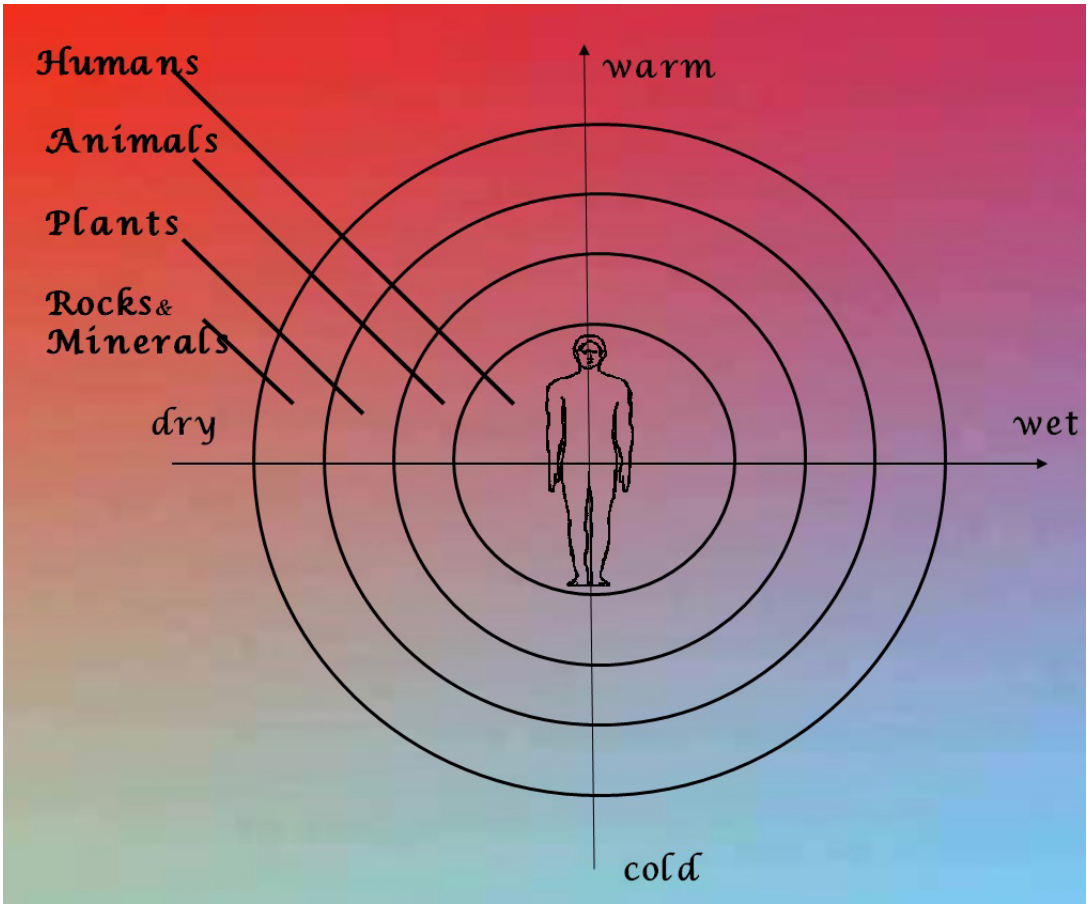


Figure 1: The schematic position of the human temperament in respect to other creation in the coordinate plane of temperaments (The external typical moderate temperament)

1. Internal typical moderate temperament *(معتدل فرضی نوعی داخلی)*: is the most moderate temperament within the human population (Figure 2, person "*e*").

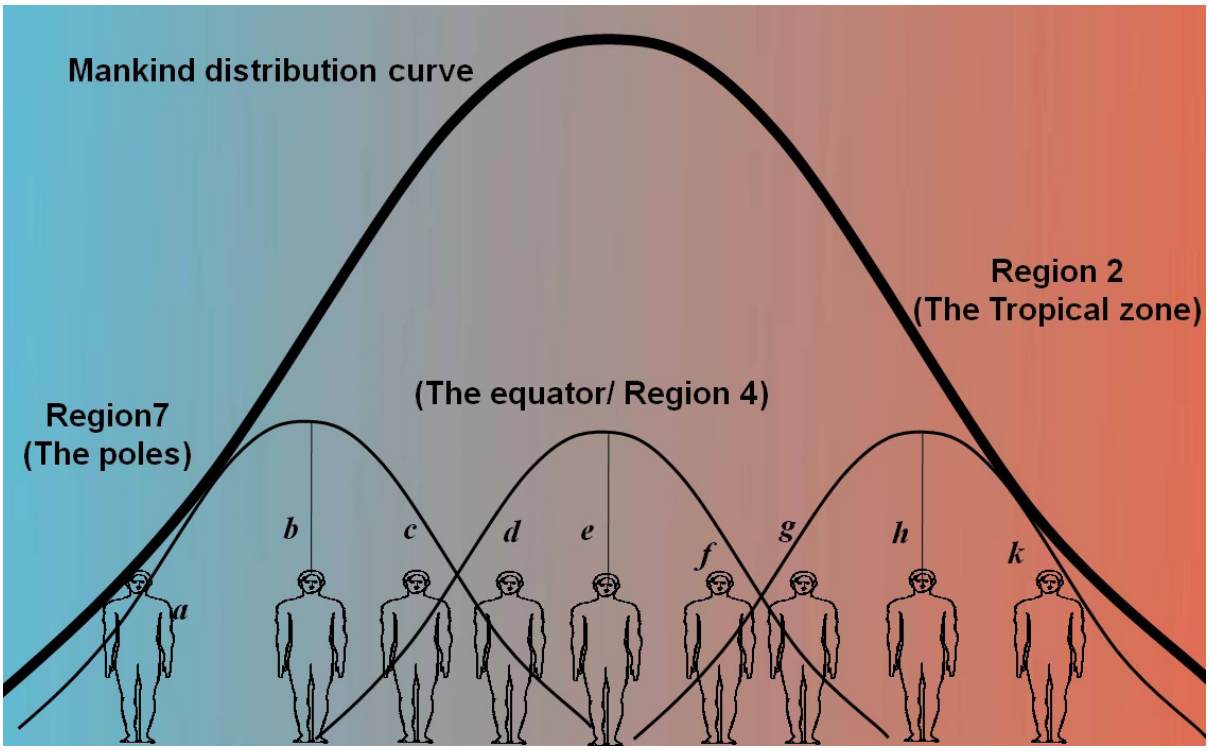


Figure 2: Subdivisions of the human temperament based on the residential population of each climate zone

B. Guild (Caste) Moderate Temperament

Guild moderate temperament consists of the following:

1. External guild moderate temperament *(معتدل فرضی صنفی خارجی)*: refers to the most moderate tempered human guild in comparison to the temperament of people outside that class; for example, it has been claimed by Avicenna - the most famous worldly wide known Muslim Iranian polymath and TPM physician - that the most moderate temperament belongs to the residents of the equator followed by residence of the moderate climate zone [22]. It is deducible that the temperament of people living in the tropical regions above and below the equatorial region is therefore warmer than those living in the equator or the moderate zone (Figure 2).

2. Internal guild moderate temperament *(معتدل فرضی صنفی داخلی)*: refers to the temperament of the most moderate person within each class (guild); therefore, every guild of people has its own moderate temperament representative, which has the modal temperament of that guild (Figure 2, person "*b*" in the seventh region, person "*e*" in the equator or the forth region and person "*h*" in the second region). However, this representative may not be the healthiest person in that climate, since in a tropical climate for instance, such a moderate person (Figure 2, person "*h*") is more susceptible to hyperthermia than a much colder tempered person from the same guild (Figure 2, person "*g*").

C. Individual Moderate Temperament

Individual moderate temperament comprises of the following:

1. External individual moderate temperament *(معتدل فرضی شخصی خارجی):* refers to the temperament of a person in a guild who is furthest from being affected by the quality surrounding the guild, which means he or she is closer to the *"Internal typical moderate temperament"*, i.e. person "*e*" in Figure 2. Such a person in a tropical climate is considered relatively cold tempered in that climate (person "*g*" in region two) and will not shift towards a hot dystemperament as easily as others of the same guild. Being closer to temperate in a warm climate makes this person healthier in such zones. By the same reasoning, person "*c*" in region seven is protected from hypothermia or other cold tempered diseases than the modal person "*b*" in the same region who had the label of *"Internal guild moderate temperament"* of that region.

2. Internal individual moderate temperament *(معتدل فرضی شخصی داخلی):* refers to the temperament of a person in his best state of temperament in comparison to other stages of his/her lifetime (persons marked with "*T*" in Figure 5).

D. Organ Moderate Temperament

Organ moderate temperament includes the following:

1. External organ moderate temperament *(معتدل فرضی عضوی خارجی):* refers to the skin especially that of the fingertips, which is assumed to have the most moderate temperament in comparison to other organs.

2. Internal organ moderate temperament *(معتدل فرضی عضوی داخلی):* refers to the normal and optimal temperament of each organ in an optimum state compared to other states of the same organ; for example, the middle set brain and heart in Figure 3. The eight other brains and hearts illustrated around but inside the circles are non-moderate but healthy organs and the eight brains and hearts drawn outside the circles are dystempered diseased organs. Each of these seventeen temperamental locations of heart, brain or any other major organ has been addressed in the literature by a short list of signs and symptoms in order to be discriminated from the rest.

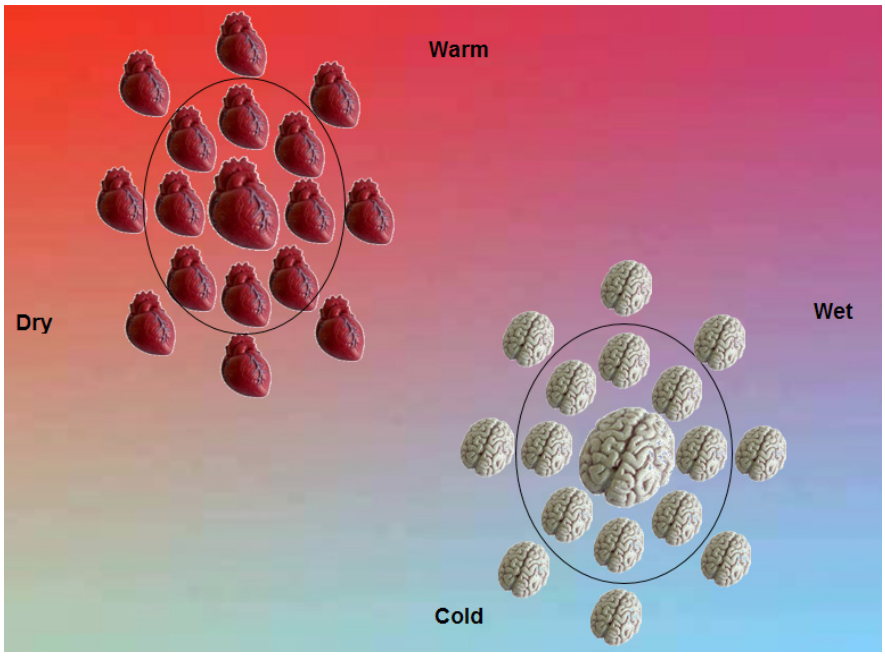


Figure 3: The comparison and distribution of temperaments of the heart and brain as an example in the coordinate plane of organ temperaments

Non-moderate temperament (Figure 4) includes eight types, consisting of four singular (warm, cold, wet, and dry) and four combined (warm-wet, warm-dry, cold-wet, cold-dry) types. A singular temperament implies that classical elements have reacted together in a manner that only one quality has overcome to reveal its feature, while a combined temperament indicates that the reactions between elements has occurred in such a way to reveal two qualities simultaneously. As demonstrated in figure 4, there may be many people, and therefore, an infinitive number of temperaments in between these representatives. However, to facilitate the diagnostic process, the two dimensional spectrum of normal temperaments is practically grouped into nine sections or groups of considerably similar clinical manifestations.

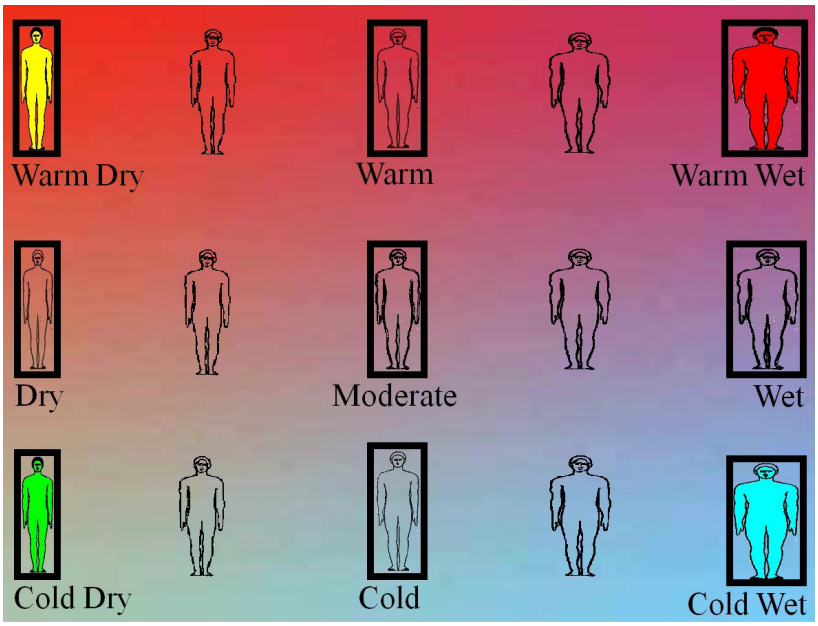


Figure 4: The eight non-moderate temperament groups and the one moderate temperament group of humans in the coordinate plane of normal human temperaments

Temperament of Age and Sex

The life years of human beings are divided into four categories of childhood and adolescence, youth, middle age and old age from the perspective of philosophers and sages. They believed that the body resembled a lantern burning with a liquid fuel, where the burning flame corresponds to the innate heat or ***"Hararat-e-Gharizi"*** ***حرارت غریزی***, and the liquid to the innate moisture or ***"Rotoobat-e-Gharizi"*** ***رطوبت غریزی***. It is noted in the literature that throughout life, the innate moisture eventually decreases by factors like consumption, consequently leading to a decline in the innate heat. This change in the amount of moisture and heat, changes the body temperament gradually during lifetime; therefore, the body will have a certain temperament in each age period. Childhood and adolescence - from birth to age thirty - have a warm and moist temperament. The innate heat in children-from birth until the end of growth- is similar to youth, while the amount of moisture is greater due to the need for growth and development [23]. This excess moisture masks the intensity of heat in contrast to the youth period, including ages 30 through 40. The most moderate temperament in contrast to other periods of life belongs to the youth [22], who have a warm and dry moderate

temperament. By the onset of middle age (40 to 60), the innate moisture and subsequently the innate heat begin to decline more evidently and this decreasing trend continues to the old age (after age 60), and the body will experience a cold and dry temperament. In this period of life, the temperament of the main organs reaches its coldest and driest state; but despite this dryness, an accumulation of harmful moistures may occur in some elders resulting in the ***"Bad-Anbasht Syndrome"*** discussed in previous articles [24] and thus, symptoms of coldness-wetness, instead of coldness-dryness develop in these individuals. In figure 5, a schematic model of the effect of age on temperaments is illustrated, with the temperaments color coded. It is shown that the closer to the center circle, the more temperate and healthy a person will be in a certain age (persons marked with "*T*").The opposite is true for the persons marked with "*D*", who are more deviated from the central circle of the spectrum making them susceptible to a dystemperament with the same quality of the direction of deviation. For example, in childhood, a warm-wet tempered baby – marked with "*D*" in the far right side of the diagram- is more susceptible to a warm and wet tempered disease like diaper rash especially at the warm-wet season of spring. This is because warmness and wetness accumulate much more than physiologically tolerated in such a situation. The uncertainty and diversity shown at the old age in the far left side is due to the various amounts of unsuitable moisture deposition in this age group leading to the cold temperament of the elderly to be accompanied by varying degrees of dryness and wetness. As stated in TPM references, there are certain laws on the temperaments of men and women. In all classes of organisms, including humans, the temperament of the male is slightly warmer and drier than that of the female, and the female's temperament is somewhat colder and wetter [21, 23].

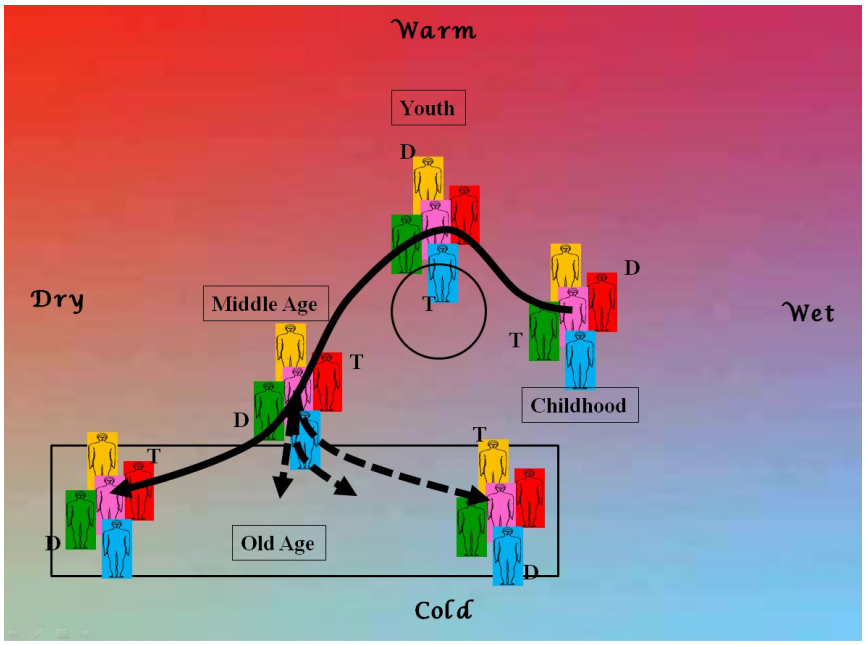


Figure 5: Schematic model of the effect of age on temperaments ("T" marks the most temperate person in each age group; "D" marks the person most vulnerable to dystemperament in each age group. Red is for warm-wet temperament, yellow is for warm-dry temp., pink is for moderate temp., green is for cold-dry temp., blue is for cold-wet temp)

Temperament of Seasons and Places

According to TPM references, each season of the year has a particular temperament. The temperament of spring, which is the most moderate season, is warm and wet, while the summer is warm-dry. The temperaments of autumn and winter are cold-dry, and cold-wet respectively [25]. Even regional winds have their own temperament according to the latitude and longitude of each location and the geographical positions of mountains and the sea. This means that their temperaments may change the temperaments of the living organisms especially humans and shift them towards their own [26]. For example, a hot weather, climate or wind may warm up the temperament of people exposed to them. These climatic effects may not be very intense due to the defensive mechanisms of intelligent and warm blooded human beings as they may change their clothes or environment intellectually or their blood circulation physiologically. As pointed out briefly before, the sages have divided the northern and southern hemispheres each to nine latitudinal regions starting from the narrow equatorial region to the hot 1st-3rd hot regions corresponding with the modern tropical zone, the forth region or the moderate zone and finally, to the5th-7th cold regions, leaving the nonresidential polar regions unnamed. In figure 6, a rough correlation has been shown between the conventional and traditional classifications [27] of the global regions.

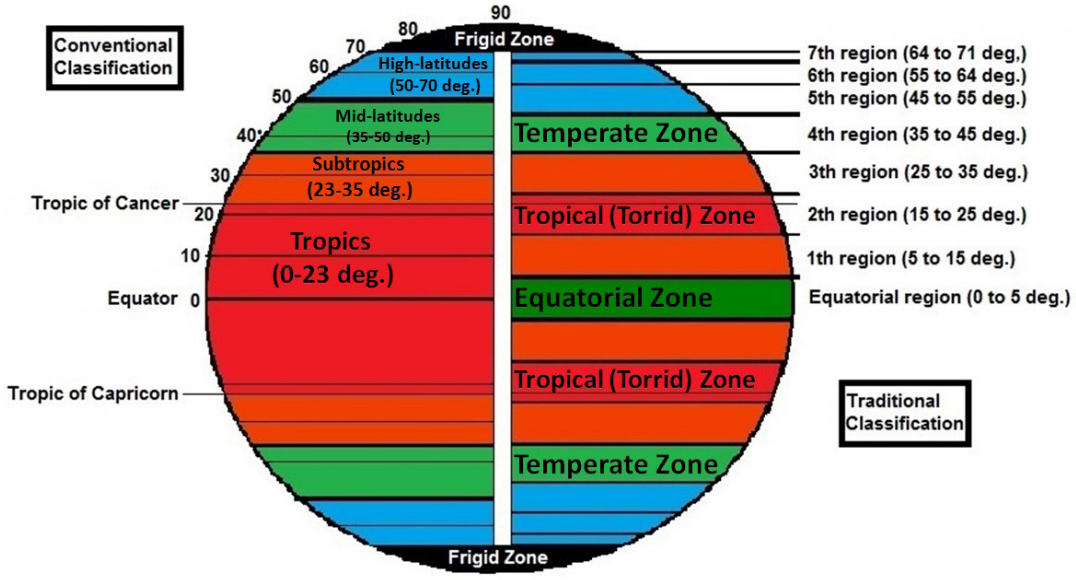


Figure 6: A comparative schematic illustration of the conventional and traditional classifications of the global regions

Although there are disagreements in different books about the most moderate geographic area and despite Avicenna's opinion on the first zone being the most moderate, some believe this to be true about the fourth zone [21], modern geographical evidence demonstrate that the narrow equatorial belt has the most suitable climate for life. Due to a moderate heat and moisture, this well-nourished area hosts an incredible plant and wildlife ecosystem in the form of the tropical rainforests all around the globe (Figure 7).

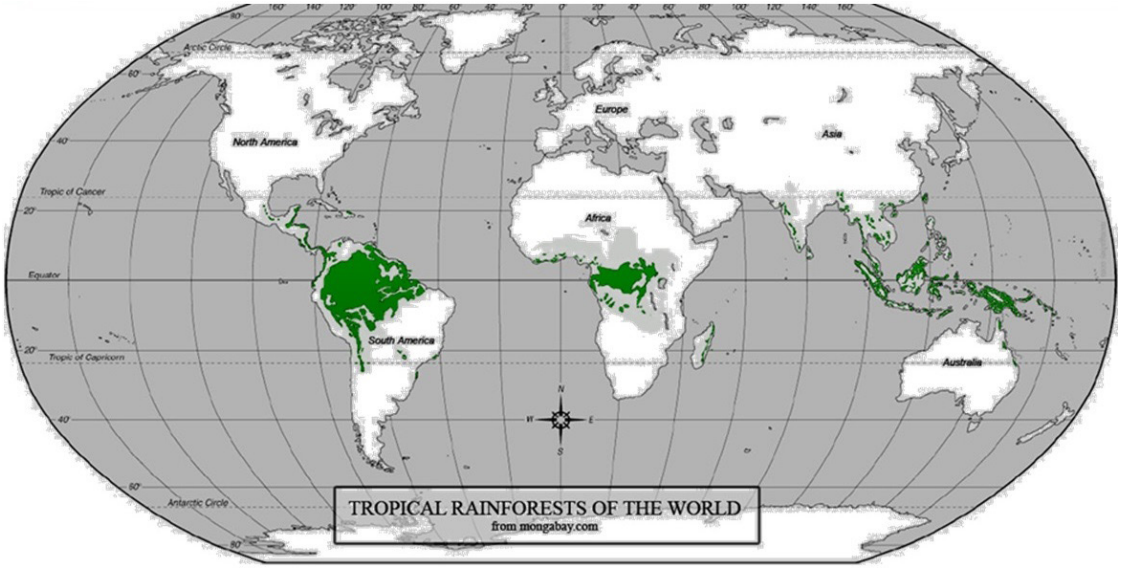


Figure 7: Tropical rainforests around the world located on the equatorial line are mostly surrounded from the north and south by tropical hot dry deserts (with permission from kids.mongabay.com)

Temperament of Colors

According to TPM sages, the four humors of blood, phlegm, yellow bile and black bile have specific temperaments. These humors each have their own specific color. The red color, as blood humor, has a warm and wet temperament, and the color yellow, as yellow bile humor, has a warm and dry temperament. White, similar to phlegm humor, has a cold and wet temperament, while black, like black bile humor, has a cold and dry temperament [21].

Temperament of Organs

As discussed previously, each body organ has a specific temperament at which it will have its best function. The sages consider man's skin as the most moderate organ, and describe the temperament of other organs compared to this organ [28]. For example, the heart and the liver have the warmest, and the bone, the coldest temperaments. Other examples are hair, being the driest and fat, being the wettest organs [26]. Indeed, body organs have a composite temperament; for instance, the bone has a cold-dry temperament, while adipose tissue has a cold-wet temperament. Avicenna notes that although the three vital organs - the brain, the heart and the liver - are warm and wet generally due to being the container and source of the spirits and the ***"Haar"***, but in comparison to each other the brain is cold-wet, the liver warm-wet, and the heart warm-dry [22]. The paradox of a cold versus warm temperament for the brain has been previously discussed by colleagues [29]. In recent studies the brain excluding the cerebellum has been shown to have approximately four times more non-neural cells [30]. It seems that the core of the functioning brain, which is practically comprised of neurons, has a hot temperament but the dominant glial cells, the myelin and the cerebrospinal fluid are cold-wet, which may have a function of cooling and feeding the hot core.

Table 1. Avicenna's quote from Galen about the temperament sequence of bodily materials, tissues and organs. (Avicenna's commentaries on some organs have been numbered in the table and discussed in the text)

Warm to moderate	Cold to moderate	Dry to moderate	Wet to moderate
Spirit and heart[1]	Phlegm	Hair	Phlegm
Blood	Hair	Bone	Blood
Liver	Bone	Cartilage	Parietal fat
Meat[2]	Cartilage	Ligament	Visceral fat
Muscle[2]	Ligament	Tendon	Brain
Spleen	Tendon	Aponeurosis	Spinal cord
Kidney[3]	Aponeurosis	Artery	Breast
Artery[4]	Nerve	Vein	Testicles
Vein[4]	Spinal cord	Motor nerve	Lung[5]
Skin	Brain	Sensory nerve	Liver
	Visceral fat	Skin	Spleen
	Parietal fat		Kidney
	Skin		Muscle
			Skin

Avicenna, quoting the above mentioned sequence of temperaments from Galen, points out several items which may decode the source of temperament formation. These issues are as follows [22]:

1. The hottest materials in the body are the "***Haar"*** or the soul, the heart and then the blood.
2. Meat is generally known to be warmer than the muscle because it is considered as coagulated blood, but in the muscle it combines with the cold tempered – hard dense - nerves and tendons so the muscle does not receive as much warmness and wetness of blood.
1. The flesh of kidneys being harder and denser than liver, meat, muscle and spleen is considered to receive less blood and thus less warmness.
2. The veins containing mostly blood and less spirit or ***"Haar"*** are also known to have a colder temperament than the arteries.
3. The primary instinctive temperament of every organ is similar to what it feeds from. Accumulation of waste products in the organ may change this temperament and result in a secondary acquired one. For instance, the lungs primarily feed on the hottest part of the blood mixed with bile but may be infiltrated with excess damp due to vapors rising from lower body parts, or discharges spilling from upper parts of the body. This may result in a very wet dystemperament, making the lungs susceptible to damp diseases such as asthma.

It is deducible from the above items that blood, the soul originating from it, the heart pumping them throughout the body, and the amount of their penetration in different tissues and organs dedicate a diverse combination of warmness and wetness and thus temperaments to tissues.

Food and Drugs Temperament

Food and drugs also have temperaments; for example, white mulberry has a warm and wet temperament, while watermelon is cold-wet. Raspberries have a cold and dry temperament and mango has a warm and dry temperament [31].

The actions of drugs or food-drugs in the human body are categorized into three levels, namely "primary", "secondary" and "tertiary" acts. "Primary" and "secondary" actions affect almost the whole body, whereas the specialized minor "tertiary" actions are related to a particular organ.

"Primary" actions are general actions attributable to the direct effect of the four qualities like heating, cooling, wetting and drying effects.

"Secondary" effects are semi-general actions deriving from indirect effects of the four qualities, like the closure of pores due to coldness, or loosening of tissues as a result of heating or wetting.

"Tertiary" actions are related to the specific structure of the drug and its affinity to a specific organ with the tendency to receive and show the effects of that drug. This action is a concept

similar to the modern molecular ligand-receptor reaction.

The first two effects may be directly or indirectly justified by the simple or compound temperament of the drug's particles. For example, chamomile is warm and dry, and therefore not only fairly heats the body by its primary effect but also opens the enclosed pores and fenestrations of the body and loosens hardened material; acting as a diuretic, antispasmodic and anticatarrh and etc. secondarily.

The potency of drugs is described in a degree scale from one to four, based on the amount of deviation they impose on the temperament of a temperate body in vivo. Each degree is subdivided to three levels adding up to overall twelve subdegrees of temperament. Thus, the more warmer or colder the drug becomes, the more it is displaced towards the third level of the forth degree - the twelfth subdegree - which makes it more effective in changing the temperate body towards hotness or coldness respectively, and also more potent to cause side effects and even lead to toxicity if consumed in high doses [22].

Discussion & Conclusion

Temperament or ***"Mizaj"*** is a key concept in TPM, evidences for which have been demonstrated in proteomics studies carried out by our colleagues [32].

It is defined as the final homogenous quality derived from the interactions of contrasting qualities - warmness, coldness, wetness and dryness - of the four philosophical elements when they combine with each other to form the compound materials of the universe.

Accordingly, everything including food and drug and even conditions like the climates and weather has its own temperament determined by the change it imposes on the temperament of human beings. Due to this effect, their temperaments can be used to maintain health or treat diseases in different individuals, particularly in relation to personalized medicine [33].

Based on the definitions, we come to the conclusion that moderate temperament is a person's temperament being in the range of health where all his body organs are in their best condition. In fact, in a moderate temperament, the accuracy and perfectness of actions issued by the organs, and generally, by the whole body remains relatively stable in different situations. In contrast, displacement of a temperament from its moderate center toward the edges of the quality spectrum make the person susceptible to a dystemperament or ***"Su-e-Mizaj"*** سوء مزاج named as the same exceeding quality. For example, the excessive use of a cold tempered drug may push a tempered individual towards the cold edge of the spectrum causing primarily a cold temperament and gradually a cold dystemperament. This deviation in temperament leads to disturbances in mental or physical actions and reactions of the body by activating some and inhibiting others [34]. As in the previous example, the mental and physical actions and reactions of the body may generally reduce in intensity, speed and frequency due to coldness.

Large groups of diseases are precipitated by dystemperaments aroused in an organ or the whole human body; therefore, preventing or treating diseases may be facilitated by recognition and treatment of the underlying dystemperament. The temperament and dystemperament of the whole body or specific organs have been allocated by the sages with scenarios of symptoms and signs accumulated during centuries of observation and clinical experience. The recognition and discrimination of the dystemperaments are thus theoretically possible from medical history taking, physical examination and summation of data. Although this method may lead to a major and rough classification of people in restricted types of dystemperaments, but it is mostly impractical, imprecise and confusing when there

are compound paradoxical dystemperaments of different organs simultaneously. It is because of these problems that we have tried to find a new - but loyal to the text - model to describe and discuss the source of different and inconsistent concurrent dystemperament formation in a single individual. Concluding from this research, it seems that the production of blood and its distribution from the heart via the vessels throughout the body can be considered as an important key factor in creating and changing the temperaments. In modern physiology, the arterial blood is known to receive its nutrients and chemical energy from the liver and the lungs and its pressure and mechanical energy from the heart and then distribute them throughout the whole body. Similarly, in TPM literature the blood is the vehicle of the ***"Haar"*** and heat. The ***"Haar"*** itself is the sum of the liver's natural spirit and the heart's vital spirit [20]. Therefore, the circulation of blood transfers and provides both the mass and the heat needed for the formation of temperaments and accomplishment of tissue functions. It has even been clearly stated that the body receives its heat from the circulating sanguine and bile that are the hot components of the blood [22].

This issue clarifies why the organs with more blood supply, such as the heart and liver, are considered organs with warm temperaments and those with lower blood supply, such as hair and bones, are seen as cold tempered ones. Through understanding these mechanisms in the human body, a more accurate recognition of temperaments and its deviations can be made. The writers of this article aim to emphasize again the ***"Doctrine of Priority of Blood Production and Distribution over the Formation of Temperaments and Dystemperaments"*** discussed in previous articles [35]. This doctrine may help solve the simultaneous paradoxical dystemperaments in a particular patient and may clarify the steps of treatment by emphasizing on the management of major shared causes of blood production and distribution instead of simultaneous diverse drug prescription for each organ dystemperament in an individual. The dimensions and clinical evidence of the above doctrine are yet to be discussed in more detail in future articles.

Conflict of Interests

None.

Acknowledgments

None.

Refrences

[1] Landis E, Davis S, Feldman S, Taylor S. Complementary and Alternative Medicine Use in Dermatology in the USA. J Complement Med 2014;20:392-398.

[2] Nahin R, McFann K, Barnes P, Powell-Griner E. Complementary and alternative medicine use among adults: United States, 2002. Seminars in Integrative Medicine 2004;2:54-71.

[3] WHO Traditional Medicine Strategy 2002-2005. Geneva 2002; pp. 1-3; pp. 43-47.

[4] Aciduman A, Er U, Belen D. Peripheral nerve disorders and treatment strategies according to Avicenna in his medical treatise, Canon of Medicine. Neurosurgery 2009;64:172-177.

[5] Rezaeizadeh H, Alizadeh M, Naseri M, Shams-Ardakani MR. The Traditional Iranian Medicine Point of View on Health and Disease. Iran J Publ Health 2009;38:169-172.

[6] Hall JE. Guyton and Hall Textbook of Medical Physiology: Enhanced E-book. Elsevier Health Sciences. United State 2010 [In English].

[7] Roses AD. Pharmacogenetics and the practice of medicine. Nature 2000;405:857-865.

[8] Naseri M, Rezaeizadeh H, Taheripanah T, Naseri V. Iranian traditional medicine theory and a variety of therapeutic response based on pharmacogenetics. IranTrad Med 2010;1:237-242.

[9] The Holy Quran, Chapter 24, Verse 45; Chapter 35, Verse 1; Chapter 49, Verse 13; Chapter 71, Verse 14.

[10] Saduq MA. Al Emali, Vol 1. Ketabchi. Tehran 1997; p 446 [in Arabic].

[11] Rothbart MK. Biological Processes in Temperament. Wi-

ley. Sussex. England 1989; p29.
[12] Keltikangas-Jarvinen L, Ravaja N, Viikari J, Identifying Cloninger's temperament profiles as relatedto the early development of the metabolic cardiovascular syndrome in young men. Arterioscler Thromb Vasc Biol 1999;19:1998-2006.
[13] Hogan R, Johnson JA, Briggs SR, Handbook of personality psychology. Academic Pr 1997; p 112 [In English].
[14] John OP, Robins RW, Pervin LA, Handbook of personality: Theory and research: The Guilford Press. 2008; p 403 [In English].
[15] Cloninger CR, A systematic method for clinical description and classification of personality variants: A proposal. Arch Gen Psychiatry 1987;44:573-588.
[16] Pulkki-Raback L, Temperament, socioeconomic status and cardiovascular risk. University of Helsinki 2004; p 92-99.
[17] Hamburg MA, Collins FS, The path to personalized medicine. N Engl J Med 2010;363:301-304.
[18] Rafati, Vahid. Lawh-i-Hikmat: The Two Agents and the Two Patients. Vol 5. Andalib. pp 29-38.
[19] Heravi M. Bahr al-Jawaher. Jalaluddin Publications. Qom 2008; p 347 [in Arabic].
[20] Alizadeh Vaghasloo M, Naghizadeh A, Babashahi N. The Concept of the Haar-re-Gharizi and Hararate Gharizi: The Innate Hot [Substance] and Heat. Trad Integr Med 2017;2:3-8.
[21] Aghili Shirazi M. Khulasah al-Hikmah. Vol 1. Esma'ilian Publications. Qom 2006; p 52; p 54; p 426 [In Persian].
[22] Avicenna. The Canon of Medicine. Vol 1.AlMayi. Tehran 2014; p5; pp 67-71; p87; pp 301-304; p326; p362 [In Arabic].
[23] Jorjani IIMa-H. Zakhirah -E- Kharazm Shahi. Bonyade frahange Iran. Tehran 1976; p 23; p 25. [In Persian].
[24] Alizadeh Vaghasloo M, Zareian MA, Soroushzadeh SMA. The Concept of Nozj. Trad Integr Med 2016;1:133-135.
[25] Ahvazi AA. Kamel al-Sana'a al-Tebbiya.Vol 3. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; p 434 [In Arabic].
[26] Razi M. Al-Mansori fi-Teb. The Uni of Med Sci. Tehran 2008; p 41; p 163 [In Persian].
[27] Safinejad J. Onsolmohaj and the Geography of the Seven Aghaleems. Gozareshe Miraas 2013; 56:30-41[In Persian].
[28] Arzani HMA. Medicine. Mofarrah al Gholob. 1st ed. Chogan. Tehran 2015; p 18 [In Persian].
[29] Attarfar M, Ashrafzadeh F. Brain temperament in Iranian medicine. J Islm Iran Trad Med 2015; 6:1-8.
[30] Jabr F. Know your Neurons: What is the ratio of glia to neurons in the brain. SciAm 2012; Available from: https://blogs.scientificamerican.com/brainwaves/know-your-neurons-what-is-the-ratio-of-glia-to-neurons-in-the-brain/
[31] Aghili Shirazi M. Makhzan Al Adviyeh. 8th ed. Sabzarang. Tehran 2014; p 173; p 225; p 278; p 472 [In Persian].
[32] Rezadoost H, Karimi M, Jafari M, Protemics of hot-wet and cold-dry temperaments proposed in Iranian traditional medicine: a network-based study. Sci Rep 2016;6:30133
[33] Parvinroo SH, Kamalinejad M, Sabetkasaei M. Pharmacological Concepts of Temperament in Iranian Traditional Medicine. Iran J Publ Health 2014;43:1463-1465.
[34] Emtiazy M, Keshavarz M, Khodadoost M, Kamalinejad M, Gooshahgir SA, Shahrad Bajestani H. Relation between Body Humors and Hypercholesterolemia: An Iranian Traditional Medicine Perspective Based on the Teaching of Avicenna. Iran Red Crescent Med J 2012;14:133-138.
[35] Alizadeh Vaghasloo M, Naghizadeh A, Keshavarz M. The Concept of Pulse. Trad Integr Med 2017;2:54-60.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 2, Issue 3, Summer 2017

Original Research

An Assessment of the Agreement between Persian Medicine Experts on Mizaj Identification

Seyyed Ali Mozaffarpur[1], Roshanak Saghebi[2], Soraya Khafri[3], Morteza Mojahedi[1]*

[1]Traditional Medicine and History of Medical Sciences Research Center, Babol University of Medical Sciences, Babol, IR Iran
[2]Department of Traditional Iranian Medicine, School of Traditional Iranian Medicine, Babol University of Medical Sciences, Babol, IR Iran
[3]Department of Biostatistics, School of Medicine, Babol University of Medical Sciences, Babol, IR Iran

Received: 27 Jun 2017 **Revised:** 2 Aug 2017 **Accepted:** 8 Aug 2017

Abstract

Although Mizaj (temperament) as a basic concept is introduced by ten criteria in Persian Medicine (PM), methods of assessment and priorities of these criteria are unclear. Having expert teams with an acceptable consensus in clinical diagnosis is one of the basic requirements to design and standardize Mizaj diagnostic scales. In this cross-sectional study, three PM specialists assessed the Mizaj of 150 healthy volunteers. At the first step of this study, each participant was separately visited by raters to determine warmness-coldness and wetness-dryness. To assess the agreement between experts, Intraclass Correlation Coefficient (ICC), weighted kappa (wk) and Spearman correlation Coefficient (r) were calculated. At the second step in an expert panel discussion, agreed criteria in 10 criteria of Mizaj identification were extracted. ICC between expert was 0.62 (CI: 0.53-0.73) in warmness-coldness and 0.64 (CI: 0.56-0.72) in wetness-dryness. Wk and r between every two experts were in the range of 0.41-0.60 and 0.58-0.67, in warmness-coldness and in the range of 0.49-0.61 and 0.58-0.69 in dryness-wetness, respectively. In determining warmness-coldness of Mizaj, psychic function, impressibility speed, muscle and fat mass, physical functions and touch condition were mostly used. In addition, muscle and fat mass, touch and sleep condition were mostly used in regard with dryness-wetness aspect of Mizaj. The agreements between three experts seem acceptable. It can be concluded that the weights of 10 criteria for Mizaj assessment in PM are not equal. The aims of the future studies in this field can be weighing these criteria.

Keywords: Traditional Medicine, Reliability, Iranian medicine, Temperament

Citation: Mozaffarpur SA, Saghebi R, Khafri S, Mojahedi M. **An Assessment of the Agreement between Persian Medicine Experts on Mizaj Identification**. Trad Integr Med 2017; 2(3): 113-118.

*Corresponding author: Morteza Mojahedi
Traditional Medicine and History of Medical Sciences Research Center, Babol University of Medical Sciences, Babol, IR Iran
E-mail: mortazamojahedy@mubabol.ac.ir/ mortazamojahedy@gmail.com
Tel.:+989128155065
Fax: +981132194728

Introduction

In recent decades, conventional medicine has payed special attention to biological differences between individuals, while new scientific disciplines such as nutrigenomics and pharmacogenetics are trying to classify individuals according to these differences as the new promising area of personalized medicine [1, 2].

Persian medicine (PM) is one of the oldest paradigms of traditional medicine that has been widespread in Persian civilization since ancient times (8000 yr. B.C.) up to the present time. It fairly was established according to the basic concepts of Mizaj (temperament, nature) [3]. According to this viewpoint, everybody within the defined warm-cold and dry-wet range has its own quality or Mizaj. As long as the individual's quality is in the right conditions, it is known as health Mizaj [4]. Written PM references have proposed some indices for Mizaj identification and named them as Ajnas-e-Ashara (The Ten Criteria) of Mizaj. These ten criteria includes Touch condition, Muscle and fat mass, Hair condition, Skin color, Physique, Impressibility speed, Sleep and wakefulness, Physical functions, Quality of waste matter (stool, urine, sweat), and Psychic function [4, 5].

Although many of the aforesaid references have described the properties of Mizaj identification indices, they are generally considered qualitatively and the method of evaluation, prioritization, weight and status of most of them in determining the Mizaj is not clear [6]. Therefore, significant practical differences are observed in Mizaj identification among PM experts [5]. On the other hand, due to increasing interest in alternative and holistic medicine in recent years, researchers have payed special attention to PM, and to evaluate the relationship between clinical findings of conventional medicine and the concept of Mizaj in PM, various studies have been conducted [7-9].

Although the main focus of such studies is Mizaj of participants, standard scales have not been used to determine the Mizaj, and even some of them did not mention a way to set the Mizaj of volunteers [7]. Even though other schools of traditional medicine have the same problems such as lack of access to standard scales and diversity in medical diagnoses, some important steps have been taken towards standardization of their diagnostic scales [10-12].

Having expert teams with an acceptable level of consensus in clinical diagnosis is one of the basic requirements for designing and standardizing the diagnostic scales [13].

PM as an academic field is novel and less than 100 physicians have been graduated in this field by 2016 and there isn't any report on agreement between PM experts in Mizaj identification.

To take the first step towards developing a standard questionnaire, the present study intends to investigate agreement between PM experts in Mizaj identification and to categorize the criteria used for Mizaj identification

Methods

Sampling

This cross-sectional study was conducted at the school of Traditional Medicine, Babol University of Medical Sciences in the North of Iran. Three PM specialists with at least 5 years of clinical experience were invited and 150 healthy volunteers aged 18-40 years were invited based on convenience sampling. Volunteers with chronic disease or, any disease at the time of the study and those taking any drug continuously were excluded from the study. The method of research was explained to the volunteers and it was emphasized that their personal information will remain confidential. Written informed consent was completed by participants. Ethics Committee of the university approved the proposal.

Visit of participants

At the first step, each participant was visited

by three PM specialists separately (all visits for each participant in one day) and volunteer's Mizaj was determined as warm, temperate or cold in warmness-coldness and wet, temperate or dry in wetness-dryness. The order of visits were rotary (the first visit by a specialist not fixed). Each specialist determined participants' Mizaj based on his/her clinical methods and recorded reason for diagnosis (warm or cold and dry or wet) in an open sheet. As the Mizaj was determined from two aspects, the qualities of cold, temperate and warm were coded as 1, 2 and 3, and of the wet-dry aspect, coded as 1, 2, and 3 for the qualities of wet, temperate, and dry, respectively. The recorded data were entered into the software and analyzed through SPSS (version 20) and STATA (version 11.2).

Statistical analysis

To evaluate the correlation between specialists in determination of warmness-coldness and wetness-dryness of Mizaj, Intraclass Correlation Coefficient (ICC) was calculated and to assess mutual agreement, weighted Kappa (WK) coefficient and Spearman correlation Coefficient (r) were calculated [14, 15]. In this study ICC > 0.7 is considered good agreement, for r and wk, negative scores indicate agreement less than chance, 0.01- 0.20 shows slight agreement, 0.21- 0.40 shows fair agreement, 0.41-0.60 shows moderate agreement, 0.61- 0.80 shows substantial agreement, and coefficient 0.81-1.00 indicate almost perfect agreement [15].

Expert panel discussion

For this section the sheets of cases in which there was complete agreement between experts were extracted. Complete agreement in this step was defined when 3 experts had the same diagnosis in warmness-coldness or wetness-dryness of participant's Mizaj. Then, in an expert panel discussion (with the same experts in step 2), agreed criteria for Mizaj assessment about these cases were defined separately based on two dimensions of Mizaj ("warm, temperate or cold" or "dry, temperate or wet") [13].
Then, the criteria that support each agreed diagnosis commonly between 3 experts were extracted. Usage rate of these common criteria for mentioned cases and their percent were calculated and categorized under 10 criteria of Mizaj assessment (Ajnas-e-Ashara) in separate tables.

Results

This study was conducted in September 2015. Of 150 invited participants9 , participants were withdrawn at baseline7 , participants were taking medication due to chronic disease and 11 participants could not fulfill the whole visiting process. Eventually, the Mizaj of 123 people were determined by three PM experts. 58(47.2%) of volunteers were female and their average age, weight, height and BMI were 23.12 ± 5.17 years, 67.88 ± 15.35 kg, 1.69 ± 0.09m and 23.57 ± 4.05, respectively. Of the three experts participating in the study, two were male and one was female; they have 6-10 years of clinical experience in Mizaj determination.
Intraclass correlation coefficient (ICC) between experts in determining the warmness-coldness Mizaj was 0.62 (0.53 - 0.70) and in determining the dry-wet was 0.64 (0.56 - 0.72). The results of calculating r and wk to assess the mutual agreement is presented in Table 1. In 62 (out of 123) participants (50%), the diagnosis of experts in warmness-coldness were the same (49 warm, 5 temperate and 8 cold). In another dimension in wetness-dryness in 59 (out of 123) participants (48%), complete agreement occurred (25 wet, 5 temperate and 29 dry). In 29 out of 123 cases, there was full agreement between experts in both dimensions (warmness-coldness and wetness-dryness). Criteria of each diagnosis were discussed and common utilized criteria were categorized according to 10 Mizaj criteria (Ajnas-e-Ashara) in Table 2.

Table1: Agreement coefficient between the two raters in two conditions

Mizaj characteristic	raters	r*	wk**(CI 95%)
Warmness-coldness	R_1-R_2	0.67	0.6(0.48-0.72)
	R_1-R_3	0.63	0.5(0.38-0.62)
	R_2-R_3	0.58	0.41(0.3-0.53)
Wetness-dryness	R_1-R_2	0.69	0.56(0.45-0.67)
	R_1-R_3	0.68	0.61(0.5-0.72)
	R_2-R_3	0.58	0.49(0.37-0.62)

*: Spearman Correlation Coefficient

**: Weighted Kappa Coefficient

Table 2: agreed criteria in warmness-coldness between 3 PM experts for Mizaj assessment

Criteria of Mizaj assessmnt	Warmness-coldness (n=62)						Wetness-dryness (n=59)					
	warm (n=49)	N (%)	Equilibrium (n=5)	N (%)	Cold(n=8)	N (%)	Wet (n=25)	N (%)	Equilibrium (n=5)	N (%)	Dry (n=29)	N (%)
Touch	P: warm in Touch I: warm in Touch	31 (63%) 23 (47%)	I: Not warm, not Cold in Touch	4 (80%)	P: Cold in Touch I: Cold in Touch	6 (75%) 6 (75%)	P: soft and smooth skin	20 (80%)	P: Not soft, not coarse skin	4 (80%)	P: hard and coarse skin	19 (65%)
Muscle and fat mass	P: Muscular body	35 (71%)	P: Not Muscular, not fatty, not thin body	5 (100%)	P: Obesity (fatty body) P: Thin with low muscle	4 (50%) 2 (25%)	P: muscular of fatty	23 (92%)	P: Not Muscular or fatty, not thin	5 (100%)	P: thin	24 (83%)
Hair condition	-		-		-	-	P: straight	10 (40%)	-		P: Curly	8 (27%)
Skin color	P: Reddish or yellowish	28 (77%)	P: white reddish	5 (100%)	P: Whiteness or Gloomy	3 (37%)	-		-		-	
Physique	P: Vast chest P: Large extremities P: Strong pulse	15(30%) 18(37%) 10(20%)	P: Moderate chest	3 (60%)	P: Small extremities P:Weak pulse	5 (62%) 4 (50%)	-		-		-	
Impressibility speed	I: Rapidly impress from warm weather I: Rapidly impress from warm natured food (Honey, Pepper, etc.)	38 (77%) 32 (65%)	I: Equal impress from warm and cold weather I: Equal impress from warm and cold natured food	4 (80%) 2 (40%)	I: Rapidly impress from cold weather I: Rapidly impress from cold natured food (yoghurt, cucumber, etc.)	7 (87%) 6 (75%)	-		-			
Sleep and wakefulness	-	-	-		-		I: More sleepy	16 (64%)	I: Normal sleep	4 (80%)	I: more wakeful	14 (48%)
Physical functions	I: Strong voice I: Rapid (continuous) speech I: Swift movement	34 (69%) 28 (57%) 40(81%)	I: Moderate voice	5 (100%)	I: Weak voice	2 (25%)	-		-		-	
Quality of waste matter (stool, urine, sweat)	I: strong urine odor I: strong sweat odor	8 (16%) 12 (24%)	-		-		-		-		-	
Psychic function	I:Stronge rage I: Brave I: optimistic I: happy I: not much impressible	24 (49%) 37 (75%) 17 (35%) 36 (73%) 23 (47%)			I:Weak rage I: very impressible	3 (37%) 2 (25%)	I: Weak memory	8 (32%)	-		- I: Persistence of reactions (anger, pleasure, etc.)	4 (14%)

P = Physical exam, I = Interview

Discussion

Designing and validating standard scales to achieve consistent diagnosis is one of the basic needs in each medical school including PM. Having access to metric measures included Rater-administered or self-administered questionnaires as well as the physical diagnosis equipment are the most important requirements of strategic development in this field [16]. One of the first steps to achieve this goal is existence of a diagnostic agreement between experts [13, 17].

Based on our result, there was moderate agreement between experts to determine the two dimensions of Mizaj ("warmness- coldness" and "dryness- wetness"). As this study was the first one in this field, it can be interpreted acceptable, but to achieve a standard and valid scales it needs more agreement between experts. This is the problem that other alternative medicine schools encounter and are trying to solve it [18-20].

In this study, eight out of ten criteria were used for diagnosis of warmness or coldness of Mizaj. Five of them including Psychic function, Impressibility speed, Muscle and fat mass, Physical functions and Touch condition were mostly used. Three of them including Skin color, Physique and Quality of waste matter (stool, urine, sweat) were less used. But Sleep & wakefulness and Hair condition were not used for warm and cold Mizaj diagnosis. Regarding dryness-wetness aspect of Mizaj identification, five out of ten criteria were used by experts in this study. Three of them had important effects including Muscle and fat mass, Touch and Sleep & wakefulness, respectively. Two criteria were less important including Hair condition and Psychic function. Other criteria seem to have the least effect in dryness-wetness of Mizaj assessment in our study. (Table 2)

As in PM, no standard protocol for Mizaj assessment has been developed so far. Hence, each expert in our study participated in the project using his/her own method to determine Mizaj. Although the achieved agreement had the least favorable score, results were remarkable. However, attaining to better objectives requires more studies to increase the agreements between experts in determining the Mizaj.

It may be concluded that the weights of criteria for Mizaj assessment are not equal. So, weighing these criteria can be the aim of future studies in this field. In addition, studying the correlation between each criterion and Mizaj of the body can indicate the importance of its role in Mizaj identification.

Conflict of Interests

None.

Acknowledgements

Hereby, the authors express their deepest sense of gratitude and indebtedness to students and personnel of Babol University of Medical Sciences for their voluntary participation.

References

[1] Bates S. Progress towards personalized medicine. Drug Discov Today Biosilico 2010;15:115.

[2] Roses AD. Pharmacogenetics and the practice of medicine. Nature 2000;405:857.

[3] Rezaeizadeh H, Alizadeh M, Naseri M, Ardakani MRS. The Traditional Iranian Medicine point of view on health and disease. Iran J Public Health 2009;38:169-72.

[4] Ibn Sina(Avicenna) H. al-Qanoon fi'l-tibb (The Canon of Medicine). Alaalami library. Beirut 2005.(Arabic).

[5] Mojahedi M, Naseri M, Majdzadeh R, Keshavarz M, Ebadini M, Nazem E. Reliability and validity assessment of Mizaj questionnaire: a novel self-report scale in Iranian traditional medicine. Iran Red Crescent Med J 2014;16:E15924.

[6] Mojahedi M, Naseri M, Majdzadeh R, Keshavarz M, Ebadiani M, Nazem E. A Review on Identification Mizaj (Temperament) Indices in Iranian Traditional Medicine (ITM). His Med J 2014;4:37-76. (Persian)

[7] Ansari AH, Zulkifle M, Ali M. An analytical study of concordance between Mizaj and diseases in adult patients of MUM Hospital, Bangalore. Anc Sci Life 2010;30:7.

[8] Emtiazy M, Keshavarz M, Khodadoost M, Kamalinejad M, Gooshahgir S, Bajestani HS. Relation between body humors and hypercholesterolemia: an Iranian Traditional Medicine perspective based on the teaching of Avicenna. Iran Red Crescent Med J 2012;14:133-138.
[9] Feyzabadi Z, Jafari F, Feizabadi PS, Ashayeri H, Esfahani MM, Aval SB. Insomnia in Iranian Traditional Medicine. Iran Red Crescent Med J 2014;16:E15981.
[10] Zhang GG, Lee W, Bausell B, Lao L, Handwerger B, Berman B. Variability in the traditional Chinese medicine (TCM) diagnoses and herbal prescriptions provided by three TCM practitioners for 40 patients with rheumatoid arthritis. J Altern Complement Med 2005;11:415-421.
[11] Lin JD, Lin JS, Chen LL, Chang CH, Huang YC, Su YC. BCQs: A body constitution questionnaire to assess stasis in traditional chinese medicine. Eur J Integr Med 2012;4:379-391.
[12] Zhang GG, Singh B, Lee W, Handwerger B, Lao L, Berman B. Improvement of agreement in TCM diagnosis among TCM practitioners for persons with the conventional diagnosis of rheumatoid arthritis: effect of training. J Altern Complement Med 2008;14:381-386.
[13] Grant JS, Davis LL. Selection and use of content experts for instrument development. Res Nurs Health 1997;20:269-274.
[14] Johnson WD, Koch GG. Intraclass correlation coefficient. International Encyclopedia of Statistical Science. Springer. 2014; pp 685-687.
[15] Sim J, Wright CC. The kappa statistic in reliability studies: use, interpretation, and sample size requirements. Phys Ther 2005;85:257-268.
[16] Mojahedi M, Mozaffarpur SA, Isfahani MM, Naseri M, Kamalinejad M, Khodadoust M, et al. Research Priorities in Traditional Persian Medicine. Res Hist Med 2016;5:99-108. (Persian)
[17] Viera AJ, Garrett JM. Understanding interobserver agreement: the kappa statistic. Fam Med. 2005;37:360-363.
[18] Okitsu R, Iwasaki K, Monma Y, Takayama S, Kaneko S, Shen G, et al. Development of a questionnaire for the diagnosis of Qi stagnation. Complement Ther Med 2012;18:207.
[19] Ryu H, Lee H, Kim H, Kim J. Reliability and validity of a cold–heat pattern questionnaire for traditional chinese medicine. J Altern Complement Med 2010;16:663-667.
[20] Zhang G, Lee W, Lao L, Bausell B, Berman B, Handwerger B. The variability of TCM pattern diagnosis and herbal prescription on rheumatoid arthritis patients. Altern Ther Health Med 2004;10:58.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 2, Issue 4, Autumn 2017

Short Communication

The Role of Nature (*Tabiat*) in Persian Medicine

Gholamreza Kordafshari[1], Hoorieh Mohamadi Kenari[2,3], Esmaeil Nazem[1], Maryam Moghimi[4], Mohammad Reza Shams Ardakani[5], Mansoor Keshavarz[1], Arman Zargaran[5,6]*

[1]Department of Traditional Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran
[2]Research Institute for Islamic and Complementary Medicine, Iran University of Medical Sciences, Tehran, Iran
[3]School of Persian Medicine, Iran University of Medical Sciences, Tehran, Iran
[4]Office of Persian Medicine, Ministry of Health and Medical Education, Tehran, Iran
[5]Department of Traditional Pharmacy, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran
[6]Department of History of Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran

Received: 13 Nov 2017 **Acceptad:** 20 Nov 2017

Abstract

In middle and west Asia, Europe and north of Africa in ancient and medieval time the main paradigm and doctrine of medicine was based on humoral theory. This theory of medicine was based on four temperaments *(mizaj)*. Regarding, it was a terminology called *Tabiat* (Nature) in the humoral medicine which plays a key role in the paradigm as a wisdom force in the body to keep body healthy and back body to healthy condition in diseases. There were four principles of nature: Wisdom *(Hikma)*, Cosmos, Attorney, and Treatment. Based on the Persian medicine principles, physician is the servant of the nature. He/she should try to help the nature of the patient to restore health.

Keywords: Nature, Persian Medicine, Medical History

Citation: Kordafshari G, Mohamadi Kenari H, Nazem E, Moghimi M, Shams Ardakani MR, Keshavarz M, Zargaran A. **The Role of Nature *(Tabiat)* in Persian Medicine.** Trad Integr Med 2017; 2(4): 177-181.

*Corresponding author: Arman Zargaran
Department of History of Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran
Email: azargaran@sina.tums.ac.ir
Tel: +98 912 206 0881

Introduction

The main paradigm of medicine was humoral theory in middle and west Asia, Europe and north of Africa in ancient and medieval time [1]. This theory of medicine was based on four temperaments *(mizaj)* [2]. Some historians believed that this theory of medicine was originated in ancient Greece [3], but some others think the Persians and Indians created it [4]. But, it is clear that in both ancient Greece and Persia (before Islam) it was the main paradigm of medicine. Especially, in Sassanid era (224-637AD-the last Persians kingdom before the Islam), Persians founded the greatest medical University and teaching hospital in the world, namely Jundishapour and combined Persian, Greek, Syrian and Indian systems of medicines and presented a flourished version of humoral medicine [5]. After Islam, the tradition of the Jundishapour transferred to Islamic era by Persians [6]. There was a social movement among the scientists to translate medical books from different languages to Arabic language (as formal language of Islamic Empire). It is called Translation Era [7]. Later, the humoral medicine was flourished by mostly Persian scientists like Akhawayni (?-983AD), Rhazes (865–925 AD), Haly Abbas (949-982 AD), Avicenna (980-1032), Jorjani (1042-1137), etc [8]. This period of time is called Islamic Golden Age [9]. The humoral paradigm of medicine was the main paradigm of medicine in the civilized world until Renaissance. Then, by discovery of molecular aspects in medicine, the humoral theory of medicine was replaced by current molecular theory during later centuries [10].

The philosophy of humoral medicine was a holistic theory and definitely different from conventional medicine [11]. This paradigm and theory of medicine was at least 2000 years the main paradigm of medicine in the most civilized parts of the world and has an important role in progress of medicine. Accordingly, it was a terminology called *Tabiat* (Nature) in the humoral medicine which plays a key role in the paradigm as a wisdom force in the body to keep body healthy and back body to healthy condition in diseases [12]. Therefore, we tried to review briefly the principles of this theory of medicine and the role of nature (*Tabiat*) in it.

The meaning of Nature *(Tabiat)* in medicine

Nature (*Tabiat*) is a deep philosophical terminology in Persian and Greek philosophy [14, 15]. But, in medicine, it indicates an innate power in the body with tact that controls all aspects of the body [16, 17]. It is not under the control of the person. It was believed that its acts are in the events of the best affairs for the body. In the sudden events happened for the body, reflexes of the body are under the control of the nature. In Persian medicine it is called *"Qovaie Modabere Badan* (Body's power with tact)" [13].

Historical perspective

The belief of existing a supernatural power to control the body dates back to antiquity. In ancient Greece, scientists like Socrates and Galen discussed about the nature [13, 15] and also in ancient Persia, scientists believed to the Cosmos theory and also the principles of humoral

medicine (four elements) [5, 18]. After the Islam, Islamic views added to the ancient beliefs by Persian scholars in the first Islamic centuries (early medieval era), around 7th to 12th century AD. Medicine was flourished during this time and it is called Islamic Golden Age. Therefore, the comprehensive humoral theory of the medicine based on the nature were formed and became the main paradigm of the medicine in the west and east at least until 17 century AD [13, 19].

The role and definition of physicians in Persian Medicine

In the third volume of the book Dinkerd, a Sassanid Pahlavic manuscript belonging to ancient Persia (before the Islam-637AD), medicine for the body was defined as "medicine for the body *(Tan Pezeshki)* and divided into two groups. One is caring body in health and another one treating the body from illness and its benefit was establishment of universe in health, purity and scent [20]." Later, in Islamic era, physicians defined medicine under influence of ancient Persian definition. Akhawayni (?-983AD) defined medicine as "a profession that keep humans' health and restore it if gone, by science and practice [21]."

Some principles of Nature (*Tabiat*)

Wisdom (*Hikma*): It means that nature does not any vain works. Socrates said: "Nature does not any vain and void issues [22]".

Also Hakim Arzani said: "Absolute sage [God] put up the Nature (*Tabiat*) for keeping and caring body's benefits and its working in the body is based on wisdom [*Hekmat*] [23]."

Cosmos: It was a theory originated by Persians in ancient era [24].

In this theory, each part of the body is homological with a part in the universe. According to this theory, some events in the body (as small world) like death follow the universe (as big world) and are as a good matter in evolution [13].

Attorney: It means that the Nature (*Tabiat*) is deputy of soul in maintaining the body interests and managing body issues [13].

Treatment: This principle is due to three past principles. Nature had to keep body healthy and in disorders, tries to restore health. Rhazes (865–925 AD) defined it as "nature is the supreme physician". Also, Socrates said "nature is enough for treating diseases [13]".

Physician and Nature

Based on the Persian medicine principles, physician is the servant of the nature. He/she should try to help the nature of the patient to restore health. It is mentioned by the Persian physician that a physician can help the nature with the help of below ways [25]:

a- Reinforce the body powers with two ways:

1) By life style modification: there were six principles for health in Persian medicine called as *Sette Zaroorieh* including air (cleanness, temperature, and geographical situation), nutrition (food and drinks), exercise, sleep and wake, exertion of unnecessary materials from the body, and finally physiological concepts [8].

2) Using spices and medicines

b- Helping to the nature in avoiding body from

harmful agents inside or outside of the body [25].

Conclusion

We need to contemplate the history of medicine in ancient and medieval era and its paradigm and philosophy. Nature (*Tabiat*) with its special meaning in humoral (Persian) medicine is one of the main characters to define medicine and treatment in ancient and medieval era. It was tried to briefly introduce the principle issues of Nature (*Tabiat*). It was believed that Nature was the main controller of the health of the body; and physicians should help it to keep body healthy and also to restore health in diseases.

Conflict of Interest

None.

Acknowledgment

None.

References

[1] Ventegodt S, Thegler S, Andreasen T, Struve F, Jacobsen S, Torp M, Aegedius H, Enevoldsen L, Merrick J. A review and integrative analysis of ancient holistic character medicine systems. Sci World J 2007;7:1821-1831.

[2] Mojahedi M, Naseri M, Majdzadeh R, Keshavarz M, Ebadini M, Nazem E, Saberi Isfeedvajani M. Reliability and Validity Assessment of Mizaj Questionnaire: A Novel Self-report Scale in Iranian Traditional Medicine. Iran Red Crescent Med J 2014;16:e15924.

[3] Jackson WA. A short guide to humoral medicine. Trends Pharmacol Sci 2001;22:487-489.

[4] Elgood C. Medical history of Persia and the Eastern Caliphate lands. Amir Kabir Publications Tehran 2007.

[5] Zargaran A. Ancient Persian medical views on the heart and blood in the Sassanid era (224-637 AD). Int J Cardiol 2014;172:307-312.

[6] Golshani SA, Pirouzan H, Daneshfard B. Jondishapour, Center of Cultural Transmission. Res Hist Med 2014;3:123-134.

[7] Dalfardi B, Daneshfard B, Nezhad GS. Johannitius (809-873 AD), a medieval physician, translator and author. J Med Biogr 2014 Jun 9. [Epub ahead of print]

[8] Kordafshari G, Kenari HM, Esfahani MM, Ardakani MR, Keshavarz M, Nazem E, Moghimi M, Zargaran A. Nutritional aspects to prevent heart diseases in traditional Persian medicine. J Evid Based Complementary Altern Med 2015;20:57-64.

[9] Zargaran A, Mehdizadeh A, Zarshenas MM, Mohagheghzadeh A. Avicenna (980-1037 AD). J Neurol 2012;259:389-390.

[10] Lagay F. The legacy of humoral medicine. Virtual Mentor 2002;4. doi: 10.1001/virtualmentor.2002.4.7.mhst1-0207.

[11] Subbarayappa BV. The roots of ancient medicine: an historical outline. J Biosci 2001;26:135-143.

[12] Salarvand S. A Comprehensive review on Omoor Tabieieh in principles of traditional Persian medicine. J Islamic Persian Trad Med 2102;3:251-262.

[13] Nazem I. Nature in Persian Medicine. Almaei. Tehran 2012.

[14] Saeidimehr M, Karimi S. The Principles of Avicenna's Physics. Philosophy Sci 2014;3:47-71.

[15] Eijk PJ. Medicine and Philosophy in Classical Antiquity: Doctors and Philosophers on Nature, Soul, Health and Disease. Cambridge: Cambridge University Press. 2005.

[16] Minae MB, Soltani S, Besharat M, Karimi F, Nazem E. Temperament determination for melatonin: a bridge from Iranian traditional to modern sleep medicine. Afr J Tradit Complement Altern Med 2013;10:340-342

[17] Jabin F. A guiding tool in Unani Tibb for maintenance and preservation of health: a review study. Afr J Tradit Complement Altern Med 2011;8:140-143.

[18] Dadegi F. Bundahišn: Zoroastrische Kosmogonie und Kosmologie. Center for the great Islamic encyclopedia. Tehran 2005.

[19] Zargaran A, Zarshenas MM, Karimi A, Yarmohammadi H, Borhani-Haghighi A. Management of stroke as described by Ibn Sina (Avicenna) in the Canon of Medicine. Int J Cardiol 2013;169:233–237.

[20] Saboori NB. Medicine in the third book of the Denkard. Center for the great Islamic encyclopedia. Tehran 2011; p 38.

[21] Abubakr Rabi ibn Ahmad al-Akhawayni al-Bukhari. Hidayat al-Mutaallimin Fi al-Tibb [A Guidance to Medical Learners]. Mashhad University Press. Mashhad 1965.

[22] Ibn Roshd MA. Nine treaties of Ibn Roshd. Iran University of Medical Sciences Press. Tehran 2008.

[23] Arzani MA. Teb-e-Akbari. Jalaledin Publication. Qom 2008.

[24] Inwood B (Ed.). Oxford studies in ancient philosophy. Vol 37. Oxford: Oxford University Press. 2009.
[25] Shirazi MHBMT. Tashil al-Elaj va Resaleh Hafez al-Sehhe. Jalaledin Publication. Tehran 2009; p 301.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Intrgr Med, Volume 1 , Issue 4, Autumn 2016

CONCEPT DEFINITION

The Concept of *Nozj*

Mahdi Alizadeh Vaghasloo[1]*, Mohammad Ali Zareian[1], Sayed Mohammad Ali Soroushzadeh[1]

[1]*Department of Traditional Persian Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran*

Received: 19 Jul 2016 **Revised:** 9 Agu 2016 **Accepted:** 20 Jul 2016

Abstract

Nozj is a unique heterogeneous complex phenomenon discussed extensively by Traditional Persian Medicine (TPM) scholars, as a rheological change in matter for better consumption or excretion. Nozj is closely related to the many stages of digestion and affects many aspects of health and disease. Nozj status in different parts of body may be assessed and monitored using many signs and symptoms regularly not considered fairly important to other schools of treatment especially the mainstream medicine. Uncompleted process of Nozj leads to accumulation of different substances in different parts of the body. This process, generally be named as the "*Bad-anbaasht*" syndrome, predisposes a wide variety of famous known medical conditions.

Key words

Nozj, Traditional Persian Medicine (TPM), Rheology, Digestion, Hakim, *Bad-anbaasht Syndrome*

Citation: Alizadeh Vaghasloo M, Zareian MA, Soroushzadeh SMA. **The Concept of Nozj.** Trad Integr Med 2016; 1(4): 133-135

Introduction

One of the unique phenomena's described by the Traditional Persian Medicine (TPM) scholars, known as the Hakims, is the ***Nozj*** (Ã ÷‰ The issue starts from the point that biological matters trespassing body spaces and entering different bodily organs including the humors should reach a certain consistency and to have optimum physical characteristics in order to be able to be used by the body as food or to be able to be excreted from the body as waste products [1, 2]. Very hard and dense non-degradable matter named ***Ghaleez*** (Ÿ?¤) or very fluid and dispersible matter named ***Rhagheegh*** (fi?fi) and the last but not the least, very viscous adhesive matter named ***Lazej*** (Ã“) may not be suitable or prepared for usage or deletion [1, 3].

Definition of Nozj

Although each of the aforementioned types of consistency are useful in some parts of the body, mostly during transportation and circulation they should have a suitable fluid form. The process in which these three unpleasant states of matter are turned into much more usable or excretable form of matter is named generally as *Nozj* [4]. Therefore *Nozj* might be explained as the change in rheological properties of matter [1]. It has been described that the dense Ghaleez matter must get more fluid and more Rhagheegh, the very watery fluid Rhagheegh matter should harden more and become more *Ghaleez* and the viscous adhesive *Lazej* matter must be cut and degraded into smaller pieces [5, 8].

*Correspond Auther: Mahdi Alizadeh Vaghasloo
Email: m-alizadehv@sina.tums.ac.ir

Causes of Nozj

Hakims as philosophers realized four causes for the existence of any being or phenomenon (6) including the heterogeneous phenomenon of *Nozj*. These four causes include the agent, the material, the formal and finally the objective causes and especially for *Nozj* are discussed as follows [2, 3]:

1. The agent cause: The inner inherited heat named ***Harre-Gharizi*** [2, 3, 7] (Ì“?¤¬Õ)
2. The material cause: The formable matter named ***Zel-Rhotobat*** (Â‰ÿ¬ Ì–) including the humors etc. [8]
3. The formal cause: The optimal change in the consistency of matter [1,2]
4. The final cause: The preparation for reaching the optimal destiny of matter including usage or discharge [2]

Classification of Nozj

The *Nozj* process is also classified into four different types mentioned bellow [2, 3, 4, 7]:

1. The *Nozj* of fruits: The ripening process
2. The Industrial *Nozj*: The bakery process
3. The *Nozj* of foods: The four food digestion stages in the body
4. The *Nozj* of residues: The preparation of waste matter for discharge

Digestion: the most typical Nozj

As mentioned, the *Nozj* of food is called digestion which has been divided into four stages [2,9]:

1. The first digestion, starting from the mouth and ending up in the stomach, leading to the useful Chile and the residue of stool,
2. The second digestion, performed in the liver, leading to the formation of humors and the residue of urine,
3. The third digestion, performed in the vessels,
4. The fourth digestion, the process of food and also waste products carried out in the tissues.

The wastes of the third and fourth stages are mainly urine and sweat and other sensible or insensible body discharges and excretions.

The role of healthy digestion should be emphasized in the completion of the *Nozj* process because the undigested material with incomplete *Nozj* will cause defect in the next stages of digestion as well leading to end organ deprivation of food or accumulation of wasted undigested matter [10]. In accordance to the importance of the gastrointestinal tract and especially the stomach in health and disease, several quotations has been narrated from the prophet Mohammad p.b.u.h that the stomach is the pool of the body which all the organs receive health and disease from it [11] and that the stomach is the house of all diseases and that the abstinence from harmful foods is the head of all treatments [12].

Semiology of Nozj

It is notable that the Hakims monitored the process of *Nozj* and assessed its completion by the use of many symptoms and signs including the consistency, color, smell, quantity of sputum for respiratory system, the characteristics of urine for liver diseases and stool characteristics for the gastrointestinal disease etc. [5, 8, 13].

Consequences of uncompleted Nozj

The *Nozj* of the matter in the tissues are very important in keeping the tissue clean and clear. One of the consequences of uncompleted Nozj process is the stasis of undigested food remains in the interstitial space. This will cause obstructions in the way of mediators, transmitters and hormones causing all sorts of malfunctions. This diverse bad accumulation of matters in between tissue spaces is named by the current authors as the group of ***the Bad-anbaasht Syndromes,*** (‰ê‰ ‘‰ ‘»‰ Œ») according to similar concept nomination in the traditional medical manuscripts [14]. These vast heterogeneous groups of above mentioned syndromes differ from each other depending on the characteristics and consistency of the accumulated substance. Another consequence of uncompleted *Nozj* process is the invasion of matter by the unusual heat or the ***Hararate Ghareebe*** (Â»¤ ¬Õ) which

succeeds the inner inherited heat and subsequently causes infection [5]. In future articles we like to discuss the above mentioned syndromes in detail.

The Monzej (intrinsic & extrinsic)

In TPM, there are certain drugs categorized under the name of *Monzej* which means the drugs that facilitate the *Nozj* process [3]. Despite the existence of such extrinsic drugs, still one of the most important factors influencing the *Nozj* will be the proper blood production, circulation and tissue blood perfusion. This is because that the blood acts as the main vehicle for the inner inherited heat - the intrinsic and most suitable, specialized *Monzej*- to reach from the heart to the matter [15] and it also carries orally administered extrinsic *Monzej* drugs to the target organs.

Conclusion

Nozj, as a rheological change in matter for better consumption or excretion, is a unique heterogeneous complex phenomenon discussed and widely used by TPM scholars. It is closely related to the many stages of digestion and may affect many aspects of health and disease. It can be assessed and monitored by many signs and symptoms of which may not be so important to other schools of treatment especially the mainstream medicine.

References

[1] Arzani MA. Mizan al-Tibb. Qom, Iran: Sama; 2001. P. 21. [In Persian].
[2] Avicenna. al-Shifa. Qom, Iran: Marashi`s Library; 1984.Vol.2. p. 223,Vol.3. p. 52. [In Arabic].
[3] Arzani MA. Mofareh Al-Gholob. Tehran, Iran: Almaee; 2012. p. 34. [In Persian].
[4] Ibn-Roshad M. Al-Koliat fi Al-Tibb. Beirut, Lebanon: Institute Dar Al-Kotob Al-Elmieh; 2005. p. 241. [In Arabic].
[5] Naini Isfahani A. Al-Tohfa al-Naserieh. Tehran, Iran: Iran University of medical science; 2008. P. 397.[In Persian].
[6] Alizadeh M, Keshavarz M, Ebadiani M, Nazem E, Isfahani M,Complexity and rationality of Avicenna's pulsology, doi:10.1016/j.ijcard.2012.03.168.
[7] Nazem Jahan MA. Mohit-e A'zam. Tehran, Iran: Almaee; 2015. P. 66. [In Persian].
[8] Avicenna. The canon of medicine. Beirut, Lebanon: Institute Dare Ehya al-Toras; 2005. p. 33,158,180-193,250. [In Arabic].
[9] Babaeian M, Borhani M, Hajiheidari M, Sharifi Olounabadi A, Elsagh M, Yavari M, et al . Gastrointestinal System in the Viewpoint of Traditional Iranian Medicine. 3. 2012; 2 (4) :303-314
[10] Emtiazy M, Keshavarz M, Khodadoost M , Kamalinejad M , Gooshahgir SA, Shahrad Bajestani H, Iran Red Crescent Med J 2012; 14:133-8.
[11] Ibn-Ghayem Juzieh M. Al-Tibb Al-Nabavi. Beirut, Lebanon: Institute Al-Helal Library; 1983. p. 78. [In Arabic].
[12] Majlesi MB. Behar al-Anvar. Beirut, Lebanon: Institute Dare Ehya Al-toras; 1982. Vol. 58. p. 307. [In Arabic].
[13] Razi MZ. Al-Havi. Beirut, Lebanon: Institute Dare Ehya Al-toras; 2001. p. 540. [In Arabic].
[14] Kermani NIA. Explain of the causes and signs (Sharh Asbab va Alaem). Qom, Iran: Jalaleddin Publications; 2009.Vol2.p 34-36. [In Arabic].
[15] Razi B. Kholasat al-Tajarob. Tehran, Iran: Iran University of medical science; 2003. P. 18.[In Persian].

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 2, Issue 1, Winter 2017

Concept Definition

The Concept of the *Haar-re-Gharizi* and *Hararate Gharizi*: The Innate Hot [Substance] and Heat

Mahdi Alizadeh Vaghasloo[1*], Ayeh Naghizadeh[1], Nahid Babashahi[2]

[1]*Department of Traditional Persian Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran*
[2]*Department of Physiology, School of Medicine, Shahed University, Tehran, Iran*

Received: 24 Jan 2017 **Accepted:** 30 Jan 2017

Abstract

Haar-e Gharizi, or the innate natural hot [substance] is the natural fluidic substance that produces the natural heat, *Hararat-e-Garizi*. These two concepts are sometimes used interchangeably but the fact is that Haar may be considered as the action potential of the body whilst the heat being one of the byproducts of *Haar's* actions. The *Haar*, is distributed throughout the body by its source, the heart, and ventilated by the heartbeat and breath. Two movements have been described for the *Haar*: the normal expansion and distribution of *Haar* to the periphery of the body, and the constriction and condensation of *Haar* in the core of the body. These currents may both be physiologic or pathologic depending on the duration, strength and extent of each movement. Considering the importance of the balance between these movements, and the dependence of *Haar* on heat to stay in optimal state, it is proposed that external heat therapy can be used to treat various diseases by strengthening the pump of the *Haar* (the heart), and opening its pathway (the vessels). Named SINA, this modified sauna therapy is highly individualized, corresponding to the patient's temperament, and at the same time monitored and managed based on emergence of warning symptoms. Thus, SINA therapy opens a whole new perspective in treatment of a wide range of diseases by means of the body's own powerful potential, the *Haar*.

Keywords:

Haar, *Hararat-e Gharizi*, Traditional Persian Medicine (TPM), Avicenna, sauna, SINA therapy

Citation: Alizadeh Vaghasloo M, Naghizadeh A. **The Concept of the Haar-re-Gharizi and Hararate Gharizi: The Innate Hot [Substance] and Heat.** Trad Integr Med 2017; 2(1):3-8.

Introduction

Haar-re-Gharizi meaning the innate natural hot [substance] is the natural fluidic substance which carries and produces the natural heat, named *Hararat-e-Gharizi*. In some manuscripts it has been specified as the *Rotoobat-e-Gharizi*, meaning the innate natural fluid or damp [1]. Throughout this article we would shortly name it

*Correspond Author: Mahdi Alizadeh Vaghasloo
Department of Traditional Persian Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran
Email: m-alizadehv@sina.tums.ac.ir
TEL: +98 88990837-105

as "*The Haar*". The scholars of Traditional Persian Medicine (TPM) have resembled the *Haar* to the fuel of a lantern burning to produce heat. However, many articles have negligently used the hot and the heat interchangeably because of their close relationship [2]. Considering the belief that the *Haar* is the innate nature's device to perform all actions [3], one may conclude that heat is not all of the released potential of the *Haar*, and *Haar* may be defined as the sum total of all the potential of actions in the body, which produce heat as a byproduct and not as the main goal. Only as an example, we may resemble the *Haar* to the fluid molecules of Adenosine triphosphate which has the potential to run many actions and also to produce heat when degraded into Adenosine diphosphate in some biochemical reactions [4]. Thus, ATPs, natural killer cells and proteolytic enzymes may be some examples of the *Haar*.

The innate natural heat originates from the *Haar*, which itself is the sum of the "natural spirit" and the "vital spirit" distributed subsequently from the liver and the heart [5].

Other functions of the *Haar* are as follows:

-Reinforces the digestion and completes the process of *Nozj* which is the rheological preparation of matter for absorption or excretion [6].
-Affects body fluids, excreting them by sweat or diminishes them, also keeps the body fluids safe from spoilage and infection [7].
-Reduces the excess of damp which loosens the tissues [8].
-Acts on food and drug to release their potential so they could exert their effects on the body [9].
-Powerfully opposes the external heat and cold to prevent their impact on homeostasis [10].
-Helps the body repel the danger of toxins and opposite materials by digesting them or managing their side effects [11]. Therefore, it has been forbidden for a person bitten by a poisonous animal to fall asleep in order to keep the *Haar* reaching to the periphery [12]. This mechanism will be further discussed in the article.
-Exists in fruits, facilitating the ripening process with the help of the external heat from the sun [13].

The Heart: The Source and Distributer of *Haar-re-Gharizi*

The heart is said to be the first organ formed in the fetus in order to be the source of the *Haar*. Therefore, the heart is the hottest organ in the body from where other organs receive their heat and energy [14]. It is interesting that modern embryological findings show a cephalocaudal development process of the embryo and that the angiogenic cell clusters and the cardiogenic area are from the first and the most cephalic part of the germ disc to be formed in the gastrulation and embryonic period in the early presomite embryo. This means that the heart's tissue is built above and before the brain and other organs and then folded down to set in the thoracic cavity [15].

There is a strong correlation between the Haar and the pulse. The final cause [16] of pulse formation, heartbeat, and respiration are mentioned to be ventilation of the *Haar* [17] and on the other hand, a strong and huge pulse indicates a strong *Haar*.

The more distant the materials in the body are from the source and spring of the *Haar*, the more they cool down and condense, thus depositing and accumulating as incompletely digested material in the interstitial spaces and maybe within the cells [18], predisposing to the *Bad-anbaasht syndrome* previously discussed in brief in the past journal [6]. This may be one of the causes that Prophet Mohammad p.b.u.h. preferred to consume the upper limbs of the animal flesh instead of the lower limbs [19, 20], because they are much closer to the heart and less accumulated with debris and waste matter [21].

The Quality and Quantity of the *Haar*

The quality or temperament of the *Haar* is moderate warmness and wetness, which is most suitable for growth and life and most correlated to the temperament of the sanguine humor, the main composition of whole blood. The *Haar* reaches the organs and dedicates to them their

share of warmness and function. Realizing the importance of its optimal temperament in keeping the body's optimum temperament, the *Haar* has to be cooled and purified by proper ventilation when heated up by the exhaust smokes and vapors of the tissues and has to be heated up when cooled too much in cases of excessive stasis, usage or dispersion. The *Haar* is in its maximum amount at the growth period and reduces during life time [22].

The Movements of the *Haar*

The *Haar* has two major movements, basically the result of the circadian rhythms of sleep and wakefulness, but exaggerated by other factors. Each movement dedicates its own physiological benefits to the body:

1. The normal expansion and distribution of Haar to the periphery of the body:

This is caused basically by wakefulness and exaggerated by mild to moderate massage [23], exercise and [24] external/internal temperature elevations [25]. The major physiological benefit of this movement is suitable propagation and provision of *Haar* throughout the body, especially the periphery. This results in proper peripheral perfusion, and subsequently good coloration of the skin, cleansing of the organs and tissues from wastes and unsuitable non-digested products, an increase in peripheral surveillance and action of the immune system, peripheral tissue growth management and etc.

2. The constriction and condensation of *Haar* in the core of the body.

This movement is accompanied by the shortening and weakening of the radial pulse [26], and usually caused by sleep [27], but may also be a result of other triggers like mild internal/external cold exposures [28]. Accumulation of *Haar* in the inner layers of the body results in its condensation, amplification and reinforcement. The major physiological benefit of this movement is concentration of *Haar* in the internal organs especially the ones related to digestion, enforcing their acts of mechanical and chemical digestion. Consequently, these actions lead to reduction of waste products, and increase in well digested absorbable materials and highly efficient production of fine blood, sanguine and spirit from phlegm and raw materials and etc. [29].

The Abnormalities and Pathologies of the *Haar*

Although the two above mentioned movements are physiologic and have benefits, any inappropriate change in their duration, strength, or extent may enter the body into the pathologic territory. The over-activity and excessive movement of *Haar* in either direction may cause one of the below mentioned syndromes, and even faint or death if severe and out of control [30].

● The Over-distribution and scattering of the *Haar*

-Despite the reinforcing effect of mild external heat on the internal natural heat – the *Haar* – [25, 31] excess in all sorts of warmers like body movements, exercise, traveling, keeping awake, sexual activity, anger, summer heat, hot air or climate, sauna and etc. my cause the *Haar* to scatter outwards and lead to weakness and indigestion [32].
-The concurrence of a weak heart with excessive hunger, vigorous labor or chronic disease may also diminish the *Haar* [33].
-The evacuation of useful materials from the body also weakens the *Haar* [34].

●The stagnation of the *Haar* in the core of the body

-Excess usage of all sorts of coolers like cold air or water, causes suffocation of the *Haar* in the center of the body [35]. Chronic constriction and closure of the body pores – *masaam* – may also lead to the same situation [36].

The primary stages of obstruction of the *Haar* current may simultaneously cause two opposite syndromes, one titled by the authors of this

article as the Hot-inside Syndrome, and the other as the Cold-outside Syndrome.

Symptoms of the Hot-inside Syndrome include palpitation, headaches, allergies, intestinal sores and gastroesophageal reflux. The Cold-outside Syndrome is accompanied by sign and symptoms such as cataract [37], impotency [38], infertility, shiver and chills [39], photophobia and phonophobia, blindness and deafness [40]. The defects are more obvious in the distal of extremities especially the feet because of their distance from the source of *Haar* – the heart, leading to their coldness, dryness, atrophic signs and sometimes swelling and edema [41].

Deprivation of the *Haar* gives unnatural heat the chance to invade the damp and cause infection and spoilage of the tissues ending in gangrene [42].

Once in the end stages of *Haar* obstruction, the Cold-outside syndrome will be accompanied by a Cold-inside syndrome due to extreme decrease of *Haar* even in the core of the body. Some important mentionable problems of this recent condition include hepatic diseases, anemia [43], dyspepsia [44], impotency, excessive shyness, fear and phobia [45], decrease in libido, kidney and gallstones [46], increase in phlegm formation [47], cold dystemperament and weakness of the heart and body, cardiac atrophy, weak and slow pulses [48], and early senile changes [49].

Excessive moisterization in baths and wet saunas obstruct the effect of the *Haar* [50]. Bad cold humors including visceral and non-visceral fats invading the organs may also cause the same. One mechanism for the above mentioned problem is the constrictive pressure of these tissue accumulations against the vascular hydrostatic pressure of blood in the vessels. *Fasd* or venesection in such cases may worsen the problem and obstruct the distribution of the *Haar* [51].

The coldness of an organ diminishes its *Haar* [52]. The coldness of the heart solidifies the *Haar*, leading to its relative stasis in the core body. Drinking cold water after a hot bath, sauna, exercise, sexual activity and after a period of fasting like before breakfast also reduces the *Haar* [53]. Sustained consumption of sour foods also weakens the *Haar* [54].

Sauna's Benefits on Distribution of the *Haar*

Considering the benefits of good distribution of the *Haar,* one may reach the effect of external thermal therapy on the outward distribution and expansion of the *Haar*. This is also proven by today's physiological findings where the elevation of skin temperature leads to alteration in nerve impulses from the hypothalamus to the vasculature and the sweat glands of the skin, so that there is vasodilation of the vessels and finally increased sweat secretion [55]. Vasodilation not only eases peripheral blood circulation, which leads to a better distribution of the *Haar* but also reduces peripheral vascular resistance and therefore results in a compensatory increase in the cardiac output - governed by the brain - by increasing the inotrophy and the chronotrophy of the heart. This culminates in future hypertrophy and strengthening of the heart if carried out in a routine daily basis. In other words, a treatment like sauna may be beneficial in strengthening the heart – the pump of *Haar* – and also opening of peripheral vessels – the pathway of *Haar* - in favor of better distribution of the *Haar* [56].

Sauna's Detriments to the *Haar*

Individual differences in temperament, which manifest as different body reactions to specific levels of moisture and temperature [57], have been carefully considered by TPM scholars. Unfortunately, to the best of our knowledge, the effect of sauna in different temperaments has not yet been studied so far, despite its extensive use in health and disease [58, 59, 60]. As mentioned above, excessive external heat may evaporate and diminish useful damp and fluids of the body, consequently decreasing the *Haar's* material and also its diffusion to outer layers of the body. This

results in weakness of the core organs [61] including the digestive system, fall of the vital and natural forces [45], faint and even death [62]. It has also been quoted that sudden heat may dry out the *Haar* and weaken the heart [63]. Bathing with excessive hot water has even been declared to cool down the body due to the *Haar's* evacuation [64] and also to loosen the body structures [65]. *Avicenna*, the most famous TPM scholar has postulated in his book, the *Canon of Medicine*, that hot sauna baths may cool and dry the body due to excessive decline of the *Haar* [50] and that the treatment of the dry and cold dystemperament should be gradual warming up so that the *Haar* is increased, but not over heated [66]. He also believes that although hot baths have many benefits, they may weaken and loosen the tissues causing the penetration of waste products inside the tissues especially the connective tissues and nerves, and also reduce appetite and libido by diminishing the *Haar* [67]. All this means that sauna may act differently in various temperaments, and may also lead to side effects or even weakness instead of good results in some individuals [59, 60].

Design of a New Method of Heating the Body Based on Avicenna's Ideology: The SINA Therapy

Putting all that together, the authors of this article have reached a wide variety of individualized saunas in order to be sure of strengthening the Haar and its pump and not weakening them. These sauna protocols have tight controlled timing, temperature, and humidity features and may easily be adjusted by the individual with emergence of alerting signs and symptoms - derived from TPM literature and given to the patient – to reach the point of maximum benefit and no harm. These packs of protocols are named S.I.N.A. therapy in correlation with sauna therapy and in remembrance of Avicenna (The son of Sina). SINA is also the abbreviation of S*urface Induced Nozj* or *Safe Inclusive Nozj*: *surface induced Nozj*, because it is a *Nozj* process induced mostly by triggering skin thermal receptors; and *Safe Inclusive Nozj* because it may include the *nozj* of all material at all levels of the body due to the power and access of the *Haar* to make *Nozj* on these material, and moreover, it is safe, if the alert signs and symptoms are watched for. So far, many complicated clinical cases have been treated and many experimental animal studies have proved successful in the treatment of asthma, diabetes and fatty liver disease, looking forward to being published and shared with the scientific society.

References

[1] IbnNafis Qarshi A. Sharh-e Fosul-e Boqraat. Nihzat Mesr. Egypt 2008; p 95 [in Arabic].
[2] Heravi M. Bahr al-Jawaher. Jalaluddin Publications. Qom 2008; p 125 [in Arabic].
[3] Heravi M. Ain al-Hayat. Iran University of Medical Sciences. Tehran 2007; p 9 [in Arabic].
[4] Hall JE, Guyton AC. Guyton and Hall Textbook of Medical Physiology. 13th ed. PA: Saunders. Philadelphia 2011; p 17 [in English].
[5] Ibne Zahr A. Al-Taysir fi al-Modavate va Tadbir. Vol 1. Dar al-Fikr. Damascus 1983 [in Arabic].
[6] Alizadeh M, Zareian MA, Soroushzadeh SMA. The Concept of Nozj. Trad Integ Med 2016;1: 133-135.
[7] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 159 [in Arabic].
[8] Aghili Shirazi M. Khulasah al-Hikmah. Vol 1. Esma'ilian Publications. Qom 2006; p 410 [in Persian].
[9] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 139 [in Arabic].
[10] Avicenna. The Canon of Medicine. Vol 4. Dare Ehya al-Toras Institute. Beirut 2005; p 425 [in Arabic].
[11] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 158 [in Arabic].
[12] Avicenna. The Canon of Medicine. Vol 4. Dare Ehya al-Toras Institute. Beirut 2005; p 320 [in Arabic].
[13] Majusi AA. Kamel al-Sana'a al-Tebbiya. Vol 3. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; p 131 [in Arabic].
[14] Majusi AA. Kamel al-Sana'a al-Tebbiya. Vol 1. Jalaluddin Publications, Institute of Natural Medicine Restoration. Qom 2008; p 59 [in Arabic].
[15] Sadler TW. Langman's Medical embryology. 7th ed. pp 60,78,183 [in English].
[16] Alizadeh M, Keshavarz M, Ebadiani M, Nazem E, Isfahani MM. Complexity and rationality of Avicenna's pulsology: a step towards understanding the past for today's applications. Int J Cardiol 2012;157:434-435. doi: 10.1016/j.ijcard.2012 .03.168.
[17] Aghili Shirazi M. Khulasah al-Hikmah. Vol 1. Esma'ilian Publications. Qom 2006; p 603 [in Persian].
[18] IbnNafis Qarshi A. Mofradat va Mu'alejah al-Amraz (Sharh-e Al-Mujaz). Vol 1. Iran University of Medical Sciences. Tehran 2008; p 738 [in Arabic].
[19] Saduq MA. Elal al-Sharaye. Maktabah Haidaryah. Najaf 1966; p 134 [in Arabic].
[20] Al Ghazali, Ihya ulum al-Din,Vol 7. Dar El shaab, Cairo, Egypt 1992; p 1308
[21] Isra'ili IS. Al-Aqziah va al-adviah. Izzuddin Publications.

Beirut 1992; p 542 [in Arabic].
[22] IbnNafis Qarshi A. Sharh-e Fosul-e Boqraat. Nihzat Mesr. Egypt 2008; p 95 [in Arabic].
[23] Avicenna. The Canon of Medicine. Vol 3. Dare Ehya al-Toras Institute. Beirut 2005; p 70 [in Arabic].
[24] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 177 [in Arabic].
[25] Aghili Shirazi M. Khulasah al-Hikmah. Vol 2. Esma'ilian Publications. Qom 2006; p 23 [in Persian].
[26] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 176 [in Arabic].
[27] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 130 [in Arabic].
[28] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 213 [in Arabic].
[29] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 34 [in Arabic].
[30] Avicenna. The Canon of Medicine. Vol 3. Dare Ehya al-Toras Institute. Beirut 2005; p 54 [in Arabic].
[31] Aghili Shirazi M. Khulasah al-Hikmah. Vol 1. Esma'ilian Publications. Qom 2006; p 523 [in Persian].
[32] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; pp 125, 184 [in Arabic].
[33] Kermani NE. Sharh al-Asbab va al-Alaamaat. Vol 2. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; p 181 [in Arabic].
[34] Kermani NE. Sharh al-Asbab va al-Alaamaat. Vol 2. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; pp 127,340 [in Arabic].
[35] Avicenna. The Canon of Medicine. Vol 2. Dare Ehya al-Toras Institute. Beirut 2005; pp 321,125 [in Arabic].
[36] Avicenna. The Canon of Medicine. Vol 4. Dare Ehya al-Toras Institute Beirut 2005; p 195 [in Arabic].
[37] Kermani NE. Sharh al-Asbab va al-Alaamaat. Vol 1. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; p 329 [in Arabic].
[38] Kermani NE. Sharh al-Asbab va al-Alaamaat. Vol 2. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; p 181 [in Arabic].
[39] Nazem Jahan M. Exir-e A'zam. Vol 4. Iran University of Medical Sciences. Tehran 2008; p 96 [in Persian].
[40] Aghili Shirazi M. Khulasah al-Hikmah. Vol 2. Esma'ilian Publications. Qom 2006; p 646 [in Persian].
[41] Kermani NE. Sharh al-Asbab va al-Alaamaat. Vol 1. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; pp 549,532 [in Arabic].
[42] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; pp 601,276 [in Arabic].
[43] Majusi AA. Kamel al-Sana'a al-Tebbiya. Vol 3. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; p 71 [in Arabic].
[44] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 125 [in Arabic].
[45] Kermani NE. Sharh al-Asbab va al-Alaamaat. Vol 2. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; p 186 [in Arabic].
[46] Aghili Shirazi M. Khulasah al-Hikmah. Vol 1. Esma'ilian Publications. Qom 2006; p 696 [in Persian].
[47] IbnNafis Qarshi A. Sharh-e Fosul-e Boqraat. Nihzat Mesr. Egypt 2008; p 177 [in Arabic].
[48] Tabari AS. Ferdows al-Hikmah fi al-Teb. Dar al-Kotob al-Elmiah. Beirut 2002; p 241 [in Arabic].
[49] Aghili Shirazi M. Khulasah al-Hikmah. Vol 2. Esma'ilian Publications. Qom 2006; p 453 [in Persian].
[50] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 140 [in Arabic].
[51] Aghili Shirazi M. Khulasah al-Hikmah. Vol 2. Esma'ilian Publications. Qom 2006; p 417 [in Persian].
[52] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 242 [in Arabic].
[53] Avicenna. The Canon of Medicine. Beirut, Lebanon: Dare Ehya al-Toras Institute; 2005, Vol. 3, p. 210 [in Arabic].
[54] Aghili Shirazi M. Khulasah al-Hikmah. Vol 2. Esma'ilian Publications. Qom 2006; p 35 [in Persian].
[55] Hall JE, Guyton AC. Guyton and Hall Textbook of Medical Physiology. 13th ed. PA: Saunders. Philadelphia 2011; pp 911-913 [in English].
[56] Walter J, Crinnion N. Sauna as a Valuable Clinical Tool for Cardiovascular, Autoimmune,
Toxicantinduced and other Chronic Health Problems. Altern Med 2011;16:215-225.
[57] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 198 [in Arabic].
[58] Van der Wall EE. Sauna bathing: a warm heart proves beneficial. Neth heart J 2015;23:247-248. doi: 10.1007/s12471-015-0676-7.
[59] Hannuksela ML, Ellahham S. Benefits and risks of sauna bathing. Am J Med 2001;110:118-126.
[60] Hosseinzadeh M, Dabidi R, Ghanbari A. Investigation of the Effect of Exercise and Sauna Bath on Cardiovascular Parameters in Healthy Young Men. J Metab Exerc 2012;1:141-153.
[61] Majusi AA. Kamel al-Sana'a al-Tebbiya. Vol 3. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; p 18 [in Arabic].
[62] Nazem Jahan M. Exir-e A'zam. Vol 2. Iran University of Medical Sciences. Tehran 2008; p 371 [in Persian].
[63] Tabari AS. Ferdows al-Hikmah fi al-Teb. Dar al-Kotob al-Elmiah. Beirut 2002; p 218 [in Arabic].
[64] Majusi AA. Kamel al-Sana'a al-Tebbiya. Vol 1. Jalaluddin Publications. Institute of Natural Medicine Restoration. Qom 2008; p 484 [in Arabic].
[65] Tabari AS. Ferdows al-Hikmah fi al-Teb. Dar al-Kotob al-Elmiah. Beirut 2002; p 84 [in Arabic].
[66] Avicenna. The Canon of Medicine. Vol 3. Dare Ehya al-Toras Institute. Beirut 2005; p 101 [in Arabic].
[67] Avicenna. The Canon of Medicine. Vol 1. Dare Ehya al-Toras Institute. Beirut 2005; p 141 [in Arabic].

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 2, Issue 4, Autumn 2017

Concept Definition

The Concept of *"Masam"* (Pores) in Persian Medicine

Fatemeh Moradi[1] , Fatemeh Alizadeh[1] , Ayeh Naghizadeh[1] , Mehrdad Karimi[1] , Mahdi Alizadeh Vaghasloo[1*]

[1]Department of Persian Medicine, School of Persian Medicine, Tehran University of Medical Sciences, Tehran, Iran

Received: 21 Nov 2017 **Accepted:** 25 Nov 2017

Abstract

Persian Medicine (PM) is a holistic school of medicine with a unique philosophy and terminology. ***"Masam"*** (pores) is a widely used concept in PM literature, both in physiologic and pathologic conditions, defined as natural openings on the skin surface and also other organs. Penetration of substances topical medications, expulsion of substances including hair, excretion of waste products such as sebum and sweat, and substance transport in various organs, including the placenta, uterus, synovial membrane, stomach, muscle, lung vessels etc. are facilitated through these macroscopic, microscopic and nanoscopic pores. ***"Masam"*** are subject to various alterations, including collapse and occlusion, which may lead to bad deposition of material in the body and prevention of the ***Haar -***innate heat- from reaching the organs, leading to dysfunction and dystemperament. Changing rheological characteristics of such material by ***"Nozj"*** may help their removal and therefore open ***"Masam"*** to yield the return of normal organ temperaments and functions.

Keywords: Masam, Pores, Skin, Persian Medicine, Traditional Iranian Mdicine.

Citation: Moradi F, Alizadeh F, Naghizadeh A. Karimi M, Alizadeh Vaghasloo M**. Re: The Concept of *"Masam"* (Pores) in of Persian Medicine.** Trad Integr Med 2017; 2(4): 160-165.

*Corresponding Author: Mahdi Alizadeh Vaghasloo
Department of Persian Medicine, School of Persian Medicine, Tehran University of Medical Sciences, Tehran, Iran
Email: m-alizadehv@sina.tums.ac.ir
Tel:021-88990837 Ext 105

Introduction

Persian Medicine (PM) is an authentic medical school that considers the world and the human body, a perfect system created by the wise almighty God [1, 2]. Dating back to over 6000 years B.C, it is a series of principles and theories arising from philosophical fundamentals, and relying on centuries of precise observations and practical experience [3].

This rich school of medicine has a unique terminology, an instance of which is ***"Masam"*** مسام meaning little holes or pores. Generally located in the skin, ***"Masam"*** take part in physiologic functions. However, there is another important aspect to this concept, as anatomical and functional disturbances of ***"Masam"*** plays a significant role in the pathophysiology of several diseases, the treatment of which relies on drugs that modify them [4-7].

Although many PM references have mentioned the concept of ***"Masam"***, their function, different variations in disorders and drugs that modify them, but the data is scattered, with no specific and comprehensive chapter on their locations, usages and related disorders. This article is an attempt to gather and discuss the scattered information on ***"Masam"*** in PM literature.

Definition of *"Masam"*

The word ***"Masam"*** is defined as pores, holes or openings [5-10]. PM categorizes body openings and orifices into perceptible (visible) such as nose, ears and anus and imperceptible (functional), the latter further divided into physiologic and pathologic. ***"Masam"*** are physiologic imperceptible openings in the body [4, 11, 12].

Location of "Masam"

The skin is the major location of ***"Masam"***, described as very small pores and holes adjacent to hair follicles, from which body sweat and vapors ***(Bokhar* بخار*)*** are excreted [5, 13, 14].

According to PM references, they generally extend down inside the derm and connect to muscular tissues [11]. In conventional medicine, skin pores are the outlet of pilosebaceous units and sweat-producing -eccrine and apocrine- glands [15, 16]. Pilosebaceous units include hair follicles, which contain hair deeply rooted in subcutaneous tissue, and sebaceous glands, which are intradermal sebum secreting glands, usually with short ducts opening into the upper part of the follicle. Pilosebaceous units are associated with diseases such as acne, milia and hidradenitis supurativa [17].

PM scholars believe ***"Masam"*** (pores) also exist in other body organs such as the eyelids [18], eyes, bones, joints, muscles, stomach, uterus, placenta [4].

According to PM references, ***"Masam"*** exist in eyes and eyelids. Obstruction and condensation ***(Takasof* تکاثف*)*** of these ***"Masam"*** lead to a disease termed Ramad (red eye), while drugs that induce porosity ***(Takhalkhol* تخلخل*)*** are effective in faster recovery of this eye disorder [4, 18]. Contemporary histological studies have identified eyelash follicles, sweat glands and a collection of large sebaceous glands -Meibomian glands- that secrete their discharge to the edge of the eyelid, the inflammation of which is known as sty or chalazion [19].

As for muscles, constriction ***(Enghebaz* انقباض*)*** of ***"Masam"*** is specified to be an etiology of

persistent muscular swelling and inflammation [4].

The existence of ***"Masam"*** in bones and joints is also mentioned in PM. Avicenna believes that axial bones contain ***"Masam"*** [4]. He also believes the main cause of articular pain aggravation in autumn to be related to ***"Masam"***. Dilation of ***"Masam"*** in the previous season –summer, the presence of ill-natured humors ***(Akhlat-e radieh اخلاط ردیه)***, and indigestion, altogether aggravate joint pain making treatment difficult in seasons like autumn. Likewise, hot and moist bathes are considered harmful for joint pain because while facilitating flow of ill-natured humors, they dilate ***"Masam"***, and thus lead to easier penetration of such humors in joint tissues and spaces [4]. Accordingly, it is mentioned in contemporary studies that the articular synovial capsule is covered with synovial membrane, a specialized connective tissue with many ***"fenestrated"*** capillaries. Rapid exchange of substances between the tissues is possible through their small pores.

Avicenna has described ***"Masam"*** in the uterus, and has specified opening ***(Tafteeh تفتیح)*** them as one of the treatments of menstrual retention [4]. Regarding placental ***"Masam"***, the pores developed in the fetal feeding membrane are responsible for embryo nourishment and blood supply [19]. A cold dystemperament ***(su-e mizaj-e bared)*** of uterus tightens the ***"Masam"*** and impairs fetal nourishment [4].

PM literature link the production of bloody sputum with ***"Masam"*** in pulmonary vessels. An increase in vessel moisture leads to vessel laxity and ***"Masam"*** dilation, resulting in blood leakage and hemoptysis [4].

The stomach also contains ***"Masam"***. A component of treatment in dry dystemperament of stomach is a warm-moist bathe, which hydrates the body and dilates ***"Masam"*** [4].

"Masam" Functions

A main function of ***"Masam"*** is skin respiration through which the vital spirit ***(rouh-e hayvani روح حیوانی)*** and the innate heat ***(hararat-e-gharizi حرارت غریزی)*** are refreshed [20, 21].

"Masam" also function as a pathway for excretion of waste material via sweat, sebum and hair [18, 22]. Modern medicine describes sweat pores as accelerator mechanisms of heat loss and secondary excretory organs which excrete nitrogenous waste products and excess salts [19]. As stated in PM references, coagulation of specific types of wastes ***(Bokhare-dukhan بخار دخانی)*** in ***"Masam"*** leads to hair formation [10]. Structural characteristics of ***"Masam"*** are also of importance, as they determine hair features; for example, a curved shape ***"Masam"*** results in curly hair formation [4, 18]. This is confirmed by contemporary literature, which indicate the formation of curly hair to be related to follicle structure; it is understood that curly hair emerges from oval follicles and smooth hair from circular ones [23].

"Masam" are entrance pathways for foreign substances. Penetration depends on the type and conditions of the matter; dense material such as ceruse (sefidab) are not able to enter the skin through ***"Masam"***, while entrance of some substances depends on drugs that increase their

penetration [4]. Some studies have examined variations of hair follicle distribution in different body sites and concluded that the number of hair follicles in the forehead and calf region is much more than other skin areas such as the upper arm and can therefore be recommended for topical application of drugs for better systemic penetration and absorption [24].

"Masam" Alterations

Either directly or indirectly, ***"Masam"*** mediate manifestations of some diseases. Their obstruction or tightening leads to decreased sweating, alopecia, dry eyelids, infertility, and some types of fever, to name a few. Conversely, ***"Masam"*** dilation causes diaphoresis and increased rate of material removal from the body. Meanwhile, ***"Masam"*** play an important role in the treatment of many disorders; for example, modifying ***"Masam"*** may be used in the treatment of diarrhea, fevers, hemorrhoids, skin eruptions, retention of menstruation, obesity [4, 18, 22].

Overall, these pathologic and therapeutic effects come through different mechanisms and various conditions of ***"Masam"***. Conditions such as excessive opening **(*Enfetah* انفتاح)**, dilation **(*Ettesa* اتساع)**, porosity ***(takhalkhol* تخلخل)**, and also those to the contrary such as obstruction **(*Ensedad* انسداد)**, closure ***(Bastegi* بستگی)**, tightening **(*Tazyeeq* تضییق)** and condensation **(*Takasof* تکاثف)**, are terms that are almost always associated with the word ***"Masam"*** in PM references [4, 18, 22].

Due to the wide range of concepts these specialized terms encompass, discussing them is not possible in this article.

Discussion

Despite the crucial role of ***"Masam"*** in the pathophysiology and treatment of several diseases, no specific chapter has been allocated to this important concept. The present study was an attempt to compile and study PM data on the location, characteristics and applications of ***"Masam".***

PM references define ***"Masam"*** as very small holes and pores mostly opening to the surface of the skin. The wide application, importance, and visibility of ***"Masam"*** in the skin may be reasons as to why only this organ has been stated in the definition. However, it should be kept in mind that Persian physicians have dispersedly mentioned ***"Masam"*** to exist in other organs as well.

Skin ***"Masam"*** match pilosebaceous units and sweat glands; this is because one of their functions is excretion of sweat and sebum and also hair growth. However, since ***"Masam"*** also participate in skin breathing and substance absorption/expulsion, they cannot be limited to pilosebaceous units and sweat glands, probably incorporating a wider range of units.

Based on the functions mentioned for ***"Masam"*** in other body organs, we perceived that they are exchange pathways of materials. Generally, it seems that Persian physicians considered ***"Masam"*** as functional units as well as visible pores.

Based on the results of this study, PM scholars considered ***"Masam"*** as means of material transport and penetration. Currently, advanced modern instruments provide details of material exchange between body organs, tissues and cells. It is consequential that Persian physicians

realized specific factors for transport of materials, without having exact details of body histology, only with observations of signs and symptoms. As stated in our results, various conditions of ***"Masam"*** have also been recognized in PM textbooks: conditions such as opening, dilation, porosity, and also those to the contrary including obstruction, closure, tightening and condensation. Perhaps the Persian physicians' purpose of mentioning these conditions could be due to the changing in the rate of penetration (quantitative permeability) or selective penetration of materials (the qualitative permeability) of the ***"Masam".***

Conclusions

Based on the findings presented in this article, we try to propose a better definition of ***"Masam"*** as: Orifices in the skin and other parts of the body, which are divided into perceptible (visible) and imperceptible (conceptual/functional). Nowadays, even some imperceptible pores such as capillary pores can be seen with an equipped eye. In other words, the term ***"Masam"*** in PM literature points to macroscopic, microscopic and nanoscopic pores in the body which facilitate transport of material in the body. Overall, various characteristics of ***"Masam"*** can be classified into several categories:

1. Facilitating penetration of materials such as oxygen (skin breathing) and topical medications into the body;
2. Allowing expulsion of materials from the body, such as hair growth and excretion of waste products like sebum, sweat, and carbon dioxide;
3. Acting as an exchange pathway for materials in various organs within the body, including the placenta, uterus, synovial membrane, stomach, muscle, lung vessels, etc.;
4. Taking various characteristics and the possibility to use these conditions in diagnosis and treatment of many disease states and observing the bioavailability of drugs.

Nevertheless, the ***"Masam"*** described by PM literature include vascular and non-vascular openings in organs, which may collapse externally or occluded internally by bad deposition of material including humor, as named the ***"Bad-Anbasht syndrome"*** [25, 26] in previous articles. This obstruction may lead to blockage of the Haar [21] -as the innate functional potential- and the innate heat and moisture to reach the organs causing dysfunction and dystemperament [27]. Changing the rheological characteristics of such material by a preparation process named ***"Nozj"*** [25] may help their removal and therefore open ***"Masam"*** to yield the return of normal organ temperaments and functions including actions and reactions.

References

[1] Mosaddegh M, Naghibi F. Iran's Traditional Medicine, past and Present. Tradit Med Materia Medica. 2002;1:2-20.
[2] Naseri M, Ardakani MRS. The School of Traditional Iranian Medicine, the Definition, Origin and Advantages. J Int Soc History Islamic Med. 2004;3:17–21.
[3] Larijani B, Zahedi F. An introduction on medical ethics history in different era in Iran. DARU Suppl. 2006;1:10-16.
[4] Ibn Sina AAH (Avicenna). Canon of Medicine (Al-Qanun fit-Teb). Al-Aalamy lel-Matbooat Institute. Lebanon 2005 [Arabic].
[5] Dehkhoda AA. LoghatNameh Dehkhoda (Dehkhoda's Encyclopedia, Dictionary). 2nd Ed. Tehran University Publication. Tehran 1994 [Persian].
[6] Maluf L. Al-Monjed fil-Loghat val-Alam. Esmaeilian.

Qom 1988 [Arabic].
[7] Abdolhamid H. Al-Qamus. Studies of Medical History, Islamic and Complementary Medicine. Tehran 2008.
[8] Tajbakhsh H. Farhang Al-Aghraz o-Tebbiah. Tehran University. Tehran 2006 [Persian].
[9] Tahanawi MA. Kashaf Estelahat-el-Fonun. Maktabat-al-Lobnan Nasheroun. Beirut 1996 [Arabic].
[10] Nafisi A. Farhang Nafisi. Khayyam. Tehran 1964 [Persian].
[11] Qamary H. At-Tanvir. Institute of Historical Studies, Islamic and Complementary Medicine. Tehran 2008 [Persian].
[12] Heravi MY. Bahr-ol-Javaher. Jalal-ed-Din. Qom 2008 [Arabic].
[13] ShadMohammad. Annendraj. Khayyam. Tehran 1956 [Persian].
[14] Jorjani SE. Alaii's Secret (Khofi-e-Alaii). 2nd Ed. Ettela'at press. Tehran 1990 [Persian].
[15] Uhoda E, Pierard-Franchimont C, Petit L, Pierard GE. The conundrum of skin pores in dermocosmetology. Dermatology 2004;210:3-7.
[16] Jo HY, Yu DS, Oh CH. Quantitative research on skin pore widening using a stereoimage optical topometer and Sebutape. Skin Res Technol 2007;13:162-168.
[17] Habif TP. Clinical Dermatology: A Color Guide to Diagnosis and Therapy. 5th Ed. Mosby Elsevier. New York 2010 [Persian].
[18] Arzani MA. Akbari Medicine (Tebb-e Akbari). Jalal-ed-Din. Qom 2008 [Persian].
[19] Mescher A. Junqueira's Basic Histology: Text & Atlas. 12th Ed. McGraw-Hill. Noida 2010.
[20] Tabari A. Paradise of wisdom (Ferdos-ol-Hekmah). Mehr Amin. Tehran 2008 [Persian].
[21] AlizadehVaghasloo M, Naghizadeh A, Babashahi N. The Concept of the Haar-re-Gharizi and Hararate Gharizi: The Innate Hot [Substance] and Heat. Trad Integr Med 2017;2:3-8.
[22] Aghili SMH. The Principal's of Traditional Iranian Medicine (Kholassat-al-Hekmah). Esmaeilian. Qom 2006 [Persian].
[23] Brenner FM, Batista Rosas FM, Neto JF, Bleggi Torres LF. Morphometry of normal scalp hair follicles. An Bras Dermatol 2006;81:46-52.
[24] Otberg N, Richter H, Schaefer H, Blume-Peytavi U, Sterry W, Lademann J. Variations of Hair Follicle Size and Distribution in Different Body Sites. J Invest Dermatol 2004;122:9-14.
[25] AlizadehVaghasloo M, Zareian MA, Soroushzadeh SMA. The Concept of Nozj. Trad Integr Med 2016;1:133-135.
[26] AlizadehVaghasloo M, Naghizadeh A, Keshavarz M. The Concept of Pulse. Trad Integr Med 2017;2:54-60.
[27] Shirbeigi L, Zarei A, Naghizadeh A, Alizadeh Vaghasloo M. The Concept of Temperaments in Traditional Persian Medicine. Trad Integr Med 2017;2:143-156.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 2, Issue 2, Spring 2017

Concept Definition

The Concept of Pulse

Mahdi Alizadeh Vaghasloo[1*], Ayeh Naghizadeh[1], Mansoor Keshavarz[2]

[1]*Department of Traditional Persian Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran.*

[2]*Department of Physiology, School of Medicine, Tehran University of Medical Sciences, Tehran. Iran.*

Received: 18 May 2017 **Accepted:** 23 May 2017

Abstract

Apart from being a sign in diagnosis, the pulse is a unique conceptual issue in Traditional Persian Medicine (TPM) that deserves to be discussed in detail. A positional and local motion originating from the source of vital spirit, and consisting of two movements and two rests, the pulse increases the vital spirit and produces the psychic spirit. Analyzing the pulse provides a framework to evaluate conditions of the heart and its vital force, conditions of the matter in the vascular wall and both inside and outside the vascular lumen, and the status of tissue demand for ventilation. There are many factors, both physiologic and pathologic that can bring about specific changes in various parameters of the pulse. Therefore, the comprehensive pulse diagnosis of TPM inquires and is founded on assessing ten features of the pulse, namely parameters of pulse expansion dimensions, pulse strength, pulse speed, pulse frequency, vessel fullness, vessel consistency, overlying skin and tissue quality, pulse uniformity, regularity vs. irregularity of pulse diversity, and pulse weight or music. Overall, the pulse is a demonstration of blood perfusion in tissues, which in turn determines the temperament of organs. This concept has led the authors to the "Doctrine of Priority of Blood Production and Distribution over the Formation of Temperaments and Dystemperaments". Derived and assessed by the study of pulse in TPM, this doctrine may be used to forecast different temperaments and dystemperaments within an individual by evaluation of the blood and its distributional status via the pulse. This doctrine may solve the paradoxical findings of non-homogenous dystemperaments in single individuals, and reduce misdiagnosis and treatment.

Keywords: Pulse, Traditional Persian Medicine (TPM), Avicenna, Blood Production and Distribution Doctrine, Temperament, Nabz

Citation: Alizadeh Vaghasloo M, Naghizadeh A, Keshavarz M. **The Concept of Pulse.** Trad Integr Med 2017; 2(2): 54-60.

*Corresponding Author: Mahdi Alizadeh Vaghasloo
Department of Traditional Persian Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran.
Email: m-alizadehv@sina.tums.ac.ir
TEL: +98 88990837-105

Introduction

Apart from being a sign in diagnosis, the pulse is a unique conceptual issue in Traditional Persian Medicine (TPM) that deserves to be discussed in detail. The pages written in its favor, forms more than a quarter of the pages written on semiology. This article is derived from a qualitative method research performed on TPM manuscripts ranging from 2nd to 20th A.D. centuries [1]. The conclusive definition and overall description of pulse compiled from the above mentioned literature is as follows:

"***The pulse "Nabz"*** ***نبض*** is a positional and local motion, originating from the source of vital spirit, the heart and arteries. It is composed of both expansion and contraction to maintain innate heat in its temperate state; expansion, contributes to ventilation of the vital spirit via the breeze of cool air, while contraction helps expel wastes and hot burnt smoke vapors "***Abkhereh-e-dokhanieh***" ***ابخره دخانیه*** condensed in the spirit. The pulse also serves to increase the vital spirit "***Rouh-e-heivani***" ***روح حیوانی*** and produce the psychic spirit "***Rouh-e-nafsani***" ***روح نفسانی***.

Significance of the Pulse

The pulse is one of the most reliable indications of body status in terms of health and disease, and the best sign by which the heart can be evaluated. Moreover, the vital concept of "blood production and distribution", cannot be fully assessed without appraising the pulse. Essential features of TPM pulse diagnosis may be summarized as follows:

- It is the **most discussed sign** in the literature, and the most important one.
- It is one of the **fastest and most sensitive signs** of the body that makes some of its parameters a real-time indicator of the body and even mental status.
- It is **one of the most ruled-based and mathematical signs** of the body, which can be easily analyzed by suitable digital devices and categorized by trained and qualified examiners. This makes it one of the simplest and most accessible signs that can be examined even in abroad villages without need to any complicated device.
- It is **one of the most sophisticated signs**, since almost any intervention and change in lifestyle may affect and change it; thus, many information may need to be collected from the history and examination to differentiate between similar pulses.
- It is **one of the most comparable signs**, the TPM descriptions of which may be approved to a large extent by modern hemodynamic and rheological and physiological evidence.

Components of the Pulse

Each pulse wave form is composed of two movements and two rests: an expanding movement, and a peripheral (external) rest, followed by a contracting movement and finally a central (internal) rest (Fig. 1). Most practitioners can feel the last part of the expanding movement, and also the peripheral rest in most examinees. The contracting movement is not sensed in most cases, unless the examiner is a real expert or the pulse is either strong "***Ghavi***" ***قوی***, huge "***Azim***" ***عظیم***, rigid "***Solb***" ***صلب*** or slow "***Bati***" ***بطیء***.

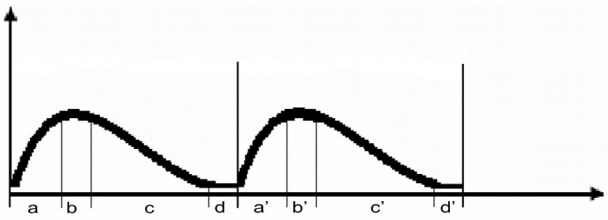


Figure 1. Components of the pulse. (a) expanding movement; (b) peripheral rest; (c) contracting movement; (d) central rest.

Regulations of Pulse Diagnosis

One can check any palpable artery for pulse in any manner by any method and obtain a spatial mental picture of the pulse contour, and then relate that picture with the clinical diagnosis of the patients to build a self-diagnosis system in his mind, but may not reach the description and diagnosis system in TPM literature unless fulfilling the required regulations. This is because various conditions change the perceived sensation from the pulse, and thus pulse diagnosis may not be easily translated from one school of medicine to the other, for example from Chinese to Ayurvedic or to Persian or modern western style very easily due to their different styles and conditions of examination.

Regulations may generally be classified into conditions of the artery, conditions of the persons involved, and conditions of the environment of examination. TPM literature describe many conditions for the best type of artery to be examined, all of which are met by the radial artery. The conditions of the examiner and the examinee are also discussed in detail. The environment must also have suitable temperature and calmness for good relaxation and concentration of both. According to TPM, placement of fingers in terms of number, direction, position, angle of placement, and level of pressure in which the pulse is examined are all important because they may alter the interaction of the pulse with the examiner's fingers and thus change his or her perception. For example, TPM, opposed to Chinese, Ayurvedic and Western style of pulse diagnosis, requires placing "four" fingers proximal to the styloid process, with the small finger toward the distal end of the limb.(Figure 2)

Retentive Causes of Pulse

As philosophers, TPM scholars like Avicenna have discussed four essential causes for pulse formation. The agent cause "***sabab-e fa'eli***" سبب فاعلی being the heart or it's vital force, the material cause "***sabab-e maddi***" سبب مادی being the blood, the vessels and the extravascular tissue, the formal cause "***sabab-e soori***" سبب صوری, being movement, and the final cause "***sabab-e ghayi***" سبب غایی, which is the ventilation of tissues and their innate hot [substance], "***Haar-e gharizi***"[2] حارغریزی. This all means that the heart or the vital force moves the blood, vessels and extravascular tissues to ventilate the Haar and body tissues. Since all pulse have movement in common, Avicenna summarized the four into three "retentive" causes "***asbab-e masekeh***" اسباب ماسکه, which form the foundations on which the pulse is built upon and maintained [3]. It could therefore be realized that every single pulse guides to at least three conditions and status; first, the conditions of the heart and its vital force, second, the conditions of the matter in the vascular wall and both inside and outside the vascular lumen, and third, the status of tissues and ***Haar***'s demand for ventilation. The two latter are respectively related to wetness and warmness, which are the two main qualities forming the temperament. Hence, generally speaking, every pulse provides information on the energy and temperament status of the body [4].

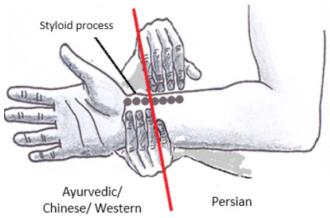


Figure 2. Comparison between location, direction and number of fingers used for pulse diagnosis in different schools of traditional medicine.

Modifying causes of the Pulse

Many factors, may affect the pulse via altering the retentive causes. Sexuality, age, temper-

ament, body type and shape, seasons and climate are amongst the factors that apply to every person and correlate to a specific characteristic change in the pulse.

Other than satiety/hunger status and the quantity of consumed food and drinks, their quality in terms of temperament, may also alter certain features of the pulse.

Regarding sleep and wakefulness, various considerations may be taken into account. Features of the pulse fluctuate during stages of sleep, including the beginning and end phase. Likewise, situations such as moderate versus prolonged sleep, sleeping in a fasting or postprandial state, and spontaneous waking as opposed to being waked up, whether calmly or abruptly can each yield a certain kind of pulse.

Obviously, movement and sedentariness affect the pulse. TPM literature have described specific pulse alterations depending on the timing and severity of exercise.

The influence of bathing on the pulse depends on factors like water temperature, and length of stay.

In addition to the mentioned factors, the pulse is affected by sexual intercourse, pregnancy, breast feeding, and emotions such as anger, pleasure, happiness, sadness, grief and fear.

Extreme conditions of the physiologic states described above, in addition to diseases, may exhaust or impose a burden on the vital power, thereby weakening the pulse or altering its characteristics suddenly or gradually. TPM manuscripts provide an in-depth discussion on pulse changes in specific and also general disease conditions including stagnations, infection, inflammation, pains and diseases. In relation to inflammation and swelling, specific pulse features have been determined depending on the type of the organ involved, the amount, stage, type and other characteristics of the inflammation.

The Ten Parameters of Pulse

TPM scholars analyzed and described each pulse by means of ten parameters. The parameters help better reporting and teaching of complex pulses and even help translation and correlation of each pulse from one school of medicine to the other. This is due to the fact that they are much more fundamental and thus comparable than the complex pulse names in each school. For example, a "***Xuan-Xi***" Chinese pulse is narrow in diameter and hard in consistency which resembles the "***Thin***" ***رقیق*** TPM pulse which has the same quality as these two parameters. The ten parameters of TPM pulse diagnosis are as follows:

1.Pulse Expansion Dimensions ***مسافت انبساط رگ***

The first parameter considers the extent of pulse expansion in the three dimensions of length, width, and height. Each dimension is examined separately and assessed as excess, moderate or deficient. Therefore, the pulse may be described as long "***Tavil***" ***طویل***, moderate "***Mo'tadel***" ***معتدل در طول***, or short "***Ghasir***" ***قصیر*** in terms of length; wide "***Areez***" ***عریض***, moderate, or narrow "***Zigh***" ***ضیق*** in terms of width; and high-set "***Shahegh***" ***شاهق***, moderate, or low-set "***Monkhafez***"***منخفض*** in terms of height. Each dimension is related to a diagnostic state; for instance, length is related to the strength of the heart, while width is associated with the wetness or flexibility status of the vessels, bearing the most correlation with the extent of body wetness.

A "compound pulse" ***نبض مرکب*** is a pulse described by more than one description or parameter. A huge "***Azim***"***عظیم*** pulse, an example of a compound pulse in which all three dimensions are at their extreme, is a long, wide and high-set pulse. On the contrary, a tiny "***Saghir***" ***صغیر*** pulse, is short, narrow and low-set.

2.Pulse Strength قوت نبض

This parameter is probably the most important parameter studied in TPM, which provides an estimate of the vital force originating from the heart and is somehow the origin of all other forces of the body. It is based on the quality of the beating impact of the pulse against the examiner's finger. It is divided into strong "***Ghavi***" ***قوی***, moderate, and weak "***Za'eef***" ***ضعیف*** based on the force it exerts on fingers. A strong pulse is a prerequisite of many of TPM treatments in order to prevent faint or weakness during procedures. [5,6]

3.Pulse Speed سرعت نبض

The parameter of speed, reflects time durations of contraction and expansion, and is categorized into fast "***Sari***" ***سریع***, moderate, and slow "***Batei***" ***بطیء***. It is compatible with today's concept of pulse wave velocity.

4.Pulse Frequency تواتر نبض

The frequency of pulse takes into account the relaxation (rest) phases between two pulse waves. This parameter, may be considered as an equivalent to pulse rate, and is described as frequent "***Motevater***" ***متواتر***, moderate and infrequent pulse "***Motefavet***" ***متفاوت*** . Extremes of the frequent and infrequent pulse may lead to conditions known today as tachycardia and bradycardia.

5.Vessel Fullness امتلاء رگ

Depending on the degree of vascular fullness which is felt in between the pulses at the rest period, the pulse or better say the vessel, is named full "***Momtali***" ***ممتلی***, or empty "***Khali***" ***خالی***. The full pulse may also be categorized depending on what the examiner senses, a non-consistent gaseous fullness or a more consistent viscous humor filled fullness. This parameter is very much related to subclinical assessment of hemorheology.

6.Vessel Consistency قوام رگ

The consistency parameter describes the extent of vascular stiffness as rigid "***Solb***" ***صلب***, moderate, or flexible "***Lin***" ***لین***. Considering the many diverse etiologies of rigidity including vascular fullness, vasoconstriction, dryness and etc., one may realize that there is a diverse etiological aspect for primary hypertension, the most common known type of hypertension, albeit with unclarified etiology and no evident reason for the diverse response to a similar treatment. This is an example of where TPM may intervene to sort the patients with its own criteria and show the diversity of their temperaments and hence the diversity of treatments.

7.Overlying Skin and Tissue Quality کیفیت ملمس رگ

In TPM, not only the pulse wave and the vessel, but the surrounding tissues and overlying skin are examined in terms of their palpable qualities like warmness vs. coldness and wetness vs. dryness, and tissue consistency. Sufficient moisture and wetness are essential elements in maintaining optimal consistency and permeability of a tissue, which in turn facilitate physiologic flow of material in biological systems. Differences in this component may be a source of variability in food and drug distribution and bioavailability among various individuals. The deposition of undigested food or waste products in the interstitium may interfere in the above mentioned flow causing defects in body functions. This condition, named the "***Bad-anbasht syndrome***" ***نشانگان بدانباشت*** in the previous articles [7] may also be detected, categorized and correlated to clinical scenarios by examining the consistency and the amount of tissue above the pulse. The authors believe that a general estimate of other tissues and the whole interstitial space may be achieved by examining certain outside regions of the body especially bilateral regions over the wrist pulse. Although the pulse is a real time assessment of heart and body situation similar to

blood glucose level in the evaluation of diabetes, some parameters like the consistency of the overlying tissue show a past long-term situation of the pulse and perfusion which is comparable to the measurement of HbA1c.

8.Pulse Uniformity استواء نبض

The components of pulse can be examined in terms of uniformity or diversity. This is described as a spectrum ranging from absolute diversity to absolute uniformity. At least two pulse wave pictures sent to the examiner's brain are compared in each assessment to observe uniformity vs. diversity. These are the pictures of two successive pulses reaching a single sensor, here the finger tip of an examiner or perhaps the two pictures of one single pulse passing underneath two consecutive sensors, specifically two subsequent fingers placed on a vessel. An even more detailed comparison has been mentioned by dividing each finger into 3 sub-fingers and comparing the pulse felt underneath each part. The diverse pulse may also be categorized depending on the continuity or discontinuity of the change. Uniformity is assessed in terms of various above mentioned parameters including strength, length, speed, frequency, fullness, consistency and quality of the overlying tissues.

9.Regularity vs. Irregularity of Pulse Diversity انتظام نبض

An irregular pulse, regardless of the parameter examined, is further divided into regularly irregular and irregularly irregular types. Although this may resemble the classification of arrhythmias in main-stream medicine, but one should note that arrhythmias are mostly assessed by the study of the successive electrical activity of the heart via the electrocardiogram but what is discussed by TPM is the more clinical peripheral hemodynamic aspect of the heart similar to plethysmography or pulse oximetry. The advantage of this view is that besides comparison of successive pulses under one finger, a bonus comparison may be made by assessment of two fingers/sub-fingers observing a single pulse passing beneath. The latter comparison provides the examiner with more information especially on hemorheology and hemodynamic status of the examinee. Thus it may be claimed that TPM pulse diagnosis method opens a window towards subclinical hemorheology and hemodynamics.

Some types of irregular pulses are named after certain characteristics they possess. These so-called compound pulses include the rat-tail pulse "***Zanab al-Fari*** ذنب الفاری", hammer pulse "***Motraghi*** مطرقی", spindle pulse "***Mesali*** مسلی" , dichotic pulse "***Zu Ghor'atein*** ذوقرعتین", gazelle pulse "***Ghazali*** غزالی" , waving pulse "***Moji*** موجی" , saw-like pulse "***Menshari*** منشاری" , ant-like pulse "***Namli*** نملی", worm-like pulse "***Doodi*** دودی" , drop pulse "***Zul Fetreh*** ذوالفتره" , ectopic pulse "***Vaghe'fi al-Vasat*** واقع فی الوسط" , shivering pulse "***Morta'esh*** مرتعش" , twisting pulse "***Moltavi*** ملتوی" , vibrating pulse "***Motevater*** متوتر" , constricting pulse "***Moteshanej*** متشنج" , etc.

10.Pulse Weight or Music وزن نبض

This parameter includes the proportions between two corresponding components of two succeeding pulse waves or the proportion between two different components within a pulse wave, such as the expansion time ratio in two waves or expansion/contraction ratio in one single wave. These weight proportions, fixed in all human beings, comprise the music and harmony of the pulse. A pulse in terms of weight, is classified into two types of balanced and unbalanced. The latter is further divided into three subtypes of mild, moderate and severe unbalanced pulse. The more unbalanced is a pulse, the stronger is the cause and severity of disease and the more likely is the weakness of the heart.

Implications of Pulse in Temperament Diagnosis

Temperaments are key concepts in traditional schools of medicine. According to qualitative research and investigations in TPM literature, we have reached the conclusion that the formation of diverse temperaments is highly related to the amount of blood perfusion of the organs. In other words, when an organ is perfused well by the warm- and wet-tempered blood it gets its natural warm and wet temperament and when it is not receiving good blood, it will lack in its warmness and wetness or both. Obviously, cold and dry tempered organs like cartilage and bone receive much less blood regularly. This conclusion has brought up the writers of this article to the ***"Doctrine of Priority of Blood Production and Distribution over the Formation of Temperaments and Dystemperaments"***. Derived and assessed by the study of pulse in TPM, this doctrine may be used as a shortcut to forecast different temperaments and dystemperaments of different organs without too much questioning and examination and mostly by evaluation of the blood and its distributional status via the pulse. This doctrine may solve the paradoxical findings of non-homogenous dystemperaments in single individuals, and reduce misdiagnosis and treatment. The original evidence and applications of this hypothesis will be discussed in future articles.

Conflicts of Interest

Authors have no conflict of interests.

References

[1] Alizadeh Vaghasloo M. Explaining the Ten Parameters of Pulse Diagnosis in Traditional Iranian Medicine, [PhD thesis]. School of Traditional Medicine, Tehran University of Medical Sciences.

[2] Alizadeh Vaghasloo M, Naghizadeh A, Babashahi N. The Concept of the Haar-re-Gharizi and Hararate Gharizi: The Innate Hot [Substance] and Heat. Trad Integr Med 2017;2:3-8.

[3] Alizadeh M, Keshavarz M, Ebadiani M, Nazem E, Isfahani MM. Complexity and rationality of Avicenna's pulsology: a step towards understanding the past for today's applications. Int J Cardiol 2012;157:434-435.

[4] Avicenna. Canon of Medicine. Vol 1. Al-Mayi. Tehran 2014; pp 43-81.

[5] Razi MZ. Al-Havi fi Al-Tibb. Vol 14. Dare Ehya al-Toras Institute. Beirut 2001; p 288.

[6] Ahvazi AA. Kamel al-Sana'a al-Tebbiya. Vol 3. Jalaluddin Publications, Institute of Natural Medicine Restoration. Qom 2008; p 95.

[7] Alizadeh Vaghasloo M, Zareian MA, Soroushzadeh SMA. The Concept of Nozj. Trad Integr Med 2016;1:133-135.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 2, Issue 3, Summer 2017

Letter to the Editor

Rhazes's Opinion about Relationship between Physical Activity and Eating Food

Mohammad Ebadiani[1], Marzieh-Beygom Siahpoosh[2]*, Alireza Nikbakht Nasrabadi[3], Gholamreza Shah Hosseini[4], Mohammad Mahdi Isfahani[5]

[1]Department of Iranian Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran
[2]Iranian Traditional Medicine Association, Qazvin, Iran.
[3]Tehran School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran
[4]Department of Orthopedy, Rasool-e Akram Hospital, Iran University of Medical Sciences, Tehran, Iran
[5]Department of Iranian Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran

Received: 1 May 2017 **Revised:** 25 Jun 2017 **Accepted:** 10 Jul 2017

Dear Editor

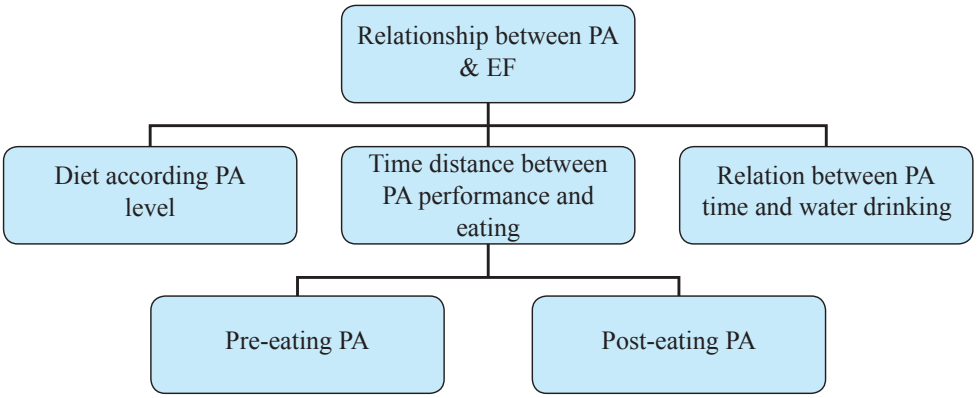
Regular physical activity (PA) and healthy diet are two important factors to determine health behaviour which result in health preservation and disease prevention [1, 2]. Mohammad Ibn Zakariya Razi (Rhazes) (865 – 925 AD), one of the most brilliant scientists in Iran, authored more than 180 books in medicine and other scientific fields. He is also famous for discovering alcohol and sulfuric acid [3]. He believed that in order to preserve health everyone ought to observe not only regulations of both PA and nutrition, but also he/she should learn about their relationships and obey their rules as well [4]. Through studying the book "Manafeolaqzieh va mazarreha" which means: "Foods advantages and disadvantages" authored by Rhazes and translated to Persian by Dr. SA. Alavi-Naini [4], three main themes with two secondary ones describe the relations between PA and eating food.

The main themes were: "The time distance between PA performance and eating" with two secondary themes: "Pre-eating PA" and "Post-eating PA", "Diet according to PA level" and "Relation between time of PA performance and water drinking" (Shape 1).

A) Time distance between PA performance and eating:

Rhazes said that while the food has not been digested completely, doing PA is prohibited. Urine colour and its changes from discoloured to dark yellow, is the sign of complete digestion.

*Corresponding author: Marzieh-Beygom Siahpoosh
Iranian Traditional Medicine Association, Qazvin, Iran
E-mail: mar.siahposh@yahoo.com
Tel: 09127811688



Shape 1: Relationship between physical activity (PA) and eating food (EF) according to view point of Rhazes

A-1) Pre-eating PA

Effects: PA before eating is one of the most important factors for health preservation. It enriches digestion through creating innate heat and facilitates wastes defecation.
Indications: All individuals, especially obese persons, need to do PA before eating. Individuals with low body weight, weakened body, warm temperament and who suffer from headache following tardiness in eating are allowed to avoid of it.
Instruction: This activity should be performed rapidly so that it result in deep and rapid respiration and also internal organs enjoy heat. Personal ability is important to choose type of PA; for example, the elderly may choose slowly horse riding instead of running.

A-2) Post-eating PA

Effects: PA, especially rapid movements, immediately after eating is one of the most harmful things for health because of diffusion of undigested substances among organs. It may result in abdominal distension, diarrhea and burping with sour taste
Indications: Individuals whose gastric digestion is slow, and who will feel heaviness in their head if they rest after food, are allowed to walk slowly after eating food.
Instruction: It should be performed slowly so that no member will be affected by the heat and no changes will be occurred in respiration.

B) Diet according to PA level

Athletes and individuals with active job digest food rapidly. They should avoid using light and eupeptic foods for long time; otherwise, not only their body will be weakened , but also diseases in relation to “yellow bile” may develop and also premature aging may occur. They should use heavy and nutritious foods. Individuals who have low level of PA due to oldness, body weakness, having no time and etc, ought to avoid from heavy and nutritious foods especially for long time; otherwise, they may contract obstruction among internal organs, articular pain, fever, internal bleeding, internal organs inflammation and some cutaneous lesions. If they eat such foods, they should use some nourishment to prevent from obstructions.

C) Relation between PA time and water drinking

Sudden drinking of too cold water after PA, especially high intensity exercise, causes liver cold stress which may result in accitis and other diseases which occur following liver coldness. If someone cannot stand thirst either among or after PA, he/she should drink a little amount of

water sipping. If someone drinks cold water, it is necessary to cover the liver with a hot towel immediately.

According to Rhazes's viewpoint, there are three important rules about relation between PA and food for health preservation: The first rule is that PA performing before having food is essential and avoidance of PA after having food is needed for everybody. The second rule is paying attention to choose diet according to PA level. The third rule is avoidance of suddenly drinking of cold water either among or after PA. Some diseases may occur due to neglect from such relations despite healthy diet and appropriate level of PA. It means that your diet may be very healthy and you may perform enough PA and exercise but you pay no attention to their relation so, you are talented to get sick! Furthermore, Rhazes taught simple preventive ways from these events such as "putting a hot towel on liver after drinking cold water during exercise" to prevent from occurring liver cold stress and diseases, and using some food to equilibrate events of some other foods such as using fava bean to prevent from internal obstructions. A clinical research on Rhazes's opinions is offered.

Conflict of Interests

None.

Acknowledgments

This study was a part of thesis entitled: '' The exploration of principles and rules of exercise to health preservation and promotion according to Persian medicine''; which was supported by a grant from Tehran University of Medical Sciences.

Citation: Ebadiani M, Siahpoosh M, Nikbakht Nasrabadi A, Shah Hosseini G, Isfahani MM. **Rhazes's Opinion about Relationship between Physical Activity and Eating Food**. Trad Integr Med 2017; 2(3): 99-101.

References

[1] Hwang GS, Choi Jw, Choi HS, Lee SG, Kim KH, Cho YM. Effects of a Tailored Health Promotion Program to Reduce Cardiovascular Disease Risk Factors among Middle-Aged and Advanced-Age Bus Drivers. Asia Pac J Public Health 2012;24:117-127.

[2] Angelia MP, Rhonda KLM, Jamilia S, Beverly JW. Addressing Health Disparities among African Americans: Using the Stages of Change Model to Document Attitudes and Decisions about Nutrition and Physical Activity. J Community Health 2010;35:10-17.

[3] Tabatabaei SM, Kalantar-Hormozi AJ, Asadi M. Razi's Description and Treatment of Facial Paralysis. Arch Iran Med 2011;14:73-75.

[4] Razi MZ. Manafeolaqzieh VA Mazarreha. 1st ed. Taban publisher. Tehran 1964; pp 214- 230 [Persian].

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 1, Issue 1, Winter 2016

Review Article

Convoy Drugs in Traditional Persian Medicine: The Historical Concepts of Bioavailability and Targeting

Nastaran Ebadi[1], Fatemeh Masoomi[1], Maryam Yakhchali[1], Seyede Nargess Sadati Lamardi[1], Mohammad Reza Shams-Ardakani[2], Omid Sadeghpour[3], Azadeh Raiesdana[1], Farid Ramezany[1]

[1] Department of Traditional Pharmacy, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran

[2] Department of Traditional Pharmacy, School of Traditional Medicine AND Department of Pharmacognosy, School of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran

[3] Department of Herbal and traditional Medicine, Research Institute for Islamic and Complementary Medicine, Iran University of Medical Sciences, Tehran, Iran

Received: 17 May 2015 **Revised:** 30 Jun 2015 **Accepted**: 08 Jul 2015

Abstract

Similar to other traditional medicines, Traditional Persian Medicine (TPM) applies its special terms for description of drug functions. Among these functions, convoy (*Mobadregh*) medicines are unique, mainly due to the interaction of them with the pharmacokinetics of other herbal medicines. These interactions suggest the potential herb-herb and herb-synthetic drug interactions with convoy medicines that necessitate the study and precise definition of them. For this purpose, old Persian medical texts and pharmacopeias were searched and investigated for the name of convoys, their target organ(s), primary qualities, and other functions. Relationships among convoy and other functions based on notes on the texts and statistical analysis were considered. Based on the old resources, the convoys were defined as modifiers (of drug actions), which facilitate access of drugs and foods to whole body or organs. The concept of targeting in some convoys was also implied as well as other disciplines such as Traditional Chinese Medicine and Ayurveda. Descriptive analysis of the available data showed that most of the convoys contain warm and dry primary qualities. Anti-blockage and thin consistencies are main characteristics of this class of drugs. Statistical analysis also showed diuretic activity is another major characteristic of them. Other functions such as discutient, attenuant, and tonic are capable to assist convoying by thinning of humors and organs. Analysis of TPM literature shows the presence of a logic approach in the formulation of compound drugs. Owing to the potential influence of convoys on the pharmacokinetic profile of other herbs and synthetic drugs, it is necessary to conduct future studies to evaluate these interactions in TPM and modern medicine.

Keywords: Traditional Persian Medicine, Materia Medica, Herbal Drug Interactions, Drug Functions, Drug Targeting, Bioavailability

Citation: Ebadi N, Masoomi F, Yakhchali M, Sadati Lamardi SN, Shams-Ardakani MR, Sadeghpour O, et al. **Convoy Drugs in Traditional Persian Medicine: The Historical Concepts of Bioavailability and Targeting**. Trad Integr Med 2016; 1(1): 18-27.

Corresponding Author: Farid Ramezany
Email: farid.ramezany@gmail.com

1. INTRODUCTION

Traditional Persian Medicine (TPM) is an invaluable experience resource of Persian pharmacists and physicians ancestors. Unfortunately, due to long recession period, lasted three centuries, some of these concepts are not only ambiguous in terms of contemporary medicine, but also for some traditional healers. To clarify the concepts, it is necessary to search, compare and decipher different literature of traditional medicine.

In TPM, drug properties were expressed as drug functions (*Afall*). Among the functions, convoying (*Badraghe*) is unique, mainly due to the relationship of this function with absorption and distribution of other drugs. In addition, there is a controversy among traditional healers about referring the concept of convoying to bioavailability, metabolism, and targeting or all of them.

In this overview, it was tried to describe convoys (*Mobadregh*) by comprehensive search in TPM medical books, pharmacopeias, and formularies. Then, the relationship among convoying and other function were considered based on the literature. Afterward, the primary qualities and other drug functions related to convoys were analyzed by statistical methods to find out a possible relationship between the convoying and other drug functions. Finally, ambiguities respecting to synergistic and targeting effects were discussed.

2. METHODS

A number of old Persian medical texts and pharmacopeias were searched for keywords convoying (*Badraghe*) convoy(s) [*Mobadregh(at)*] and to convoy (*Tabadrogh*) [1], [2], [3], [4], [5], [6], [7], [8], [9], [10]. Then, related texts (cf. Supplementary translated texts) were investigated for the name of convoys, their target organ(s) (Table 1), primary qualities (Figure 1) and other functions (Figure 2). Data analysis was carried out using SPSS (version 16, SPSS, Inc., Chicago, IL, USA). Relationships among the functions of convoys were analyzed using hierarchical clustering classification (Figure). Finally, relationships among convoy and other functions based on notes on the texts and frequency of possibly related characteristics were considered.

Table 1. The convoys used in TPM and their target organs

Common name (Proposed scientific name)*	Target organ(s)
Saffron (*Crocus sativus*)	Heart vessels Brain vessels Other organs
Vinegar	Spleen Brain internal
Melon seeds (*Cucumis melo*)	Liver Urinary tract
Zararih (*Hycleus polymorphus*)	Kidney Bladder
Chicory seeds (*Cichorium intybus*)	Liver
Celery seeds (*Apium graveolense*)	Liver
Hazelwort rhizome (*Asarum europaeum*)	Brain vessels
Tea leaf (*Camellia sinensis*)	Stomach Body internal
Fennel seeds (*Foeniculum vulgar*)	Body peripheral
White agaric (*Polyporus officinalis*)	Body peripheral
Anise seeds (*Pimpinella anisum*)	Non-specific (Acceleration)
Wild cinnamon bark (*Cinnamomum iners*)	Non-specific (Acceleration)
Sassafras bark (*Sassafras albidum*)	Non-specific (Acceleration)
Long pepper (*Piper longum*)	Non specific
Dill seeds (*Anethum graveolens*)	Non specific
Black pepper (*Piper nigrum*)	Kidney stones
Horsemint leaf (*Mentha longifolia*)	Kidney stones
Cinnamon bark (*Cinnamommum zeylanicum*)	Kidney stones
Pine seeds (*Pinus sylvestris*)	Not specified
Wine	Non-specific (Acceleration)
Camphor (*Cinnamommum camphora*)	Heart
Water	Non-specific

*In some cases, different scientific names were attributed to each convoy. Therefore, the most popular name was included as proposed scientific name. TPM: Traditional Persian Medicine

3. RESULTS

Table 1 represents the convoys and their target organs, which have been found by literature review. At a glance, the majority of convoys are specific for one or more organs. Acceleration of

drug effect is a mechanism for some of the non-specific convoys (anise seeds, wild cinnamon bark, sassafras, and wine). For other non-specific convoys, there is not any indication to the mechanism of convoying.

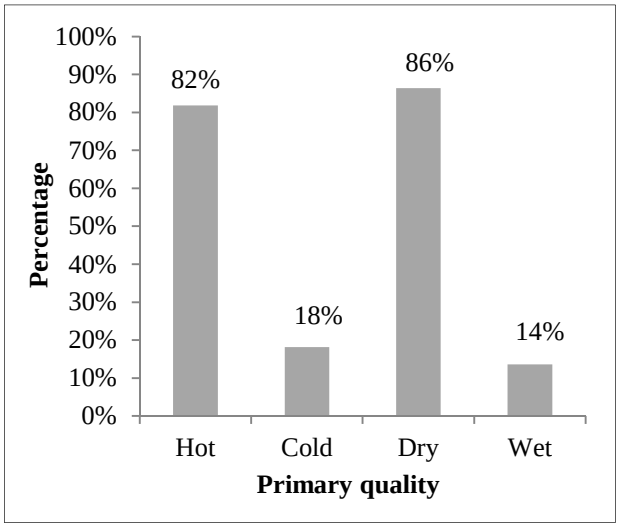


Figure 1. The frequency of primary qualities in convoys used in Traditional Persian Medicine

Figure 1 represents the frequency of primary qualities in convoys used in TPM [11], [12], [13]. Based on the result of the diagram, it is obvious that most of convoy medicines are hot (82%) and dry (86%). In terms of drug functions, the most of convoys were mentioned in literature as anti-blockage (*Mofatteh*) [3] and thin (*Latif*) [2]. Consideration of drug functions of convoys in TPM showed that anti-blockage (82%), diuretic (*Moder*, 68%), tonic (*Moghavi*, 64%), discutient (*Mohalel*, 59%), attenuant (*Molatef*, 55%), and abstergent (*Monaghi*, 46%) are conspicuous (Figure 1).

Figure represents the scheme of classifying six conspicuous functions of convoys used in TPM. The lowest rescaled distance cluster combine (RDCC) was observed for discutient and diuretic functions that indicate a close relationship of this function to each other in convoys. The anti-blockage also clusters with these functions, though RDCC is > 15. This indicates that there is a moderate relationship between anti-blockage and discutient and diuretic cluster. By the same analogy, attenuant and abstergent functions belong to a same cluster, which implies a relationship between these functions. The highest RDCC was observed for a tonic function that indicates the lowest relationship among it and other studied functions.

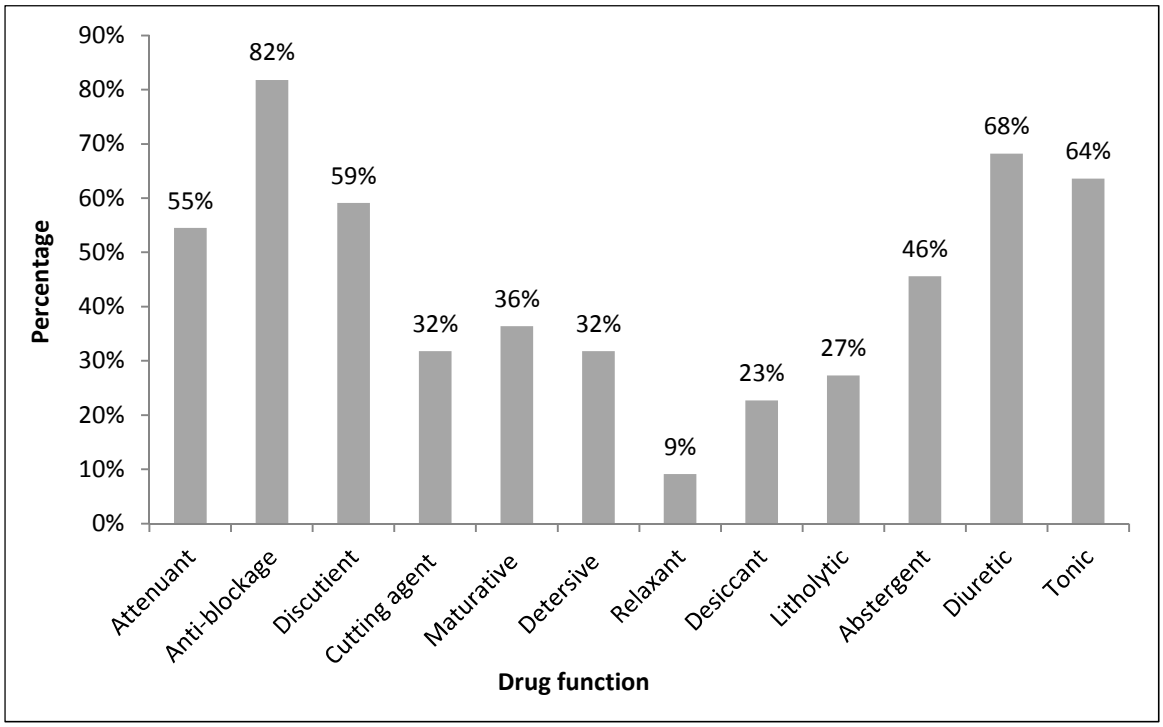


Figure 2. The frequency of drug functions in convoys used in Traditional Persian Medicine. See supplementary section for more information about the functions

4. DISCUSSION

Literature

In TPM, modification of lifestyle has priority over treatment. In the same manner, treatment with single, least side effects and low toxicity drugs was preferred to compound, high side effects, and toxic drugs, respectively. In this point of view, medical scholars tried to explain the conditions and reasons of compounding in medicaments. The drawbacks main drug(s) can be modified by two ways, processing (*Tadbir*) and use of another drug namely modifier (*Mosleh*).

A modifier was defined as a substance, which modifies the efficacy of foods and drugs. They were used for improving drug efficacy, reduction of side effects and masking unpleasant taste or odors. These goals could be achieved in several ways such as synergy, maintaining their effect (prevention from metabolism or stabilization of it in dosage form), sustaining drug release and convoying drug in whole body or specified organs [4], [14].

Based on these criteria, it is not surprising that convoys were classified as a type of modifiers in TPM [10]. In old authoritative literature, convoys were described as modifiers which homogenize, mix and/or guide the components (drug or food) to organs [1], [8]. In addition of these features, facilitation and speeding up characteristics were also emphasized [7], [9]. Therefore, it can be concluded the convoys are substances (or drugs) which, facilitate access of drugs and foods to whole body or organs.

Avicenna explained a number of mechanisms for increasing drug efficiency in organs by a combination of a drug with another drug [7]. It can be summarized as following routs:

1. Decrease in the digestion of main drug in an organ(s), which can be correlated to decrease or inhibition of its metabolism.

2. Facilitation and speeding up of main drug distribution to an organ(s).

3. In case of quickly absorbed drugs, decrease in absorption and distribution of main drug.

4. Targeting of the main drug by another to specified organ(s).

In TPM, the most of drugs contain hot and dry properties. This trend also maintains in convoys. Although there is not any direct explanation for this phenomenon in TPM resources, it could be concluded some of drug functions attributed to convoys (attenuant, anti-blockage, discutient, diuretic and cutting activity) originated from hot primary quality. No indication was found in investigated literature for deciphering dry primary quality.

As indicated, the most of convoys hold anti-blockage function and thin characteristic. The flow of body fluids (humors) improved by reduction of blockage(s) in paths (veins, barriers, etc.). Therefore, nutrients and drugs can pass through them easier to reach the destination. The same conclusion could be drawn for thin convoys, which are able to diffuse better in humors and organ [15].

Among the other functions, attenuant is important in convoys, mainly due to the thinning activity of attenuant function leads to thin humors and consequently thin organs, which are more diffusible for drugs [15]. In TPM, some drug functions induced or enhanced by the contribution of the other functions. According to the old literature, attenuant function facilitates functions such as anti-blockage, maturative, diuretic and discutient [15]. Therefore, it is not surprising that maturative and discutient are present in convoys along with anti-blockage function. The same conclusion could be drawn from anti-blockage activity, which can contribute to cutting and discutient functions [4].

4.2 Functions Clustering

At a glance, the relationship between functions seems complicated. Therefore, a hierarchical classification was applied for six more frequent functions to show the relationship of them in TPM convoys (Figure 3). Based on the classification results, the discutient and diuretic functions are more consistent. In the definition of these functions, the exclusion of unwanted material is a common feature. Therefore, it can be proposed what facilitates convoying also is

able to assist exclusion of materials. For instance, celery seeds and hazelwort convoy drugs to liver and brain vessels respectively while they also contain the diuretic function. This proposition also can explain why a considerable share of convoys related to the urinary system. Although anti-blockage activity clusters with discutient and diuretic functions, RDCC value is higher than a discutient and diuretic cluster. This result implied that anti-blockage activity is not related to exclusion of material from the body directly; but in case of some organs (kidneys etc.), it is able to assist exclusion. The attenuant-abstergent cluster remains unclear base on literature reviews though thinning of thick fluid and humors can facilitate movement of them and cleansing of the organs.

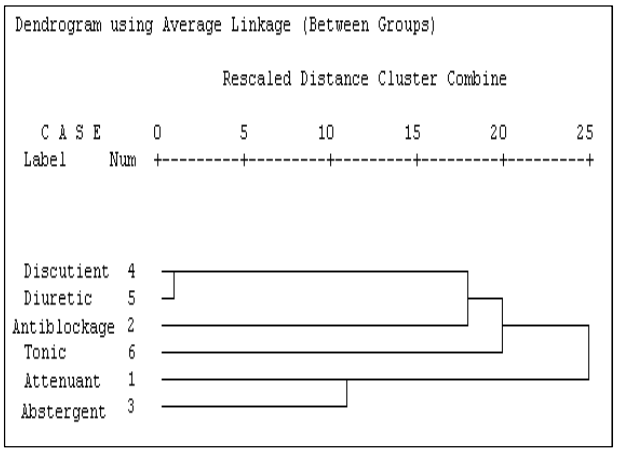


Figure 3. Hierarchical clustering of the six most frequent functions of convoys used in Traditional Persian Medicine

An interesting aspect of convoys function is a tonic function. The significant frequency of this function (64%) and clustering pattern of it suggests that tonic function is relatively independent of other functions. The possible explanation for this finding might be balancing of organ consistency, what returns to its definition [4]. This balance may improve drug affinity to target organ(s). Although there is an indication about the affinity of convoy and organ is important in convoying function [9], this mechanism must be confirmed with more evidences from recent and old literature.

4.3 Convoy Dosage

Based on TPM resources, the amount of convoy used in formulation is often lower than therapeutic doses. It is interesting to note that many convoys can hold both synergetic and convoying functions at the same time in a particular formulation. In these cases, formulator is able to use only convoying effect, by using lower amount, less than therapeutic dose, or apply both effects by using convoying effect in therapeutic level [5], [7].

4.4 Targeting in TPM Convoys

In TPM texts, convoy medicines can accompany main drugs to the specific organ(s), internal or peripheral compartment(s), and the whole of the body (Table 1). The affinity of some convoys for specific organs suggests targeting effect of them to those organs. One the other hand, the majority of specific convoys has an effect(s) on target organ(s), suggesting synergistic effect with the main drug. This phenomenon can be explained by two reasons. First, as stated, the dosage for convoying is less than effective therapeutic dose of the convoy on the target organ. Second, all specific convoys also affect organs other than target organ(s), but they have not convoying properties on them. In theory, it is quite reasonable that there are some pharmacology active constituents in herb, which accompanied by convoying constituent(s) to target organ. Unfortunately, the mechanisms of targeting were not asserted in TPM texts. The increase in the rate of reaching main drug to target organ and increasing the permeability of organ to main drug are probable mechanisms for this effect. Although there are some research articles in targeting effect of traditional Chinese medicine for targeting effect [16], [17], [18], future studies are required to prove it in TPM.

As shown in Table 1, there are some non-specific convoys, which accompany drug to the whole of the body. Decrease in digestion (metabolism), acceleration of absorption (probably intestinal absorption) are

mechanisms that proposed by Persian scholars for convoying these drugs. Similar to specified convoys, future studies are necessary to evaluate it in TPM and potential interaction(s) of them with other herbs or synthetic drugs.

5. CONCLUSION

Analysis of TPM literature shows the presence of a logic approach in the formulation of compound drugs. The convoys are a group of modifiers, which facilitate access of drugs and foods to whole body or organs. Factors such as rate of absorption and distribution, metabolism (digestion), targeting and its distance (internal and peripheral compartments) were considered important in convoy function. Literature reviews demonstrated the majority of convoys contain anti-blockage function and thin characteristic. Statistical analysis showed that the most of convoys have hot and dry primary qualities. In addition to anti-blockage function, diuretic, tonic, discutient, attenuant and abstergent are significant. The basic mechanisms for convoys are removing of blockages and improving diffusion (thin characteristics). Other functions except tonic were attributed to these basic factors based on literature and cluster analysis. For tonic function, the effect on destination organ(s), probably with balancing of organ consistency, proposed to explain this observation.

In general, amount of convoy drug in the formulation is less than therapeutic dose. However, it is quite possible to use both convoying and synergistic functions of a drug in the formulation. The convoys can be specific for organ(s), accelerate absorption and non-specific. Although there are some explanations for this phenomenon, more studies are required to validate targeting activity in TPM convoys. Owing to potential influence of convoys on pharmacokinetic profile of other herbs and synthetic drugs, it is necessary to conduct future studies to evaluate these interactions in TPM and modern medicine.

6. CONFLICT OF INTERESTS

Authors have no conflict of interests.

REFERENCES

[1] Heravi M. Bahr Al-Javaher. Qom, Iran: Jalaledin Publication; 2008. [In Persian].

[2] Azamkhan M. Exir Azam. Tehran, Iran: Research Institute for Islamic and Complementary Medicine; 2008. [In Persian].

[3] Marashi SH. Ganjineh Baharestan. Tehran, Iran: Library, Museum and Document Center of Iran Parliament; 2006. [In Persian].

[4] Aghili SMH. Makhzan Al-Advieh. Tehran, Iran: Research Institute for Islamic and Complementary Medicine; 2008. [In Persian].

[5] Aghili Khorasani SMH. Kholasat Al-Hekmah. Qom, Iran: Esmaili Publication; 2006. [In Persian].

[6] Alikhan MS. Makhzen Al-Taalim. Delhi, India: Farooghi Press; 1905.

[7] Avicenna. The canon of medicine. Trans. Sharafkandi A. Tehran, Iran: Soroosh Publication; 2010. [In Persian].

[8] Arzani A. Teb-e-Akbari. Qom, Iran: Jalaledin Publication; 2008. [In Persian].

[9] Jorjani ZE. Zakhireye Khwarazmshahi. Tehran, Iran: Research Institute for Islamic and Complementary Medicine; 2012. [In Persian].

[10] Gharashi A. Al-Shamel fi Al-Sanaat Al-Tabeat. Tehran, Iran: Research Institute for Islamic and Complementary Medicine; 2000. [In Persian].

[11] Ramezany F, Jafari S, Jafari Z, Farsam H, Ardakani S, Reza M. Primary qualities in phytotherapy and traditional medicines: a statistical study. Journal of Drug Delivery & Therapeutics 2013; 3(3): 1-6.

[12] Ardekani MR, Rahimi R, Javadi B, Abdi L, Khanavi M. Relationship between temperaments of medicinal plants and their major chemical compounds. J Tradit Chin Med 2011; 31(1): 27-31.

[13] Mayer J. Warme und trockene Heilpflanzen? Eine Untersuchung zum Verständnis der Primärqualitäten in der Humoralpathologie. Z Phytother 2005; 26(3): 113-8. [In Germany].

[14] Momen Tonekaboni SM. Tohfat Al-Momenin. Tehran, Iran: Shahr Publication; 2008. [In Persian].

[15] Javadi B. Analytical research and compilation of the basics of Islamic traditional pharmacy and preparation of a dosage form based on Ibn Nafis books [PhD Thesis]. School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran 2012.

[16] Lin Y, Sun B, Yang S, Lv L, Liu Y. Therapeutic effect of radix achyranthis bidentatae guiding function on diclofenac sodium induced adjuvant rats arthritis. Traditional Chinese Drug Research & Clinical Pharmacology 2009; 5: 408-11.

[17] Zhao RZ, Yuan D, Liu SJ, Chen YJ, Liu LJ, Zhao Y. Liver targeting effect of vinegar-baked Radix Bupleuri on rhein in rats. J Ethnopharmacol 2010; 132(2): 421-8.

[18] Cai Z, Hou S, Li Y, Zhao B, Yang Z, Xu S, et al. Effect of borneol on the distribution of gastrodin to the brain in mice via oral administration. J Drug Target 2008; 16(2): 178-84.

SUPPLEMENTARY TRANSLATED TEXTS

"A physician should not use drugs if he can cure with foods and should not apply compound drugs if he is able to use single (unblended) drugs [9]."

"It is possible that the effect of a simple/single drug is in a right way, but we want it goes and treats far organs. We worry that the drug is disabled while pass through long paths by first and second digestion. Therefore, we convoy a drug as a guard which protect it at first and second digestion stages and bring it to desired destination safely like usage of opium inclusion in antidote [7]."

"There is a simple drug that is good and trustable. However, the risk of delaying to reach to the destination exists. We accompany another drug with it to prevent from delaying and deliver it to desired position in right time. In the same manner, when saffron mixed with camphor tablet, it guides camphor to target organ. As soon as camphor tablet reaches the heart; saffron separates from it and finished its function. On the other hand, camphor tablet itself separates cold-inducing and extinguishing drugs without saffron assistance. This division and categories could be found in many natural and synthetic (artificial) drugs. When compound drug reaches to the desired position, the reception power will be absorbed, and its repulsion power will be repulsed. Each of them accomplishes their duties. The discutient arrives directly to painful limb and dissipates pain-originating substance. Repulsion receptor blocks the pain originating substance path to inhibit assistance of external matter to the internal, accumulated one in the painful limb [7]."

"Sometimes it is required to use a drug which must pass slowly through internal body and delay to accomplish the worthwhile task in its passage. However, it is too fast. We have to accompany a drug to delay it in its ways and act properly. That is the case in the fast anti-blockage drugs, which pass through the liver quickly and immediately. We may want that the main drug stays in liver for a while and not pass quickly. Therefore, we mix a drug (modifier) with anti-blockage main drug, which drives it to the opposite direction of liver. The main drug goes, and the modifier drives it not to go. The main drug has enough time to take function in natural, desired manner in the liver. For instance, we convoy radish seeds with liver anti-blockage drug. The seeds pull main drug toward the stomach, and it resists. In this combating the drug operates in a right way [7]."

"A simple drug might be bilateral. The main drug has effects in both aspects, but sometimes we want one of these affections. Therefore, we add a drug with it to escort it in just only one passage and inhibit it from other ways. For example, we mix diuretics and anti-blockages with zararih in this case; zararih application is to inhibit entrance of main drug to veins and diverts it to kidney and bladder [7]."

"The explanations of drug's combination for organs are: There is an organ which is farther to stomach such as kidney, bladder and lung and the drug's power reaches to them lately. Therefore, for drugs used for these organs, it is necessary to add a drug (another component) to guide them quickly and another drug to preserve the power of main drug by preventing digestion (metabolism) of main drug in other organ. The components that convoy to the site of effects are celery seeds, wild cinnamon barks and anise seeds. Physicians called these drugs *Mobadregh* in Arabic that means convoy. Those preserve, the power of drug by preventing digestion by another organ are opium, henbane seeds and mandrake root shells. If there is an organ which (main) drug should waits and stays on it for a while until complete function, such as liver and anti-blockage drugs, a small amount of another drug, such as radish seeds, was added to pull drug to the opposite direction (toward stomach). The main anti-blockage drug tends to open liver blockages and exit the liver quickly, but another drug (radish seeds) drive it to the opposite direction and make it wondered. Therefore, the anti-blockage drug stays on liver until exert its whole functions [9]."

"… Third, the (main) drug is weak in

potency and efficacy which loses them and becomes weak before reaching to the desired organ. Alternatively, owing to far distance of affected organ, its power (efficacy) becomes weak and lost or due to lack of organ affinity, it diffuses and scatters on its path and the power of drug cannot reach to the organ. Alternatively, the main holds organ affinity (in traditional medicine believed that there is special affinity between medicine which allocated to cure disease and damaged organ), but is not able to achieve by itself. Therefore, it requires combining with a fast penetration, organ affinitive drug, which strengthens and inhibits diffusion to convoy power and faculty of (main) drug to target organ, such as saffron in camphor tablets and heart drugs. Camphor also used in heart drugs to convoy the cooling effect of itself and other drugs to heart without much reduction, due to saffron and camphor affinity to the heart.

The property of saffron is to convey of drug effects to the heart by its heating power, its own property and reaction of (main) drug with homeostatic system, the effects of saffron will be canceled and the effect of drug remained. For this reason, the weight of saffron is less than camphor in camphor tablets. Like (saffron), camphor weight is less than other drugs in heart (compound) drugs to not overcome (other drug properties), become assistant and convoy of them.

Addition of vinegar in spleen drugs and saffron and asarum with scammony and agaric to transfer the power of them to brain and its veins to do their activities properly are included in this category. Zararih (probably *Hycleus polymorphus*) also could be added to diuretics useful for kidney and bladder, as a result of affinity to them, for conveying the power of the (diuretic) medicines to the organs quickly and perfectly [5]."

"Modifier: Something that modifies the state of eating and drinking materials including elimination of side effects, synergy, stabilization, lighten overpowering or convoying to organs [14]."

"Modifier: Something that modifies the state of eating and drinking materials, like tragacanth, which is modifier of horse mint, synergism like mixing torpicum (torbod) with ginger, stabilization like combination of medicines with honey, lighten overpowering such integration of tragacanth with scammony or convoying the power of medicine like incorporation of zararih with diuretics [6]."

"Convoy (*Mobadregh*): Messenger; convoying matter; something that holds the properties of purifying component(s), and also mixing and conveying them to organs, like the function of wine on foods [1]."

"Convoy (*Mobadregh*): Something that is capable to crash another thing which mixes with it and permeate into (body) organs like water which do the same with foods and deliver the vital power to them [8]."

"… but assistants are something that share in main activity which was discussed in second section of tonics, desiccants and abstergents. Whatever is considered as a convoy and accompany medicinal effect into deep parts of the body is anti-blockage such as fennel, celery seeds, saffron etc. [3]."

"… it should be noted that we mix vinegar with rose oil extract in brain and meninges inflammation for convoying and accompanying the oil to brain ventricles; not for discutient benefits but for its thin character [2]."

"… and this recipe has nine components and its temperament is hot and dry at end of second degree. The main drug is aloes and cinnamon is incorporated for its tenuous character to convoy it [4]."

"Drug ingredients, which permeate litholytic main drug to the location of kidney stone faster, include pepper, horse mint, and cinnamon. In addition to convoying ability, these drugs are effective in moving stone [7]."

"Vinegar is desiccant, rapidly penetrative, attenuant, cutting agent of thick humor and convoy of medicines functions and powers to spleen. This affinity (between vinegar and spleen) originated sour taste of melancholy in spleen. Because spleen is a porous organ, which melancholy humor is refined on it, its beef is porous to absorb thick melancholy humor. It has many vessels, which causes more warmness; this warmness counteracts to coldness of

melancholy and digests it. This is the reason of vinegar affinity to spleen and capability of it for convoying of spleen drugs [9]."

"Anti-blockage medicines mobilize humoral materials, which stay in tracts, pores and inside of organs and move materials outward to open them. Attenuant medicines are drugs, which make other substances thinner. Actually, attenuant medicines lower consistency of humors. This function is not the outcome of coldness because coldness causes compression and contraction of substances and is not for dryness and wetness (passive primary qualities, not active). Therefore, it is only the outcome of hotness. The thinning function of attenuants is helpful in three ways:

- Maturation: Maturation of thick materials is achieved by thinning humors. Additionally, if these substances are viscous, drugs such as vinegar and spicy and sharp substances are useful, because they are both attenuant and cutting agents.
- Blockages opening: Thinning of blocking materials facilitates diffusion of them from their locations. The attenuants, which contain detersive and/or abstergent functions, are better anti-blockages.
- Discutient function on thinned substances is easier. Therefore, when discutient activity is required, attenuants are used [10], [15]."
- Terminology of some words in TPM:

➢ Thin material (*Latif*): Material, that is capable to divide to very small particles after entering into and penetrates quickly in all compartments of the body.

➢ Anti-blockage (*Mofateh*): Medicines that mobilize humoral materials stayed in tracts, pores and inside of organs and move materials outward to open them.

➢ Discutient (*Mohalel*): Medicines that cut humors from their position separates their components and excrete them in vapor form.

➢ Attenuant (*Molatef*): Medicines that make thick humors thin by mild hotness.

➢ Cutting agent (*Moghate*): A thin medicine that penetrates between attachment surfaces of thick humor, separates its components, and excretes it in the shape of smaller segments.

➢ Detersive (*Jail*): A medicine that mobilizes thick and/or viscous wet materials and excretes them from organ(s) and pores surfaces.

➢ Maturative (*Monzej*): A medicine that moderates humor consistency.

➢ Tonic (*Moghavi*): A medicine that moderates organ consistency and temperament.

➢ Diuretic (*Moder*): A medicine that drives out and excludes water content of foods and body fluids wastes by urination, menstruation, sweeting and lactation. This is done by hotness and discutient functions.

➢ *Relaxant (Morkhi)*: A medicine that softens and widens the inflexible pores of the organs to facilitate discharge of confined waste materials from them. This is done by hotness and wetness.

➢ Litholytic (*Mofatet*): A medicine that crashes solidified and adhesive humors and make them fine and soft. This is done by sharpness and penetrative functions.

➢ Abstergent (*Monaghi*): A medicine that cleanse organs completely from wastes.

➢ Desiccant (*Mojafef*): A medicine that make organs dry. This is done by attenuant and discutient functions on wet materials.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 2, Issue 1, Winter 2017

Review Article

A Review on *Dalk* (Massage) with Special Reference to the Prescribed Medications

Sadia Nikhat [1], Mohd. Fazil [2*]

[1] *Department of Ilaj bil Tadbeer, F/o Medicine (Unani) and Consultant Regimenal Therapy, Majeedia Unani Hospital, Jamia Hamdard, New Delhi, India.*
[2] *Incharge HAK Institute of Literary and Historical Research in Unani Medicine, CCRUM, Govt. of India, New Delhi, India.*

Received: 13 Dec 2016 **Revised:** 10 Jan 2017 **Accepted:** 16 Jan 2017

Abstract

Dalk is one of the oldest forms of therapies in use since ancient times. It involves the manipulation of body tissues with hands, cloth or any suitable object. In Unani medicine, *dalk* is based on the principle of *tanqiyah* (expulsion) and *imala* (diversion). In addition to the comforting feeling provided by human touch, massage has been demonstrated to have clinically significant physiological effects on the body. It increases blood flow, reduces stress and also has immediate sedative effects. Depending on the individual patient, different types of *dalk* are described which are used in combination with certain medicines or oils, or with bare hands for different disorders. Although largely a safe therapy, a few contraindications do exist, which are mainly advised for prevention of any adverse events. Unani physicians made significant advances into *dalk* and devised specific prescriptions for a large number of ailments. The prescribed formulations for *dalk* are mostly oils, but in certain conditions the decoction, paste, powder or extract of drugs is also prescribed, the basis of which is the individual *mizaj* (temperament) and also the disease.

Keywords: *Dalk*, Massage Therapy, Morbid Matter

Citation: Nikhat S, Fazil M. **A Review on *Dalk* (Massage) With Special Reference to the Prescribed Medications**. Trad Integr Med 2017;2(1):39-52.

Introduction

Dalk (massage therapy) is perhaps the oldest forms of treatment which possibly originated as a measure to provide a human touch, to demonstrate compassion and to alleviate certain sufferings. "Laying on of hands" was the principal therapeutic measure during history in ancient Greece, where the Father of Medicine, Hippocrates mentioned that the "physician ought to be skilled in numerous things, most particularly in rubbing" [1]. Massage is defined as the systematic manipulation of the soft tissues for therapeutic or palliative purposes [2]. In Unani medicine, *dalk* is prescribed to normalize the tonicity of tissues, to improve circulation, to relieve flatulence, to increase metabolism, as an analgesic measure, for diversion of morbid matter etc. In effect, *dalk* has been considered as

*Corresponding Author: Mahd. Fazil
Incharge HAK Institute of Literary and Historical Research in Unani Medicine, CCRUM, Govt. of India, New Delhi, India.
Email: fazildr@yahoo.com
TEL: +91 9818345757

"*hazm-e-akhar*", i.e. the last phase of digestion; since dalk aids in the removal of morbid matters through the skin, which may not be sometimes expelled through other routes [3]. When done in a specific manner, dalk has *mohallil* (resolving) effects and increases the dispersal of wastes from an organ, while the use of oil during a specified *dalk* has a preservative action on the tissue fluids of the massaged organ; the underlying difference being of the type of strokes employed [4].

Methods

This review was primarily aimed at exploring the rich heritage of Unani classical medicine as well as to ascertain the scientific validation of the therapy. Therefore, Unani classical books were mainly consulted for gathering the information related to the kind of oils and medications use. Only classical authentic Unani textbooks were consulted to gain access to the information related to use of *dalk* in all kinds of diseases. The literature review was completed by the authors themselves in the library of Faculty of Medicine (U), Jamia Hamdard and Hakim Mohd. Said Central Library, Jamia Hamdard.

All major databases (Google Scholar, Science Direct, Pubmed) were searched extensively in all time periods to search for information related to mechanism of action of dalk. We selected only those references which focused on explaining the physiological changes associated with *dalk*, and excluded those which provided only epidemiological data. Also, a database search was made to look out for any possible side-effects which may have arisen as a consequence of *dalk*. We included all possible adverse events reported in studies.

Inclusion criteria for selection of Unani classical books and literature:

1. Original Unani classical textbook which is accepted as an authentic reference. This was done to collect the most authentic information by the authors themselves, rather than relying on published documents.
2. Contained some information related to dalk.

Exclusion criteria for books and literature:

1. Unani books other than classical texts.
2. Drugs which are no longer available, or whose identity could not be established were not included in the review. If any formulation contained such a drug, it was also not included.

Mechanism of action

In Unani medicine, dalk is based on the principle of tanqiyah (expulsion) and imala (diversion). Various combinations of the four basic dalk strokes can be made to achieve a result which may involve expelling wastes or merely diverting them from the diseased area. In addition, it is also described to have immediate sedative effect [5]. With the advancement in medical science, there has been deeper understanding of its mechanism of action. In addition to the apparent relaxing feeling, massage has also been proven to improve immunological markers and decrease cytokine production in a sustained manner in healthy individuals. There is also an increased production of certain pro-inflammatory cytokines with a more frequent regime [6]. Functional MRI has revealed that massage of moderate intensity has effects on amygdala, hypothalamus and anterior cingulated cortex, all of which are involved with stress regulation [7]. There is an increased arterial flow due to dilatation of peripheral vessels, while deep massage promotes venous return and promotes stroke volume [8]. In addition, there is evidence that the active constituents of the drugs / oils are absorbed into the percutaneously with massage and reach significant blood levels in a defined duration [9]. This may help explain the lasting effects of massage therapy.

Types of dalk

Depending on the pressure applied and the nature of strokes, four basic strokes of *dalk* are described in Unani medicine, viz.-*dalk-e-sulb* (hard pressure massage, in which the tissues are pressed and force is applied. This helps in strengthening of tissues and tightens skin pores), *dalk-e-layyin* (massage done with soft strokes, it helps in relaxing the tissues and opens the pores),

[3,4], *dalk-e-kathir* (massage done for a prolonged duration, this increases catabolism and aids in reduction of body fat) and *dalk-e-motadil* (massage done for a moderate period of time, this helps in increasing muscle mass). Different permutations and combinations of these strokes give rise to 9 basic types of *dalk* namely, *dalk Sulb kathĪr* (hard massage for long period of time), *dalk Sulb qalĪl* (hard massage for short period of time), *dalk Sulb mo'tadil* (hard massage for moderate duration), *dalk layyin kathĪr* (soft massage for long duration), *dalk layyin qalĪl* (soft massage for short period), *dalk layyin mo'tadil* (soft massage for moderate duration), *dalk mo,tadil kathĪr* (moderate pressure massage for long duration), *dalk mo,tadil qalĪl* (moderate pressure massage for short duration), *dalk mo'tadil* (moderate pressure massage for a modest duration)[5]. In addition, certain specialized types of dalk are also described, i.e., *dalk-e-khashin* (friction massage, massage done with a rough cloth in order to increase the cutaneous circulation), *dalk-e-amlas* (massage done with a soft cloth or soft hands, this helps in increasing blood flow to the massaged area without causing friction on the skin). *Dalk-e-Ista'dād* (pre-exercise massage) is a specialized form of massage which was employed by Unani physicians to help prepare for vigorous physical activity. The recommendation is to initiate with soft strokes and progress to harder strokes; oils were also sometimes used for this purpose. Such massage increases local blood circulation and improves muscle flexibility. After the required physical activity/sport, *dalk-e-istardād* or *dalk-e-musakkin* (post-exercise/relaxing massage) was performed. *Dalk-e-istardād* should be done with soft strokes and for a moderate duration, and the use of oils is recommended for such massage [4,10]. This dalk is basically has an essential role at the end of activity, for it promotes the removal of pent-up wastes, and also tones up muscles. It is therefore considered as an obligatory component of physical activity [3].

Precautions and recommendations

Dalk is a popular and effective method of health preservation, promotion and restoration in all ages. With the recent surge in lifestyle disorders, a significant proportion of which are related to mental stress, dalk has the potential to play a pivotal role in restoring mental health. Although largely free of adverse effects, yet simple precautions are advised. *Dalk* should always be performed at a comfortably warm place. In young healthy persons, it should be performed after the process of digestion is ended. For people suffering from *sue-mizāj hār* (abnormal hot temperament), the massage should always be *layyin mo'tadil* (soft, moderate duration). While for patients suffering from *sue-mizāj hār ratab* (abnormal hot and most temperament), the opposite of this is advisable. In old age, *dalk* should always be moderate in terms of strength and duration; however, it may be done after each meal to help them relax [3]. Certain adverse events have been attributed to *dalk*, chiefly displacement of urethral stents, nerve damage, pain syndromes, pseudo-aneurysm, pulmonary embolism etc. are some of the side effects attributed to wrong techniques applied or massage done by lay persons [2]. However, the incidence of such cases is about 10% with professionals [11]. For non-professional massage therapies, the incidence may be much more but is largely unreported [2]. Contraindications to massage are few and chiefly based on the practitioner's judgment. Burns, skin infections, tender areas, acute injuries, fractured joints and acute febrile illnesses are some of the common contraindications. Massage should also be avoided over malignant tumors [12].

The following table includes some of the oils/ medications and recommendations prescribed for dalk in traditional Unani textbooks:

Table 1 - Different formulations prescribed in Unani texts for dalk (massage)

S. No.	Disease	Different Formulations prescribed in Unani texts for *dalk* (massage)	Reference
Disorders of Central and Peripheral Nervous System			
1.	*Sudā'-e-ghayr māddi* (Headache, not associated with humoral change)	Massage with *Roghan-e-Sosan*, *Roghan-e-Qusţ*, *Roghan-e-Chameli*, *Roghan-e-Mirzanjosh*, *Roghan-e-Habb al Ghār* or *Roghan-e-Bān*	[13]
2.	*Sudā'-e-hād* (acute headache)	Massage the soles of the feet with *Roghan-e-Banafsha* to which *Shorah* has been added.	[14]
3.	*Shaqīqah* (Migraine)	Take the juice of fresh root of *satāwar*, mix with an equal quantity of *Roghan-e-kunjad* and heat the mixture. When then water has evaporated, use the oil for massage on the scalp.	[15]
		Massage the forehead and earlobes on the side of pain when it occurs. Massage should be done vigorously with a cloth till it is flushed.	[16]
		Mix an equal amount of *Roghan-e-Kāhu* and *Roghan-e-Khashkhāsh* and massage gently on the head.	[17]
4.	*Sara'* (Epilepsy)	For relieving spasm, massage the hands and feet with *Roghan-e-Bābūnah*, *Roghan-e-Gul* or *Roghan-e-Qusţ* and straighten the fingers.	[17]
		For children, mix *'Ūd Ṣalīb* in vinegar and make a paste with *Roghan-e-Gul* and massage over the whole body.	[18]
		If it is associated with menstrual disorders, then massage the scalp with *Roghan-e-Banafsha* or *Roghan-e-Sosan*.	[17]
		If epilepsy is caused due to combustion of *şafra*, then massage with laxative oils such as *Roghan-e-Banafsha* on the scalp.	[14]
5.	*Fālij* (Paralysis)	Massage the affected area with *Roghan-e-Qusţ*. Composition of *Roghan-e-Qusţ*: *Qusţ* 35 gm, *Filfil*, *'Āqarqarḥa*, *farfiyūn*-105 gm each, *Jund bedstar* 17.5 gm, *Roghan-e-Kheri* or *Roghan-e-Nargis* 200 ml.	
		Massage with *Roghan-e-Qusţ* or *Roghan-e-'Āqarqarḥa* on the affected site.	[18]
		Massage the affected area with oils having hot temperament, i.e., *Roghan-e-Nārdīn*, *Roghan-e-Qusţ*, *Roghan-e-Kāknaj*, *Roghan Badām Talkh*, *Roghan Utraj*, *Roghan-e-Balsān* etc. If the patient is not weak, then *Jund bedstar* and *Farfiyūn* should also be added for massage. After massage, rub the affected area with a rough cloth till the skin is flushed.	[16]
		After *mus'hil* therapy, massage with lukewarm *Roghan-e-Surkh*, *Roghan-e-Kalān* or *Roghan-e-Sīr*.	[17]
		Roghan-e-Qusţ may also be used for massage on the affected areas.	[19]
		If paralysis is preceded by colic, then massage with *Roghan-e-sosan*, *Roghan-e-Nargis* and *Roghan-e-Nārdīn* is effective. Coconut oil may also be used for this purpose.	[13]
		Massage the vertebral column with oils having hot temperament e.g. *Roghan-e-Qusţ*, *Roghan-e-Biskhapra* etc. *Bykh-e-Sosan* may also be added to it. Massage should be done strongly till the skin is flushed. This is especially recommended in paralysis associated with numbness.	[20]

		Rub the affected area till it is flushed. Then apply *Roghan-e-Qusţ*, *Farbiyūn* (*Farfiyūn*) and *Miy'a*.	[18]
		Massage the vertebra with resolvent and neurotonic oils mixed with *Jund Bedstar* and *'Āqarqarḥa*. *Momiyai* mixed with *Roghan-e-Ḥina* is also effective in paralysis. Massage the affected parts with *Zanjabīl* and *zaranbād*. *Qusţ talkh*, *Murr Makki*, *Farfiyūn* may be mixed in *Roghan-e-Gul* and used for massage when lukewarm.	[15]
		If the paralysis has been caused by neurasthenia, massage the whole body with *Roghan-e-Nārdīn*. Massage may also be done with *Roghan-e-Qusţ*.	[18]
		Mix fresh juice of the leaves of *Sudāb* 1.864 litre with *Roghan-e-Sosan* 466 ml and heat till all the water evaporates. Strain it and again place on the fire and add powdered *Jund bedstar*, *'Āqarqarḥa*, *Qusţ* 33.45 gm each, *farfiyūn* 16.725 gm, *Roghan-e-Balsān*, *Roghan-e-turb* each 66.9 ml and massage on the affected area.	[14]
6.	*Istarkhā* (atonicity) and *Fālij* (paralysis) associated with *ḥarārat*	*Roghan-e-Qusţ*, *Roghan-e-Nārdīn*, *Roghan-e-Farfiyūn* or *Roghan-e-Shonīz*.	[15]
		To maintain the normal warm temperament of the organs, massage with *Roghan-e-Qusţ* is effective.	[15]
		Use such *moḥallil* (resolvent) drugs for massage which have *qabiz* (astringent) property also, e.g., *Anīsūn*, *Miy'a*, *Jund bedstar*, and *Izkhar*.	[15]
7.	*Istarkhā* (atonicity)	Massage with *Roghan-e-Sosan* and *Roghan-e-Nargis*.	[18]
		Mix any one of *Roghan-e-Bābūnah*, *Roghan-e-Nargis*, *Roghan-e-sosan*, *Roghan-e-bed injīr* (1 part) with *Roghan-e-Balsān* (10 parts) and massage on the affected area. Especially recommended for *istarkhā* associated with *bohrān* (stage of crisis and lysis in a disease).	[15]
8.	*Ikhtilāj* (spasmodic contraction of the muscles)	Massage the affected area with *Roghan-e-Sudāb*, *Roghan-e-Qatha al-Ḥumār*, *Roghan-e-Jund bedstar* and *farbiyūn*.	[18]
9.	*Ikhtilāj* of face	Massage the face with *Roghan-e-Farbiyūn* and *'Āqarqarḥa*.	[18]
10.	*Laqwah* (Facial palsy)	Massage the face with *Roghan-e-Qusţ*, *Roghan-e-Nārdīn* and *Roghan-e-'Āqarqarḥa*.	[18]
		Massage should be done with the oils indicated in paralysis, and over the unaffected muscles.	[16]
		Rub the lips and face till red, then massage with *Roghan-e-Jawz*. Such massage should be done at a warm place. Also, massage the jaw and vertebra with Duck fat.	[18]
		The following preparation has been reported to cure facial palsy in a single application: after *istafrāgh*, ask the patient to hold *halela siyāh* in his mouth on the affected side and massage over the affected area with *Roghan-e-Ban*, *Roghan-e-Qusţ* and *Ghāliya* (a mixture of perfumes made by mixing powdered *suk*, musk and camphor in ambergris and added in *Roghan-e-Bān* or *Roghan-e-Nīlofar*.	[18]
11.	*'Asābi dard* (Neurogenic pain)	Massage with *Roghan-e-Ghār* and *Roghan-e-Sosan* is effective.	[18]
		Mix *Jund bedstar* or *farbiyūn* in *Roghan-e-zanbaq* and massage on the affected area.	[16]

12.	*Ra'sha* (Tremors)	Mix *Roghan-e-Gul*, *Roghan-e-Mūrad* and small amount of vinegar and massage on the head.	[13]
		Massage with *Roghan-e-Biskhapra* is especially recommended.	[20]
		If tremors have been caused by cold exposure, then after proper *tanqiya* (a process of expelling of morbid wastes), massage with lukewarm *Roghan-e-Qusţ*, *Roghan-e-Surkh*, *Roghan-e-Kuchla* or *Roghan-e-Sīr* for a few days.	[17]
		Mix *Jund bedstar*, *'Āqarqarḥa* and *ḥiltīt* in Olive oil and use for massage. Especially recommended for *ra'sha baridah* caused by exposure to cold water.	[15]
		Massage with a mixture of *Roghan-e-khardal* and *Roghan-e-bābūnah*.	[15]
		If *ra'sha* has been caused by cold exposure, massage the affected area with *Jund bedstar*, *'Āqarqarḥa*, *ḥiltīt* 3 gms each mixed in olive oil 48 ml.	[17]
		After proper *tanqiya*, massage with *Roghan-e-Surkh*, *Roghan-e-Sīr*, *Roghan-e-Qusţ* or *Roghan-e-Kuchla*.	[17]
13.	*Tashannuj* (Spasm)	Massage with *Roghan-e-Qusţ* is effective.	[19]
		Massage with lukewarm *Roghan-e-Banafsha* or *Roghan-e-Kadū*, especially focus on the origin of affected muscles.	[19]
		For spasm caused by dryness, massage with *Roghan-e-Banafsha*, *Roghan-e-Nīlofer*, *Roghan-e-Kadū* and wax.	[18]
		For *tashannuj* caused due to moist humors, mix *Mom zard* 80 gm, *Zayt-al-Infāq* 480 gm, fresh *farbiyūn* 40 gm and massage on the endings of affected muscles.	[18]
		Alternatively, first massage the affected part till it is flushed. Then ask the patient to sit in a decoction of *Barg-e-Ghār*, *Mirzanjosh* and *Shīḥ*. When the skin is reddened, massage with *Roghan-e-Qusţ* and *Roghan-e-Sosan*.	[18]
		Powder *Jund bedstar*, *farfiyun*, *miy'a saila* 4 gms each and mix with *mom safaid* 24 gms, *Roghan-e-Sosan* 48 ml or *Roghan-e-bedinjīr* 48 ml and massage on the affected area.	[17]
14.	*Khidr* (Numbness)	Massage with oils having hot temperament especially if it has been caused by cold weather.	[16]
		Massage the affected area with *Roghan-e-Qusţ* and *Roghan-e-farfiyūn*.	[13]
		Only *Roghan-e-Qusţ* may be used for massage.	[19]
		Mix *'Āqarqarḥa* with wine and olive oil and massage on the affected area.	[17]
15.	*Sarsām* (meningitis)	Massage the lips with *Roghan-e-Badām*.	[16]
		Mix *banafsha* in milk and use for massage.	[19]
		Massage the scalp with *Roghan-e-Kāhu*, *Roghan-e-Badām* and *Roghan-e-Khashkhāsh*.	[17]
16.	*Sakta* (stupor, coma)	Prepare a mixture of *Roghan-e-Farfiyūn*, *Roghan-e-Qusţ* and oil of wild onion and massage all over the vertebral column.	[13]
		Massage with any suitable oil having warm temperament, to which *gandhak* has been added.	[18]
17.	*Sakta balghami* (coma associated with phlegmatic humor)	Any oil having warm temperament, like *Roghan-e-Sudāb*, *Roghan-e-Sosan* may be used for massage on the vertebra after adding wax into the oil.	[15]

18.	*Seḥar* (insomnia)	Mix equal amounts of *Roghan-e-Kāhu* and *Roghan-e-Labūb Sab'ah* and massage on the head.	[17]
		Boil *Khashkhāsh* seeds and *bhang* seeds in Cow's milk and massage on the soles of feet when cool.	[17]
19.	*Kābūs bārid* (Nightmares associated with cold temperament)	Massage the head with *Roghan-e-Masṭagi*, *Roghan-e-izkhar*, *Sudāb*.	[15]
20.	*Kābūs* (Nightmares)	Massage of the lower extremities is beneficial.	[19]
		If it is due to muscular pain, then massage of the scalp with *Roghan Labūb Sab'ah* or *Roghan-e-banafsha* is beneficial for inducing sleep.	[17]
21.	*Junūn* (Insanity)	Massage with *Roghan-e-Banfasha* inside the *hammam*.	[13]
22.	*Malīkhūliya* (melancholia)	Massage the abdomen with *Roghan-e-Sosan*	[18]
		For relieving insomnia and providing moisture to brain, massage with equal quantities of *Roghan-e-Kadū* and *Roghan-e-Kāhu*; or *Roghan-e-Labūb Sab'ah*.	[17]
23.	*Nisyān* (Dementia)	Massage the head with *Roghan-e-Badām* or *Roghan-e-Labūb Sab'ah*.	[17]
Disorders of Respiratory system			
24.	*Zāt al Janb* (Pleurisy)	Mix Olive oil in warm water and massage on the chest	[13]
		Massage with the following preparation: wax, duck fat, chicken fat, sheep fat, *Roghan Zard*, and fresh *Zūfa*	[20]
		Mix *Moam safaid* 6 gm with *Roghan-e-Gul* 12 gm and heat it. After that, add *Lobān*, *Masṭagi* 3 gms each and massage while lukewarm.	[17]
		Make a fine powder of *Za'frān* 1 gm, *Ailwa* 1 gm and mix with *Qayrūṭi Ārad Karsana* 12 gm and massage on the chest.	[17]
		Mix camphor 3 gm and *Roghan-e-Gul* and massage on the chest.	[17]
25.	*Zāt ar-Riyah* (Pneumonia)	Massage the chest with *Banafsha*, *Moam safaid* and mucilage of *Asaphghol*.	[21]
26.	*Zāt ar-Riyah Falghamūni* (Sanguineous Pneumonia)	Massage the chest with *Banfasha*, *Moam safaid*, and *Lu'ab-e-Asaphghol* initially. When the chest wall appears warm, massage with ghee, bone marrow etc.	[21]
27.	*Nafs-ud-Dam* (Haemoptysis)	Massage the extremities with strong pressure and the direction of strokes should be from upper to lower direction.	[20]
		Take *Roghan-e-Ās* and add a small quantity of *Murr Makki* and crushed *Kundur*, mix well and use for massage on the chest.	[16]
		Tie the hands and feet and massage with warm oil.	[21]
28.	*Ribu* (Asthma)	To provide moderate warmth to the lungs, it is recommended to rub the chest wall gently with a cloth. Oil should not be used unless weakness has been caused by massage.	[21]
		Massage the chest with *Roghan-e-Sosan*, *Roghan-e-Ghār*, *Roghan-e-Shibat*, *Sudāb*, and suitable oils having a warm temperament so as to relax the thorax.	[21]
		Massage the chest with gentle strokes with *Roghan-e-banafsha* and *Moam safaid*	[21]
		Massage the chest with gentle strokes with *Roghan-e-Nargis* and *Roghan-e-Bābūnah*.	[21]

		Mix *Roghan-e-Alsī* 24 ml, *Mom safaid* 12 gm, fat from kidney of goat 12 gm, and massage on the chest while lukewarm.	[17]
29.	*Ribu balghami* (Asthma associated with phlegmatic humors)	To soften the hours and to assist in expulsion, make a *qayrūṭi* with *Mom zard*, *Roghan-e-Katān*, fat from kidney of goat and massage on the chest.	[15]
30.	*Amrāz-e-ṣadr* (Chest diseases)	*Kaf-e-Darya*, *Murr Makki*, *Naṭrūn*, *Roghan-e-Balsān*, *Farfiyūn*, *Miy'a Saila*-mix all ingredients and massage on the chest.	[21]
31.	*Surfa* (cough)	If caused due to cold, then massage the chest with *Roghan-e-Sarson*, *Roghan-e-Nargis*, *Roghan-e-Sumbul* etc. If it is caused due to moist humors, massage with soothing oils like *Roghan-e-Qusṭ*, *Roghan-e-Masṭagi* etc. If it is caused due to dryness, massage the chest with *Roghan-e-Gul*.	[14]
32.	*Surfa bārid* (cough associated with cold temperament)	Massage with *Moam Zard*, *Roghan-e-Sosan*, *Roghan-e-Kheri* and *Roghan-e-Yasmīn* on the chest.	[15]
Disorders of Oral cavity			
33.	*Waja'-e-dandān* (Toothache)	Powder and mix *Filfil Siyāh* in honey and massage on the teeth and gums.	[19]
34.	Cold sensitivity	If the teeth are sensitive to cold things, massage the teeth with *Roghan-e-Balsān*, *Roghan-e-Sosan* and *Roghan-e-Bān*	[19]
35.	*Thiql-e-lisān* (bradyglossia)	Massage the tongue with a powder of *Naushādar*, *'Āqarqarḥa*, *Filfil*, *Khardal*, *Waj* (in equal quantities)	[19]
		Massage the tongue with *Naushādar* and *Māzu*. If the disease is chronic, massage with *Ḥartāl Zard*, *Ḥartāl Surkh*, Lime, *Māzu*, Alum-mix all in equal quantities with vinegar and use for massage.	[19]
36.	*Qula'-e-dehan* (Apthous ulcers)	Powder *Roghan-e-Gul*, *Nishāsta*, *Ṭabāshīr*, *'Ads Muqashshar*, dried *dhaniya*, *Rasawt*-mix all ingredients in camphor and massage the affected area.	[19]
Disorders of Gastro-intestinal tract and liver			
37.	Oesophagitis	Massage the interscapular region with warm oils like *Roghan-e-Bābūnah*, *Roghan-e-Shibat*, *olive oil*, *Roghan-e-Bān* etc.	[15]
38.	*Zo'f-e-me'da* (weakness of stomach)	Massage the epigastric region with *Roghan-e-Nārdīn*.	[15]
39.	*Qūlanj* (colic)	Massage the abdomen with *Roghan-e-Qusṭ*.	[17]
40.	*Waram-wa-Dard-e-Me'da* (Gastritis and epigastric pain)	Massage the epigastric region with *Roghan-e-Nārdīn*.	[19]
41.	*Su-e-haḍm* (Indigestion)	Massage the epigastric region with *Roghan-e-Nārdīn*.	[19]
42.	*Nafkh-e-Shikam* (Flatulence)	Boil *Shonīz* and *Hab al-Ghār* in water, then boil any suitable oil with water and mix both. Use this preparation for massage on the epigastric region	[22]
43.	*Waja' al-fuād* (Epigastric pain) caused by *harārat* or *safrāwi* humors	Massage the epigastrium with *Roghan-e-Gul*.	[15]
44.	*Fuwāq* (Hiccups)	Dissolve *Masṭagi* in *Roghan-e-Gul* and massage on the	[22]

		epigastrium. Ask the patient to withhold breath during massage.	
45.	*Zaḥīr* (dysentry)	Take one egg yolk and mix with *Roghan-e-Gul* 12 ml and massage on the area overlying spasms.	[17]
Disorders of musculo-skeletal system			
46.	*'Irq-un-Nasā* (Sciatica)	Mix *'Āqarqarḥa*, Boric powder, *Mawīzaj*, *Masṭagi* oil, henna oil, and massage on the affected area.	[16]
		Massage with *Roghan-e-Qusṭ* and *Roghan-e-Sosan* on back and hip joint after *huqna* (enema).	[16]
		When the pain is severe, massage with *Roghan-e-Henna* in which a small quantity of *naṭrūn* and *sawf-e-zūfa* has been added.	[16]
		Dissolve mustard oil in water and heat till the water evaporates. Use this preparation for massage when luke-warm.	[17]
		'Araq-e-'Ajīb may also be used for massage.	[17]
		Massage with *Roghan-e-Chahār Barg*.	[17]
47.	*Ṣalābat-e-mafāṣil* (frozen / stiff joints)	*Roghan-e-Kunjad*, duck fat, chicken fat, mucilage of *methi* seeds, mucilage of *Alsī*-all in equal quantities mixed and used for massage.	[16]
48.	*Waja' al-mafāṣil Balghami* (Arthritis caused by phlegmatic humors)	Massage with *Roghan-e-dhatūra*, *Roghan-e-Ḥina* and *Roghan-e-Aurāq*.	[23]
		Roghan-e-Bed Injīr, *Roghan-e-Nārdīn*, *Roghan-e-Qusṭ*, *Roghan-e-Badām Talkh*.	[23]
		Roghan-e-Ḫurmal or *Roghan-e-Nāranj*.	[23]
		Lukewarm *Roghan-e-Kuchla*, *Roghan-e-Gul-e-Aakh*, *Roghan-e-Qusṭ* or *Roghan-e-Gul-e-Surkh*	[17]
		Roghan-e-Ḫina lukewarm	[17]
49.	*Waja' ul Ẓuhr* (Backache)	*Roghan-e-Nārjīl Kuhna*, *Roghan-e-Tukhme Injīr*, *Roghan-e-Qurṭum*, *Roghan-e-Qusṭ*, *Roghan-e-Qanfaz*, *Roghan-e-Jawz Kuhna*, *Roghan-e-Qurṭum* and *Roghan-e-Qusṭ*.	[23]
		Jund-bedstar mixed in any suitable oil having warm temperament.	[23]
		Roghan-e-Farfiyūn, *Roghan-e-Sosan*, *Roghan-e-Qusṭ* for massage after flushing red with cloth massage.	[13]
		Roghan-e-Sudāb, *Roghan-e-Habb al-Ghār*	[13]
50.	*Waja'-ul-Warik* (Coxalgia)	*Farfiyūn*, *jundbestar*, *miy'a saila*.	[19]
		Any oil having a hot temperament and pleasant odour may be used for massage.	[19]
51.	*Waja' ul Sāqayn* (Pain in calves)	Mix 3 gms each of *Bazrulbanj* (*Ajwain khurasani*), *Masṭagi*, and *Suranjan talkh* in *Roghan-e-Gul* and use for massage.	[23]
52.	*Niqras* (Gout)	For *Niqras bārid* (gout associated with cold temperament), first control the pain with medications, then *nuṭūl* (irrigation) with hot water over the affected area and then massage with *Roghan-e-Sosan*.	[19,24]
		Massage with *Roghan-e-Sumbul*, *Roghan-e-Ghār* and *Roghan-e-Sudāb*.	[23]
53.	*Taḥajjur-e-mafāṣil* (frozen joints)	Massage the affected joints with *Roghan Chobchīni*.	[23]
Disorders of skin			
54.	*Sharā* (Urticaria)	Massage the affected area with finely powdered salt and *Maida-Gandum* mixed in equal quantities	[17]

55.	*Qūba* (Ringworm)	Massage the affected area with a mixture of sour lemon, *ashq* and vinegar.	[19]
		Sour lemon, *Ashq*, vinegar may be mixed and used for massage.	[17]
56.	*Jarb* (Scabies)	*Roghan-e-Chameli* 10 gm, rose 50 gm, juice of *lemun kāghzi* 10 gm may be mixed and massaged on the skin.	[17]
		Mix sandalwood oil 10 gm with 5 gm rose and rub on the affected area.	[17]
57.	*Ḥaṣf* (Prickly heat)	Prepare a mixture of *Sandal Safed* in *'Araq-e-Gulāb*, *Barg-e-Ḥina* or *Aab-e-Kasni Sabz* and rub on the affected area after chilling it with ice.	[17]
		Mix Fuller's earth with *Lu'āb-e-Khaṭmi* and massage on the affected area.	[17]
		Make a fine powder of *Katīra* and mix with butter and massage on the affected area	[17]
58.	*Juzām* (Leprosy)	Massage the patient with a mixture of *Ārad-e-Nakhūd*, *Ārad-e-Bāqla*, and *Ushnān* inside a *hammām*. Repeated sessions of *hammām* are also recommended which should be accompanied by a massage with *Roghan-e-Kadū* and *Roghan-e-Banafsha* inside the *hammām*.	[19]
Disorders of genito-urinary system			
59.	*Zo'f-e-kulya* (Weakness of kidneys)	Massage with vinegar and *Roghan-e-Gul* over the flanks.	[23]
60.	*Warm-e-şulb kulya* (Chronic nephritis)	Take duck fat, chicken fat, cow-calf brain, *Gogul*, *Ratīnaj* (dissolved in warm water) -make a paste of all medicines in *kharal* and use for massage on renal area.	[16]
61.	*Barūdat-e-kulya* (Abnormal cold temperament of kidneys)	Fox fat, lizard fat, *Roghan-e-Akhrot*, *Roghan-e-Pista*, and *Roghan-e-Qusṭ* are prescribed for massage over the renal area.	[25]
62.	*Hasāt-e-kulya wa mathāna* (Renal or bladder stone)	Massage the pelvis with *Roghan-e-'Aqrab*.	[19]
63.	*Haṣāt-e-kulya* (Renal stone)	Another treatment prescribed for renal stones is massage over ureters and back with *Roghan-e-Aqrab*	[19]
64.	*Istarkhā-e-masāna* (incontinence)	Massage the pelvis with *Roghan-e-Zanbaq*, *Roghan-e-Nārdīn*, *Roghan-e-Sudāb*, *Roghan-e-Qusṭ*, *Roghan-e-sanobar*, *Roghan-e-Ghār*, *Roghan-e-Qasa-ul Humār* in which *Jund bedstar*, *ḥiltīt*, *behroza*, *jao-shīr* have been added.	[25]
65.	*Suls-al-Bawl* (Incontinence of urine)	Massage with *Roghan-e-Zanbaq*.	[26]
66.	*Kathrat-e-Bawl* (Polyuria)	Massage the renal area with Sandalwood, *Aqāqiya*, Camphor, *Ajwain Khurāsāni*, and *'Araq-e-Gulāb*.	[26]
67.	*Ikhtenāq-ur-Reḥam* (Hysteria)	Massage the legs with strong strokes.	[19]
68.	*Bawl fil-Farāsh* (bed-wetting)	If it is caused by cold temperament, massage the pelvis with *Roghan-e-Nārdīn*.	[23]

Table : 2 - Botanical/English names of Unani drugs included in the text

1.	*Āb-e-Kasni Sabz*	*Cichorium intybus* Linn. green leaf juice
2.	*Ālu Bukhāra*	*Prunus domestica* Linn.
3.	*Ārad-e-Baqla*	*Vicia faba* Linn. Flour
4.	*Ārad-e-Nakhūd*	*Cicer arietinum* Linn. Flour
5.	*Ads Muqashshar*	*Lens culinaris* Medik. (peeled seeds)
6.	*Ajwain Khurasāni*	*Hyoscyamus niger* Linn.
7.	*Anisūn*	*Pimpinella anisum* Linn.
8.	*Aqāqiya*	*Acacia nilotica* (L.)
9.	*ʻĀqarqarḥa / Roghan-e-ʻĀqarqarḥa*	*Anacyclus pyrethrum* DC. (*roghan*=oil)
10.	*ʻAraq-e-ʻAjīb*	(A polyherbal Unani formulation)
11.	*ʻAraq-e-Gulab*	*Rosa damascena* Mill. Distillate
12.	*Asaphghol / Luʻab-e-Asaphghol*	*Plantago ovata* Forsk. seeds (*Luʻab* =mucilage)
13.	*Ashq*	*Dorema ammoniacum* D. Don. Gum
14.	*Banafsha / Roghan-e-Banafsha*	*Viola odorata* Linn. (*roghan*=oil)
15.	*Barg-e-Ghār*	*Laurus nobilis* Linn. Leaves
16.	*Bazrulbanj*	*Hyoscyamus niger* Linn.
17.	*Behroza*	*Pinus longifolia* Roxb.
18.	*Bhang*	*Cannabis sativa* Linn.
19.	*Dhaniya*	*Coriandrum sativum* Linn.
20.	*Ailwa*	*Aloe barbadensis* Linn.
21.	*Farbiyun / Farfiyūn / Roghan-e-farfiyun*	*Euphorbia resinifera* Berq.
22.	*Filfil / Filfil siyāh*	*Piper nigrum* Linn.
23.	*Gandhak*	Sulphur
24.	*Gogul*	Gum from *Commiphora mukul* (Hook ex Stocks) Engl.
25.	*Ḥartāl Surkh*	Arsenic oxide
26.	*Ḥartāl Zard*	Arsenic trisulphide
27.	*Ḥiltīt*	Asafoetida
28.	*Ḥina/ Barg-e-Ḥina / Roghan-e-Ḥina*	*Lawsonia inermis* Linn. (*barg*=leaves, *roghan*=oil)
29.	*Izkhar*	*Cymbopogon jwarancusa* (Jones) Schult.
30.	*Jao-shīr*	*Ferula galbaniflua* Boiss. & Buhse
31.	*Jund bedstar / Roghan-e-Jund bedstar*	Castoreum (*roghan*=oil)
32.	*Kaf-e-darya*	Alcyonium
33.	*Katīra*	*Cochlospermum religiosum* (Linn.) Alston
34.	*Khardal/ Roghan-e-khardal*	*Brassica nigra* (Linn.) K. Koch (*roghan*=oil)
35.	*Khashkhāsh / Roghan-e-Khashkhāsh*	*Papaver somniferum* Linn. (*roghan*=oil)
36.	*Kundur*	*Boswellia serrata* Roxb. ex Colebr.
37.	*Lemun kāghzi*	*Citrus aurantifolia*
38.	*Lobān*	*Styrax benzoin* Dryand.
39.	*Luʻab-e-Khatmi*	*Althaea officinalis* Linn. Mucilage
40.	*Maida-Gandum*	Wheat powdered after removal of outer layer
41.	*Masṭagi / Roghan-e-Masṭagi*	*Pistacia lentiscus* (*roghan*=oil)
42.	*Mawīzaj*	*Delphinium staphysagria* (Mountain raisins)
43.	*Māzu*	*Quercus infectoria* Oliv.
44.	*Methi*	*Trigonella foenum-graecum* Linn.
45.	*Miy'a / Miy'a saila*	*Liquidamber orientalis* Mill.
46.	*Mirzanjosh / Roghan-e-Mirzanjosh*	*Origanum vulgare* L. (*roghan*=oil)
47.	*Moam safaid*	Wax

48.	*Murr Makki*	*Commiphora myrrha* (Nees) Engl.
49.	*Naṭrūn*	Borax
50.	*Naushādar*	Sal Ammoniac
51.	*Nishāsta*	Wheat starch
52.	*'Ūd Salīb*	*Paonea officinalis* root
53.	*Qayrūti Ārad Karsana*	(A polyherbal Unani formulation)
54.	*Qusṭ talkh*	*Saussurea lappa*
55.	*Rasawt*	*Berberis aristata* DC. (root bark extract)
56.	*Ratīnaj*	Resin from *Pinus* tree
57.	*Roghan Zard*	Clarified butter
58.	*Roghan Badām Talkh*	*Prunus amygdalus* (L.) Batsch.var.*amara* oil
59.	*Roghan Chobchīni*	*Smilax china* Linn.
60.	*Roghan-e-Ās*	*Myrtus communis* Linn. Oil
61.	*Roghan-e-Akhrot*	*Juglans regia* Linn. Oil
62.	*Roghan-e-Alsī*	*Linum usitatissimum* Linn. Oil
63.	*Roghan-e-'Aqrab*	Oil prepared from scorpions
64.	*Roghan-e-Aurāq*	(A polyherbal Unani formulation)
65.	*Roghan-e-Bābūnah*	*Matricaria chamomilla* Linn. Oil
66.	*Roghan-e-Balsān*	*Commiphora gileadensis* (L.) C. Chr. Oil
67.	*Roghan-e-Bān*	*Melia azederach* Linn. Oil
68.	*Roghan-e-Bedinjīr*	*Ricinus communis* Linn. Oil
69.	*Roghan-e-Biskhapra*	*Trianthema portulacastrum* Linn. oil
70.	*Roghan-e-Chahār Barg*	(A polyherbal Unani formulation)
71.	*Roghan-e-Chameli*	*Jasminum arborescens* Roxb. oil
72.	*Roghan-e-Dhatūra*	*Datura metel* L.
73.	*Roghan-e-Gandum*	*Triticum aestivum* Linn.
74.	*Roghan-e-Ghār/ Roghan-e-Habbul-Ghār*	*Laurus nobilis* oil
75.	*Roghan-e-Gul*	*Rosa damascena* Mill. Oil
76.	*Roghan-e-Gul-e-Ākh*	(A polyherbal Unani formulation)
77.	*Roghan-e-Ḥurmul*	*Peganum harmala* Linn. Oil
78.	*Roghan-e-Jawz / Roghan-e-Jawz Kuhna*	*Juglans regia* oil (*Kuhna*=old)
79.	*Roghan-e-Kadū*	*Cucurbita moschata* oil
80.	*Roghan-e-Kāhu*	*Lactuca sativa* Linn. Oil
81.	*Roghan-e-Kāknaj*	*Physalis alkekengi* Linn. Oil
82.	*Roghan-e-Kalān*	(A polyherbal Unani formulation)
83.	*Roghan-e-Katān*	*Linum usitatissimum* Linn. Oil
84.	*Roghan-e-Kheri*	*Cheinranthus cheiri* Linn. Oil
85.	*Roghan-e-Kuchla*	*Strychnos nuxvomica* oil
86.	*Roghan-e-Kunjad*	*Sesamum indicum* oil
87.	*Roghan-e-Labūb Sab'ah*	(A polyherbal Unani formulation)
88.	*Roghan-e-Mūrad*	*Myrtus communis* Linn. Oil
89.	*Roghan-e-Nārjīl Kuhna*	*Cocos nucifera* Linn. Oil
90.	*Roghan-e-Nāranj*	*Citru aurantium* Limm. Oil
91.	*Roghan-e-Nārdīn*	*Nardostachys jatamansi* (D. Don) DC. oil
92.	*Roghan-e-Nargis*	*Narcissus tazetta* oil
93.	*Roghan-e-Nīlofar*	*Nymphaea alba* Linn. Oil
94.	*Roghan-e-Pista*	*Pistacia vera* oil
95.	*Roghan-e-Qanfaz*	Oil derived from hedgehog
96.	*Roghan-e-Qatha al-Ḥumār*	*Ecballium elaterium* (L.) A.Rich. oil

97.	*Roghan-e-Qurṭum*	*Carthamus tinctorius* Linn. oil
98.	*Roghan-e-Qusṭ*	*Saussurea lappa* oil
99.	*Roghan-e-Ṣanobar*	*Pinus roxburghii* Sarg. oil
100.	*Roghan-e-Sarson*	*Brassica rapa* L. oil
101.	*Roghan-e-Sīr*	*Allium sativum* Linn. oil
102.	*Roghan-e-Shibat*	*Anethum graveolens* oil
103.	*Roghan-e-Sumbul*	*Nardostachys jatamansi* (D.Don.) DC. oil
104.	*Roghan-e-Surkh*	(A polyherbal Unani formulation)
105.	*Roghan-e-Tukhm Injīr*	*Ficus carica* Linn. Seed oil
106.	*Roghan-e-Turb*	*Raphanus raphanistrum* sub. sp. (L.) Domin oil
107.	*Roghan-e-Utraj*	*Citrus medica* oil
108.	*Roghan-e-Yāsmīn*	*Jasminum arborescens* Roxb. oil
109.	*Roghan-e-Zanbaq*	*Jasminum sambac* oil
110.	*Sandal Safed*	*Santalum album* Linn.
111.	*Satāwar*	*Asparagus racemosus* Willd.
112.	*Shīḥ*	*Artemisia maritima* Herb.
113.	*Shonīz / Roghan-e-Shonīz*	*Nigella sativa* (*roghan*=oil)
114.	*Shorah*	Saltpetre
115.	*Sosan / Beikh-e-Sosan / Roghan-e-Sosan*	*Iris ensata* Thunb. (*beikh*=root; *roghan*=oil)
116.	*Sudāb / Roghan-e-Sudāb*	*Ruta graveolens* L. (*roghan*=oil)
117.	*Suk*	*ʻUsāra-e-Āmlah* (Extract of *Emblica officinalis* Gaertn)
118.	*Suranjān talkh*	*Colchicum luteum* Baker.
119.	*Ṭabāshīr*	*Bambusa bambos* (L.) Voss.
120.	*Ushnān*	Saltwort
121.	*Waj*	*Acorus calamus* Linn.
122.	*Zaʻfrān*	*Crocus sativus*
123.	*Zayt-al-infāq*	Oil derived from unripe olives
124.	*Zanjabīl*	*Zingiber officinalis* Linn. root
125.	*Zaranbād*	*Curcuma zedoaria* Rosc.
126.	*Zūfa / Sawf-e-zūfa*	*Hyssopus officinalis* Linn. (*sawf*=camlet)

Conclusion

Dalk is an age-old therapy which has been popular in Unani medicine since its very inception. In the recent years, it is gaining immense popularity due to the simplicity and ease of application, comforting feeling and holistic nature. *Dalk* may hold the promised cure for many diseases associated with, or aggravated by stress and improper lifestyle. The medicines prescribed for *dalk* in the ancient Unani texts are numerous, and derived after years of experience, many of which are being used by Unani practitioners. A number of clinical trials have proved the efficacy of the therapy on modern parameters. In that aspect, *dalk* has the potential of becoming an independent science for management of a number of disorders, where conventional methods have proved futile, or carry adverse effects. *Dalk* is in essence a safe therapy requiring minimal use of technology, and also allows considerable flexibility for adjusting to individual needs [8].

This review is done with a view to explore and preserve the traditional Unani medicine, to pave the way for future clinical research. It was observed that the method of *dalk* with respect to the duration, strength and frequency has not been explained in depth in most diseases in classical textbooks. However, the general guidelines for *dalk* have been explained adequately, and the same may be followed for the purpose. Nevertheless, there is a need to further explore the field and develop standard treatment guidelines, especially keeping in mind the *miz?j* (temperament) theory, and base our prescriptions on the same.

References

[1] Field T. Massage therapy. Med Clin North Am 2002;86:163-171.

[2] Ernst E. The safety of massage therapy. Rheumatology 2003;42:1101-1106.

[3] Ibn-e-Rushd. Kitab-al-Kulliyat. 2nd ed. CCRUM. New Delhi 1987; pp 346, 352-359.

[4] Kabiruddin M. Tarjuma wa Sharah Kulliyat-e-Qanoon. Vol 1&2. Sheikh Mohd. Basheer and Sons. Lahore 1932; pp 150-154.

[5] Ibne-Sina. Al-Qanoon Fil Tibb. Vol 1. Book Printers. Lahore 1992; pp 211-212.

[6] Rapaport M, Schettler P, Bresee C. A preliminary study of the effects of repeated massage on hypothalamic-pituitary-adrenal and immune function in healthy individuals: a study of mechanisms of action and dosage. J Altern Complement Med 2012;18:789-797. URL: http://www.ncbi.nlm.nih.gov/pubmed/22775448

[7] Field T. Massage therapy research review. Complement Ther Clin Pract 2014;20:224-229. URL: http://www.ncbi.nlm.nih.gov/pubmed/25172313

[8] Goats GC. Massage - The scientific basis of an ancient art: Part 2. Physiological and therapeutic effects. Br J Sp Med 1994;28:153-156. URL: http://bjsm.bmj.com/content/28/3/153.full.pdf+html

[9] Jager W, Buchbauer G, Jirovetz L, Fritzer M. Percutaneous absorption of lavender oil from a massage oil. J Soc Cosmet Chem 1992;43:49-54. URL: http://journal.scconline.org/pdf/cc1992/cc043n01/p00049-p00054.pdf

[10] Nomikos NN, Nomikos GN, Kores DS. The use of deep friction massage with olive oil as a means of prevention and treatment of sports injuries in ancient times. Arch Med Sci 2010;5:642-645. URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3298328/pdf/AMS-6-5-642.pdf

[11] Cambron JA. Side-Effects of Massage Therapy: A Cross-Sectional Study of 100 Clients. J Altern Complement Med 2007;13:793-796. URL: http://www.ncbi.nlm.nih.gov/pubmed/17983334

[12] Vickers A, Zollman C, Reinish JT. Massage therapies. West J Med 2001;175:202-204.URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1071543/pdf/wjm17500202.pdf

[13] Jurjani A. Zakhira Khwar zam Shahi. Vol 2 (part-6). Munshi Nawal Kishore. Lucknow 1903; pp 39, 66, 74, 75, 82, 94, 304, 635.

[14] Tabri R. Firdaus-Al-Hikmat. Vol 1&2. Sheikh Mohd. Basheer and Sons. Lahore 1996; pp 143, 153, 189-90, 218.

[15] Khan A. Al-Ikseer. Vol 1. Daftar-ul-Masih. New Delhi 1904; pp 78, 261, 269, 293, 309, 316, 317, 322, 350, 416, 441, 468, 665, 785.

[16] Majusi A. Kamil-us-Sana'ah. Vol 2. Munshi Nawal Kishore. New Delhi 1889; pp 302, 304, 326, 329, 331, 334, 379, 469, 504, 505, 506, 514.

[17] Khan A. Haziq. Beeswin Sadi Publications Pvt. Ltd. New Delhi 1983; pp 25, 28,29, 42, 46, 47, 54, 57, 59, 67, 68, 72, 82, 204, 227, 228, 349, 354, 535, 536, 539, 543, 545, 549.

[18] Razi Z. Al-Hawi Fil-Tibb. Vol 1. CCRUM. New Delhi 1997; pp 22-3, 29, 30, 31, 39, 40, 44, 72, 98, 99, 100, 105, 127, 137, 141, 142.

[19] Razi Z. Kitab Al-Mansoori. CCRUM. New Delhi 1999; pp 205, 208, 320, 321, 322, 323, 324, 326, 345, 346, 348, 349, 358, 360, 378, 389, 393, 394.

[20] Ibne-Sina. Al-Qanoon Fil Tibb. Vol 3 (part-1). Book Printers. Lahore 1992; pp 103, 119, 253, 278.

[21] Razi Z. Al-Hawi Fil Tibb. Vol 4. CCRUM. New Delhi 1998; pp 18, 19, 24, 34, 43, 92.

[22] Razi Z. Al-Hawi Fil-Tibb. Vol 5. CCRUM. New Delhi 1999; pp 123, 125.

[23] Khan A. Al-Ikseer. Vol 2. Ash-Shifa. Faisalabad 1904; pp 1169, 1248, 1426, 1439, 1447, 1456, 1450.

[24] Nikhat S, Fazil M. An Analytical Review on Nutool (Irrigation) Therapy. J Drug Deliv Ther 2015;5:1-4. URL: http://jddtonline.info/index.php/jddt/article/view/1127/649

[25] Ibn-e-Sina. Al-Qanoon Fil-Tibb. Vol 3 (part-2). Book Printers. Lahore 1992; pp 161, 189.

[26] Razi Z. Al-Hawi Fil Tibb. Vol 10. CCRUM. New Delhi 2002; pp 220, 223.

[27] Ibn-e-Sina. Al-Qanoon Fil Tibb. Vol 1. Book Printers. Lahore 1992; p 211.x

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 1, Issue 2, Spring 2016

Short Communication

Comparison of Traditional Chinese Medicine and Traditional Iranian Medicine in Diagnostic Aspect

Shadi Sarebanha[1], Amir Hooman Kazemi[2], Paymon Sadrolsadat[3], Niu Xin[1]

[1] *Beijing University of Chinese Medicine, Beijing, China*

[2] *Department of Traditional Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran*

[3] *International School of Beijing, Canadian College of Naturopathic Medicine, Toronto, Canada*

Received: 15 May 2015 **Revised:** 27 Jun 2015 **Accepted:** 10 Aug 2015

Abstract

Iranian traditional medicine (TIM) has a long and old history from ancient periods up to now and it is used in prevention, diagnosis, treatment, and elimination of diseases in Persia and neighboring countries. In Traditional Iranian Medicine, physiological functions of the human body are based on 7 factors: Elements, Temperament, Humors, Organs, Spirits, Forces or Faculty, Functions. Traditional Chinese Medicine (TCM) with 3000-5000 year of history has a unique system to diagnosis and prevention of diseases. TCM with acupuncture and Chinese herbal medicine is one of the most important parts in complementary and alternative medicine. The clinical diagnosis and treatment in TCM are mainly based on the yin-yang and five elements theories. The aim of present study is to assess differences of TCM and TIM in diagnostic aspect for this purpose we searched Iranian databases and 30 years review articles of the Chinese scholar database (CNKI, VIP…) and relevant articles published in Journals inside and outside of China without language restrictions. The results showed that diagnosis in TIM is mostly focused on urine analysis, smelling, and pulse-taking, while a diagnosis of diseases in TCM is mainly focused on tongue observation and pulse taking. It seems that through the time some parts of diagnosis are missed. If practitioners take advantages from traditional medicine and combine it with the science of western medicine, it could be a great help for integrative medicine. Our knowledge about each of the traditional medicine not only should not be against the other types of traditional medicine but also it should be a help for finding information about missed parts.

Keywords: Chinese Medicine, Iranian Medicine, Diagnosis, Pulse, Urine, Tongue

Citation: Sarebanha Sh, Kazemi AH, Sadrolsadat P, Xin N. **Comparison of Traditional Chinese Medicine and Traditional Iranian Medicine in Diagnostic Aspect**. Trad Integr Med 2016; 1(2): 75-8.

Corresponding Author: Amir Hooman Kazemi
Email: hooman_k@tums.ac.ir

1. INTRODUCTION

Traditional Iranian Medicine (TIM) roots back to over 5000 years before Christ. Since Achaemenid era, Iranians' knowledge about medical herbs and traditional treatment has been well-known all around the world and in the end of Sassanid era, apart from Far East, GundiShapour has been the biggest and the most important medical center all over the world. Persian traditional medicine has been mixed with Persian culture, society, and theology [1]. The TIM looks at patients and diseases through an angle different from that of modern medicine. Modern medicine has an abstract supervision on the work of organs, tissues and genes, considering the disease as the driving force behind an imbalance in body performance. It does its utmost to strike a balance in organ, tissue or gene performance to cure the disease. The TIM, however, views man as one entity. Under TIM, a disease shows that the whole body is imbalanced. Hence, it tries to strike an overall balance [1].

Traditional Chinese Medicine (TCM) with 3000-5000 year of history has a unique system to diagnosis and prevention of diseases. TCM with acupuncture and Chinese herbal medicine is one of the most important parts in complementary and alternative medicine [1].

The aim of present study is to assess differences of TCM and TIM in diagnostic aspect.

2. METHODS

We searched Iranian databases and 30 years review articles of Chinese scholar database (CNKI, VIP …) and relevant articles published in Journals inside and outside of China without language restrictions. Furthermore, we investigated the current textbooks of Iranian medicine, the old versions written in ancient Iranian language and some in Arabic language, all the articles published about Iranian medicines in different journals inside and outside Iran on one side and on the other side the texts of Chinese Medicine about diagnosis aspects in the TCM.

3. RESULTS

Diagnostic Methods in TIM

In TIM, the same way as in Western Medicine, to acquire the correct diagnose we need to take a complete medical history about the present illness and also past medical history, family history. Then, practitioners perform a thorough systemic physical examination but with more emphasize on details of their findings such as different types of skin color, or different types of the pulse which mean different conditions [2].

First, the practitioner, (who is called a Physician in the West and a Hakim elsewhere) has to take a full case history. This will have many aspects, but generally includes observation of the patient, e.g., observing a patients posture and listening to their voice, observing the tongue and its coating, the eyes, the hands (skin color, etc.) and the fingernails. It also almost always involves taking the pulse, which often takes a little time, as the practitioner does not just take the pulse rate, but also looks for subtle changes in the pulse that may indicate present or threatening health conditions.

To acquire an accurate diagnosis first step is inspection视: General appearance which is looking at the patient from the head to the extremities, and evaluating the size of the body and body mass, hair, skin color, speed of body movement, e.g., slow or rapid. Furthermore, looking at the patient's urine and the tongue. The second step would be palpation 触: it is more related to palpation of the skin (wet or dry, cold or warm), the abdomen and other organ, and also Pulse taking. Consequently, the third step is percussion叩: In the most famous traditional medical book "canon of medicine" Avicenna says that percussion is used for differential diagnosis of diseases related to abdomen and chest. After percussion practitioner should ask some questions about work/hobbies, sleep-awake hours, defecation and urination, emotional status, physical activity, appetite, smoking and drinking that is interrogation听. Next step that makes TIM more unique is smelling 嗅, Smell of the urine, smell of the sweat and body odor, and finally practitioners should analyze the urine in the aspect of color of urine, smell of urine, concentration of urine,

evaluation of particle sedimentation in urine [3].

In TIM, each patient has something the same as the other patient, but the individual's condition should be considered in treatment this is called the physical constitution. Thus, we cannot prescribe one prescription for everybody. Physicians need to see the individual's physiology, and should start treatment according to the individual's constitutions [4].

TIM considers that all disease processes are due to an imbalance in the four Humors, or at the very least implicate the four Humors [5]. When such an imbalance occurs, the person is said to be in "bad humor." The aim is always to find the cause of the underlying disruption of the Humor or Humors and whenever possible give this the main attention. The cause may be due to external factors, such as an injury, infection, exposure to poisons, incorrect diet, inclement climate, etc., or due to internal factors such as improper digestion, organic malfunction, abnormal temper, and disturbed emotions or may be due to a combination of these factors [6].

3.2 Diagnostic Methods in TCM

The clinical diagnosis and treatment in TCM are mainly based on the yin-yang and five elements theories. Five elements: Fire, Wood, Metal, Earth, and Water [7].

TCM focuses on health maintenance, prevention and in the treatment of disease emphasizes on enhancing the body's resistance to diseases. In TCM, the same disease may be treated by different therapeutic approaches and also one kind of disease may be treated with different therapies.

Diagnosis of TCM is a branch of study and help physicians to make diagnosis and syndrome differentiation. Diagnostic methods are a collection of information about condition of diseases. Four major methods of diagnosis are: "Inspection, Listening and Smelling, Interrogation, Pulse examination, and Palpation" [8]. "望、闻、问、切"

The first part of diagnosis in Chinese medicine is inspection 望, which is mostly consists of General appearance of the body, Pattern of movement, excretion, physique, tongue observation. The first part of inspection is observing the general condition of the body such as complexion, physique, pattern of the movement and emotional status of the patient. The other part of inspection is observing the different parts of the body such as head and neck, face, five sense organs, body shape, and skin. The other part of inspection is tongue observation such as shape and structure of the tongue and also looking at the tongue coating.

The second component of diagnosis is listening and Smelling 闻 that is referred to collection of information from patient through the listening to the patient's voice, speech, respiration, coughing, hiccupping, signing, sneezing and smelling of the abnormal odor of body and excretions. The next step in diagnosis is interrogation 问 which is a way to collects information by asking questions about onset, progress of disease, chief complaint, lifestyle, family history and present illness. In this part also is important asking about cold sensation and heat sensation which are the subjective sensation of patients and also is necessary to ask about the quality, site, severity, duration, radiation of pain. Question about appetite and thirsty, urination and defecation, sleep pattern; female's and male's condition also is important. Finally, practitioner should examine the pulse 切 and collects information by taking the pulse and palpation of the skin, chest, abdomen, and points [9].

Table 1 represents comparison between TIM and TCM according to diagnostic methods.

4. DISCUSSION

In TIM, the goal of diagnosis is based on the diagnosis of the individual's constitution while in TCM it is based on syndrome differentiation according to patients' manifestation.

These two traditional medicines are common in the aspect of pulse diagnosis, but they are different in the aspect of urine and smelling and also tongue observation. Iranian medicine is more emphasize on smelling and urine analysis [10], while Chinese medicine is more focused on tongue observation.

Table 1. Comparisons of methods of diagnosis in traditional Iranian medicine and traditional Chinese medicine

Method of diagnosis in traditional Iranian medicine 伊朗医诊断方法	Method of diagnosis in traditional Chinese m 医诊断方法
• Inspection 视 • Palpation 触 • Percussion 叩 • Interrogation (Questioning) 听 • Smelling 嗅 • Urine Analysis 尿液分析	• Inspection 望 • Listening and Smelling 闻 • Interrogation 问 • Pulse examination, Palpation 切
Characteristic of traditional Iranian medicine: *Temperaments: Warm and Wet 热与湿 Warm and Dry 热与干 Cold and Dry 冷与干 Cold and Wet 冷与湿 *Humors: Blood 血 Bile 胆汁 Black bile Phlegm 痰 *Urine analysis 尿液分析 Color of urine, smell of urine, concentration of urine, clearance of urine, quantity of urine, evaluation of particle sedimentation in urine and Foam of the urine *Pulse taking	Characteristic of traditional Chinese medicine: *Pulse taking *Tongue observation

The methods of Western medicine diagnosis with science and technology (Western diagnostic techniques) can be introduced to Chinese and Iranian clinical practice, which can improve the accuracy of Chinese and Iranian diagnosis and lead to an advantage for improving the medical efficiency in the clinical treatment.

If physicians can combine the theoretical study of western medicine and application of traditional medicines, then western medical doctors can take advantage of Traditional philosophy and Traditional practitioners will know more about the Western Medicine.

In accordance with the WHO's strategy, the old but useful remedies should be integrated in the western medicine for the benefit of humanity and to achieve the best results in practice.

5. Conflict of Interests

Authors have no conflict of interests.

6. Acknowledgments

None.

References

[1] Avicenna. The canon of medicine. Beirut, Lebanon: Alaalami Beirut library Press; 2005.

[2] Bickley L, Szilagyi PG. Bates' guide to physical examination and history-taking. Philadelphia, PA: Lippincott Williams & Wilkins; 2012.

[3] Lloyd M, Bor R. Communication Skills for Medicine. London, UK: Churchill Livingstone; 2004.

[4] Chaghmini MM. Ghanonche fi- Al teb. Tehran, Iran: Almaei Publications; 2013. [In Persian].

[5] Emtiazy M, Keshavarz M, Khodadoost M, Kamalinejad M, Gooshahgir SA, Shahrad Bajestani H, et al. Relation between Body Humors and Hypercholesterolemia: An Iranian Traditional Medicine Perspective Based on the Teaching of Avicenna. Iran Red Crescent Med J 2012; 14(3): 133-8.

[6] Arzani MA. Mizan Al Teb. Qom, Iran: Nour Vahye Publications; 2011. [In Persian].

[7] Hao Y, Liu H, Yue S, Liu X. Introducing traditional Chinese nursing: a review of concepts, theories and practices. Int Nurs Rev 2011; 58(3): 319-27.

[8] Flaws B, Sionneau P. The treatment of modern western medical diseases with chinese medicine: A textbook & clinical manual. Boulder, CO: Blue Poppy Enterprises, Inc.; 2001.

[9] Maciocia G. Diagnosis in chinese medicine: a comprehensive guide. London, UK: Churchill Livingstone; 2004.

[10] Madineh SM. Avicenna's Canon of Medicine and modern urology. Part IV: Normal voiding, dysuria, and oliguria. Urol J 2009; 6(3): 228-33.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 2, Issue 4, Autumn 2017

Review

Dos and Don'ts on the Patient's Bedside: Perspective of Hakim Jorjani

Zahra Ghorbanifar[1], Marzieh Qaraaty[2, 3*], Omidreza Farahi[4]

[1]Education Development Office, Department of Persian Medicine, School of Persian Medicine, Tehran University of Medical Sciences, Tehran, Iran.
[2]Metabolic Disorders research center, School of Medicine, Golestan University of Medical Sciences, Gorgan, Iran.
[3]Department of Persian Medicine, School of Medicine, Golestan University of Medical Sciences, Gorgan, Iran.
[4]Department of Persian Medicine, School of Persian Medicine, Babol University of Medical Sciences, Babol, Iran.

Received: 15 Oct 2017 **Revised:** 1 Dec 2017 **Accepted:** 3 Dec 2017

Abstract

Seyyed Esmail Jorjani (1042-1137 AD) is a well-known Iranian wise scientist. This highly valued wise man wrote many valuable works such as the Treasure of the Khwarazm Shah (*Zakhireye Khwarazmshahi*), medical objectives *(Al - Aghraz al Tibbia val Mabahess al – Alaiia*), Alaii's secret *(Khofi-e-alaii)* and Keepsake (*Yadegar*). The works of this wise man were written in such a way that in the present time, it has maintained its effectiveness despite all the advances in medicine. This high-level scientist in his works has set up duties for the physician which are essential when attending the patient's bedside. He also believes that, after learning medicine well, the doctor should observe some points when attending the patient's bedside, referred to as "the wills the physician should listen to". Hakim Jorjani considers the first requirement for a physician in attending a patient's bedside is to respect religious trust and that the physician should keep his organs out of all unpleasantness. In fact, after completing this moral virtue, the doctor can serve his professional career. Jorjani refers to the subtleties that some of them will be mentioned in this article.

Keywords: Jorjani, Physician, Patient bedside, Iranian medicine

Citation: Ghorbanifar Z, Qaraaty M, Farahi O. **Dos and Don'ts on the Patient's Bedside: Perspective of Hakim Jorjani.** Trad Integr Med 2017; 2(4): 182-187.

*Corresponding author: Marzieh Qaraaty
Department of Persian Medicine, School of Medicine, Golestan University of Medical Sciences, Gorgan, Iran
Email: dr.qaraati@goums.ac.ir
Tel: +98 912 802 7050

Introduction

Attention to ethical and professional ethics and observance of them is one of the most significant aspects of education, research and treatment in the medical profession. This issue has been a matter of interest for Iranian sages and physicians since centuries ago, and they have stated the necessary and intended principles [1]. In other words, the processing of philosophical thinking along with civil law in the field of medical ethics has existed before the advent of scientific domination of the Western world [2]. Studies conducted in ancient Iranian literature and resources of medicine indicate the richness of morality and adherence to the basic principles of medicine, because the renowned Iranian sages of medicine learned such things as ethics, wisdom, philosophy and logic at the beginning of entering medicine and before addressing it [3]. They also deemed it necessary to teach them to their students, thus providing students with a change in the behavior and the necessary readiness to enter the medical profession [4]

Seyyed Esmail Jorjani (1042-1137 AD), as one of the most reputable physicians in the East, wrote some of the most valuable medical collections such as *Zakhireye Khwarazmshahi* (Treasure dedicated to the king of Khwarazm"), *Al - Aghraz al Tibbia val Mabahess al – Alaiia* (Medical Objectives and Excellent Researches). These two works are known as the medical encyclopedia. Other works include: *Khofi-e-alaii* (Hidden Book of) and *Yadegar* (The Keepsake). By writing medical books in Persian, Jorjani prompted the medical community at the time to focus on teaching and learning medicine in Persian [5]. This Persian scientist considers duties and principles for the physician deeming them necessary for the physician when attending the patient's bedside.

The study of ancient medicine resources would help to understand and apply its procedures well through the use of accurate scientific methods along with a critical attitude. It can also contribute to the scientific-ethical development of healthcare employees, including physicians. Therefore, manuscripts of Jorjani were studied in the context of the duties that the physician should always carry out on the patient's bedside. In this article, the topics and discussion of the medical profession were studied and the general-ethical traits that are the ethical characteristics of the human being are not discussed.

Methods

This is a review study. At first, the dos and don'ts in treating the patient in the manuscripts of hakim Jorjani were studied. Then the material obtained was classified and presented.

Results

Seyyed Esmail Jorjani in the book of *Zakhireye Khwarazmshahi* considers the purpose of the science of medicine as two things:

1- Maintaining health (Health and Prevention)

2- Treating the disease (Treatment) [6]

As a result, the physician should recognize the etiology of both health and illness in order to use it if necessary. In addition, in the book of *Al - Aghraz al Tibbia val Mabahess al - Alaiia* considering the medicine science it reads: observance of medical measures will preserve

the health of the people who use them and also make treatment faster and easier in the event of illness. While in people who do not follow medical precautions, levels of well-being are lower and treatment of these people in situations of illness will face challenges such as lack of proper response to treatment and so on [7].

After learning medicine well, the doctor should observe some points when attending the patient's bedside, referred to as "the wills the physician should listen to" by Jorjani. He considers the first requirement for a physician in attending a patient's bedside is to respect religious trust and friendship and kindness with people and that the physician should keep his ears, eyes, hand and tongue out of all unpleasantness. In fact, after completing this moral virtue, the doctor can serve his professional career [8].

Jorjani points out some subtleties that are described below in 12 items:

1-*Understanding the type of illness and its truth:* It is imperative that the physician first, using the basic and essential principles learned, carefully examine the disease and actually using them correctly diagnose the illness and thereby offer a correct therapeutic pattern [6, 8].

2-*Asking for having or not having pain:* The physician should find out whether the patient has a pain in an organ of the body by asking, because the pain indicates the involvement of the target organ, thus, he must first focus on that member and start treatment from there [8].

3-*Questioning the sleeping conditions of the patient:* If the patient's sleep is remained unchanged, it means that the brain is healthy, whereas if the patient's sleep is impaired, it indicates a lack of brain health which needs a harder and longer treatment [8].

4-*Questioning about the appetite for food:* If the patient continues to have appetite, it shows the health of the digestive system and a promising sign. Whatever the appetite decline in the patient, it means that more involvement of the digestive tract and a more difficult treatment [8].

5-*Paving the way for the implementation of prescribed therapies:* Once the doctor, using his thought and tact, determined the type of illness and degree of involvement, he will decide on appropriate measures and drugs that should not be ignored. Also, in order for the patient to ideally implement a doctor's prescription, a suitable nurse should be chosen who would help the patient in the implementation of the prescriptions. Also, the nurse should provide the ideal sleep conditions for the patient, because having a good sleep during the illness will accelerate the treatment process [8].

6-*Providing a physical environment appropriate to the type of disease:* If the patient is suffering from a warm disease, the physician's instructions should provide a cool place for the patient to be placed in it and thus bring cool air to his heart; however, in order for the patient to get the cool air and avoid being hurt, he should wear suit and fit clothes [8].

7-*The manner of treating with children and irritable people:* Whenever a patient, child, or a person is irritable, if he or she is eager to have a special diet, he should be given food gradually in accordance with the principles and rules of treatment; otherwise, he will be weakened and therefore his condition becomes worse [6].

8-*Necessity to change the type of drug in chronic disease:* Jorjani mentions a remarkable point in regard with the possibility of dealing with chronic diseases. Since in the prolonged diseases the patient has to be treated for long periods of time, this habit of taking drugs may reduce the effect of the medicine on the body. In order to resolve this problem, it is recommended that in patients with chronic illness, the patient avoid taking the drug once after several days of taking it, and also from time to time change the type of medicine to maintain the therapeutic effect of the drug to the fullest extent [8].

9-*Changing the treatment process when the prescribed treatment is not effective:* Sometimes the doctor chooses measures that he or she realizes after a while that they have no healing effect. In these cases, Jorjani advises that the doctor need to change the treatment process as soon as possible so that the patient is not harmed. Of course, it should be taken into account that if the doctor is sure of his prescribing, the late effects of the drug and the measures will not change the course of the treatment [8].

10-*Providing the proper mental conditions in all diseases:* Another recommendation that Hakim mentions in dealing with patients is that in all diseases, hope and morale of the patient should be provided. The doctor must try to distract the patient from sorrow, distress and illness, and encourage him depending on the type of illness and the patient's mental-physical condition. One of the most significant tools of patient's satisfaction is visiting friends and relatives, which in each patient with any type of illness brings calmness and progress in response to treatment [6, 8].

11-*Starting treatment with simple measures:* Another task that Jorjani considers necessary for the physician is that the physician first start with proper measures and simple foods, and, if necessary, use the various treatments and, then the complex treatments. Choosing this kind of therapeutic treatment in diseases reduces unwanted side effects to a great extent and is of greatest benefit to the patient [8].

12-*Non-use of uncertain or unexperienced treatments:* Hakim Jorjani points out another worthwhile point which is a must for any qualified physician. This Iranian medicine practitioner advises that physicians should not use unknown drugs used non-specialized people and should not trust them. If such drugs are used, irreparable harm will be inflicted on the patient, and the doctor's professional reputation will be jeopardized [8].

Discussion

The conditions and principles proposed by Jorjani fall into two parts: public and private or professional. General conditions, which are prerequisite and essential, include the observance and maintenance of religious standards, respect for the privacy of patients, good behavior, avoidance of moral vices, observance of ethical principles and the need for communication skills.

In the specific section, the issues raised are significant in two areas.

A: Some points have been made regarding the keeping health principles that should be considered during illness, including:

•Questioning the manner of patient's sleep:

Sleep disorder is effective in prognosis and indicates the severity of the illness and, consequently, how to treat it and its duration. Based on the principles of Iranian medicine, the brain is a chief member of the body and maintains its health and affects the whole body [9]. Good sleep is a symptom of the health of the brain and, conversely, sleep disturbance suggests a disease in the nervous system [10]. It also suggests that the treatment of the disease is more difficult and prolonged, so knowing this will help the doctor to function properly.

•Questioning the patient's appetite for food: Reduced appetite will weaken the body and digestive system, thereby reducing the effect of prescribed medications; so it may be better to first improve the digestive system and appetite to maintain the strength of combatting the disease.

•Providing a physical space appropriate to the type of disease: the physical environment and the air of the patient should be tailored to the conditions of the disease. Air is one of the most effective conditions for maintaining health and treating illness [11, 12].

•Providing the right mental conditions in all diseases: Attention to different mental conditions is one of the significant principles of maintaining health in the six essential principles [6].

B: Other points covering diagnostic and therapeutic topics are as follows:

1.Understanding the type of illness and its origin

2.Questioning for having or not having pain: Paying attention to the pain of a patient is necessary, because it informs the doctor about the involved organ. In addition, pain control is the general principle of the treatment of the disease and, in case of illness incidence, it must first be recognized, and the causing factor and treating method should be addressed, since the entire process of treatment is affected [13].

3.Paving the way for the implementation of the prescribed therapies

4.The need to change the type of medicine in chronic diseases: According to this rule, we need to have access to the patient, and here it is necessary to raise the establishment of sections of Iranian medicine hospitalization. The compatibility of the drug with the nature of the patient should also be considered.

5.Changing the treatment process when the prescribed treatment is not working

6.Initiating treatment with simple measures

7.Non-use of unknown and unexperienced treatments

In summary, the first and most significant achievement of this kind of attitude to the duties of the doctor is to care for the patient as a person with a special identity and credibility. Issues that appears to be somehow neglected todays are that the patient is considered only as a client, and in the first place, the symptoms of the patient are significant to the patient. Although it seems that with the development of Iranian medicine and increased training of specialists in this field, valuable and forgotten attitudes of Iranian scholars are being revived, but we are still at the beginning.

Conclusion

The ethical and professional ideas expressed in manuscripts of Jorjani along with the rich sci-

entific subjects are also a useful and applicable resource for physicians and healthcare professionals. Awareness about the principles and applying them by the doctor and the healthcare provider can help to improve the physician's understanding and attitudes in diagnosing the disease and choosing the appropriate treatment approach, as well as building trust in the patient in order to implement the treatment prescriptions.

In other words, paying special attention to the valuable sources of Iranian medicine and their critical analysis, along with a researching perspective in order to benefit from them along with current ethics and professional principles, can be a rich source of ethical and professional practices in the medical field. It is worthwhile to practically incorporate the obtained achievements into medical education.

References

[1] Tabatabaee SM. Rhazes's views on medical ethics. J Med Ethics Hist Med 2008;1:1-6.

[2] Abdollahi M, Askari SF, Badr P. A Selection of Ethical Recommendations from Romuz-e Azam (19th A.D). jiitm 2016;4:286-297.

[3] Kamali SH, Ghorbanifar Z, Isfahani S, Vatanparast A. Evaluation of access to the course of Hakim. AJP 2015;5:46.

[4] Hatami H, Hatami M, Abbaszade MR, Hatami N. The Principles of Patients' Rights in Traditional Medicine Resources. Iran J Med Law 2011;16:11-38.

[5] Zarshenas MM, Zargaran A, Abolhassanzadeh Z, Vessal K. Jorjani (1042–1137). J Neurol 2012;259:2764-2765.

[6] Jorjani S. Zakhireh Khwarazmshahi. Publications of Iranian Academy of Medical Sciences. Tehran 2001.

[7] Jorjani S. Al - Aghraz al Tibbia val Mabahess al – Alaiia. Tehran University Publication.Tehran 2005.

[8] Jorjani SE. Khofi Alaii. 2nd ed. Ettela'at press. Tehran 1990.

[9] Shirbeigi L, Zarei A, Naghizadeh A, Vaghasloo MA. The Concept of Temperaments in Traditional Persian Medicine. Trad Integr Med 2017;2:143-156.

[10] Palma JA, Urrestarazu E, Iriarte J. Sleep loss as risk factor for neurologic disorders: a review. Sleep Med 2013;14:229-236.

[11] Rezaeizadeh H, Alizadeh M, Naseri M, Ardakani MS. The Traditional Iranian Medicine Point of View on Health and disease. Iran J Public Health 2009;38:169-172.

[12] Qaraaty M, Tabarrai M, Mamaghani JA, Ghorbanifar Z, Latifi M. The role of the Iranian Traditional Medicine in the development of impoverished areas in Iran. Adv Environ Biol 2014;15:64-69.

[13] Ung A, Salamonson Y, Hu W, Gallego G. Assessing knowledge, perceptions and attitudes to pain management among medical and nursing students: a review of the literature. Br J pain 2016;10:8-21.

Part 2

SAMPLE DISEASE APPROACH

TRADITIONAL AND INTEGRATIVE MEDICINE
Trad Integr Med, Volume 1, Issue 1, Winter 2016

Review Article

The Efficacy of Iranian Traditional and Folk Medicinal Plants for Some Gastroduodenal Disorders

Malihe Safavi[1], Mohammad Reza Shams-Ardakani[2], Maryam Sadat Seyedbagheri[3], Alireza Foroumadi[1]

[1] Pharmaceutical Sciences Research Center AND Persian Medicines and Pharmacy Research Center, Tehran University of Medical Sciences, Tehran, Iran

[2] Persian Medicines and Pharmacy Research Center AND Department of Pharmacognosy, School of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran

[3] Persian Medicines and Pharmacy Research Center, Tehran University of Medical Sciences, Tehran, Iran

Received: 25 Jan 2015 **Revised:** 21 Feb 2015 **Accepted:** 30 Feb 2015

Abstract

Peptic ulcer and gastritis are common and universal disease which affect up to 50% of the world's adult population. *Helicobacter pylori* is a major cause of chronic-active gastritis and primary duodenal ulcers, and is strongly linked to gastric cancer. *H. pylori* induce chronic gastritis in virtually all infected patients. Chronic gastritis induced by *H. pylori* increases the risk for a wide spectrum of clinical outcomes, ranging from peptic ulcer disease and atrophic gastritis to gastric adenocarcinoma and gastric mucosal lymph proliferative diseases. Extracts of several plants including *Cinnamomum zeylanicum, Coriandrum sativum, Malus domestica, Phyllanthus emblica, Pistacia lentiscus, Portulaca oleracea, Punica granatum, and Terminalia chebula* have been used in Iranian traditional medicine as therapeutic agents for gastritis and peptic ulcer diseases. The information on all of these remedies was derived from all available old sources such as traditional books. According to new database the mechanisms of action for some of these plants are known. For example *T. chebula* causes improvement in the secretory status of Brunner's gland and also, aqueous extracts of this plant have anti-bacterial activity against *H. pylori*. The information of more recent studied Iranian folk medicinal plants such as *Camellia sinensis, Geum iranicum, Rheum ribes, Salvia mirzayanii, Sambucus ebulus, Stachys lavandulifoli*a, *Stachys setifera, Trachyspermum copticum, and Zataria multiflora* are presented in this review. The medicinal properties of these folk plants are attributed mainly to the presence of natural anti-oxidants and potent anti *H. pylori* activity. It is suggested that an evaluation of the effects of these plants on different aspects of gastric disorders should be performed and further studies are necessary on the other traditional and folk medicinal plants of Iran.

Keywords: Traditional Medicine, Gastritis, Peptic Ulcer, *Helicobacter pylori*, Iran, Medicinal Plant

Citation: Safavi M, Shams-Ardakani MR, Seyedbagheri MS, Foroumadi A. **The Efficacy of Iranian Traditional and Folk Medicinal Plants for Some Gastroduodenal Disorders**. Trad Integr Med 2016; 1(1): 3-17.

Corresponding Author: Alireza Foroumadi
Email: aforoumadi@yahoo.com

1. INTRODUCTION

Traditional uses of plants for medicinal purposes are as old as human civilization [1]. Nature has been a source of medicinal agents since antiquity to date and an impressive number of modern drugs have been isolated from natural sources [2]. Isolation and biochemical characterization of pharmacologically active compounds from medicinal plants continue today. Many of these isolations were based on the uses of the agents in traditional medicine [1], [3]. The past century, however, microorganisms and marine organisms have proved to be a prolific source of structurally diverse bioactive metabolites and a rich source of novel bioactive agents. The plant-based, traditional medicine systems will continue to play an essential role in health care, with about 80% of the world's inhabitants relying mainly on traditional medicines for their primary health care [4], [5], [6].

Disorders of the stomach are very common and induce a significant amount of morbidity in the suffering population. Gastritis, the inflammation of the mucosa of the stomach is a common disorder of a gastrointestinal system and still remains a serious medical problem for many people worldwide [7]. A gastroduodenal ulcer occurs when the gastric mucosa becomes eroded and perforations lead to bleeding [8]. Complications such as peptic ulcer and gastric cancer will result from untreated gastritis [9].

Peptic ulcer and gastric cancer were associated with increased acid production, stress, diet, and anxiety. However, after the discovery of *Helicobacter pylori*, there is authentic evidence to show an association between *H. pylori* – infection and the development of gastric cancer [10]. Gastric ulcer disease and gastric cancer have etiologic factors in common, and are closely associated with *H. pylori* infection [11].

It is estimated that an infected individual has a 10-20% lifetime risk for the development of peptic ulcer disease, which is at least 3-4 fold higher than in non-infected subjects [12]. *H. pylori* infection were found in 90-100% of duodenal ulcer patients and in 60-100% of gastric ulcer patients [13], [14]. The degree of risk depends on the severity of gastritis, which is determined by various host and bacteria related factors. Subjects infected with a cytotoxin-producing bacterial strain, or a strain possessing CagA, are at a higher risk of peptic ulcer, atrophic gastritis and gastric cancer. Among host factors, most of the evidence focuses on acid production in response to *H. pylori* infection which is increased in duodenal ulcer disease and decreased in gastric ulcer disease [12], [15].

Eradication of *H. pylori* infection is recommended in patients with gastroduodenal diseases such as peptic ulcer disease, atrophic gastritis, and low grade gastric mucosa associated lymphoid tissue (MALT) lymphoma [16], [17]. After eradication of the infection, the risk of recurrence of gastric ulcer disease is usually < 10% and approximately 0% for duodenal ulcer disease [12]. Despite advances in anti-microbial therapy, although there is still no ideal treatment, and indications for therapy continue to evolve [18]. Increasing anti-microbial resistance, side effects, and falling eradication rates underline the importance of the updated guidelines on the management of *H. pylori*. Clinical practice evidence has revealed eradication rates are closer to 80% [19], [20].

Today, for develop new potential anti *H. pylori* candidates, scientists in medicinal chemistry field are also equally concerned with the creation of new synthetic drug compounds [21], [22], [23], [24], [25], [26], [27], [28], [29]. Complementary and alternative modes of treatment, particularly nontoxic, natural, and inexpensive products are attractive. There are many studies on the anti-bacterial properties of vegetables and plant extracts [19]. The focus of this review will be on those Iranian traditional and more recent studied medicinal plants which used to treat gastric disorders.

2. METHODS

In Iranian traditional medicine, there is gastric

disease known as “Bosur” and “varam-e-mede” or “Amas” which seems to be identical to ulcer and gastritis, respectively, regarding the explained symptoms of the disease. Bosur is defined as an increasing stomach pain following consumption of sour substances, such as vinegar and mustard and something like these. The other symptoms include nausea, xerostomia, and regurgitation. The other disease, varam-e-mede or Amas presents with gastralgia, decreased appetite, inflammation, and fever [30], [31]. Various natural remedies have been used in TIM for Bosur and varam-e-mede. Since common causative factor for gastric ulceration and gastritis is an invasion of *H. pylori*, recent studies have focused on this microaerophilic, and Gram-negative, flagellated, a spiral-shaped bacterium.

In this study, information on some of these remedies were derived from available old sources such as documents and books and were added to the information derived from modern medical databases covering all *in vitro*, *in vivo* studies that examined medicinal plants for the treatment of gastric disorders. In addition, medicinal plants that have been studied recently in Iran for the treatment of gastric disease are presented. The information of more recently studied medicinal plants is retrieved from multiple databases, including PubMed, Scopus, EBSCO, and Google scholar.

3. RESULTS

3.1 Pathophysiology of Peptic Ulcer and Gastritis

Atrophic gastritis is an inflammation of the stomach lining which defined as a loss of the glandular structures and a collapse of the reticulin skeleton of the stomach mucosa [32]. Gastritis caused by a number of different factors. Infection with *H. pylori* plays a crucial role in the etiology of atrophic gastritis [33]. In patients with persistent infection, chronic active gastritis develops, leading finally to glandular atrophy, a risk factor for gastric adenoma, and cancer [7], [9].

The pathophysiology of peptic ulcer disease has centered on an imbalance between mucosal aggressive and protective factors in the stomach [34]. The stomach is lined by a complex epithelium that forms a selective barrier between the external environment (lumen) and the body [35]. The gastric mucosal barrier is continuously challenged by a variety of aggressive factors of both endogenous and exogenous nature, including excess secretion of gastric acids and pepsin, reactive oxygen species (ROS), use of alcohol and non-steroidal anti-inflammatory drugs (NSAIDs), as well as infection with *H. pylori*. On the other hand, mucus secretion, bicarbonate production, gastro protective prostaglandin synthesis, and normal tissue microcirculation protect against ulcer formation. The etiology of peptic ulcer is unknown in most of the cases, yet it is generally accepted that gastric ulcers are multifactorial and develop when aggressive factors (endogenous, exogenous and/or infectious agents) overcome mucosal defense mechanisms [36], [37], [38].

Common causative factor for gastric ulceration and gastritis is an invasion of *H. pylori*. About half of all gastric ulcer cases are associated with infection by *H. pylori* [39], [40]. The gastric mucosa is well-protected against bacterial infections due to the acidic pH of the lumen, the production of mucus, and rapid epithelial cell turnover [41], [42]. *H. pylori* is highly adapted to its unusual ecological niche in the human stomach, with a unique array of features that permit entry into the mucus, oriented swimming and multiplication in the mucus, attachment to epithelial cells, evasion of the immune response, and as a result, persistent colonization and transmission [43].

Based on earlier documents in response to *H. pylori* colonization of the antral mucosa, G endocrine cells in the distal antral region of the stomach are activated to release the hormone gastrin, which circulates and stimulates parietal cells in the corpus (body) region of the stomach to hyper secrete acid. This increased acid production is likely to play a key role in the pathophysiology of duodenal ulcer disease [44], [45], [46].

Recent studies have shown that *H. pylori* bacteria mainly release specific cytotoxins causing a duodenal ulcer. Several infection-associated factors of *H. pylori*, such as urease, catalase, lipase, adhesion molecules, cytotoxin-associated gene protein (CagA), a homologue of the *Bordetella pertussis* toxin secretion protein (picB) and vacuolating cytotoxin (VacA), contribute to gastric mucosal surface, and the induction of disease [47], [48].

The successful treatment leads to the fall in rates of *H. pylori* infection, on the other hand, the proportion of peptic ulcer disease not related to this organism has risen which will affect the management of peptic ulcer [34]. Stress, smoking, nutritional deficiencies and ingestion of NSAIDs, augment gastric ulcer incidences [49].

3.2 Medicinal Plants and Gastric Disorders

3.2.1 Some medicinal plants in TIM used for peptic ulcer and gastritis

The *in vitro* and *in vivo* studies on plants used in TIM for the treatment of gastric disease are summarized in table 1.

Table 1. *In vitro* and *in vivo* studies on plants used in traditional Iranian medicine for the treatment of gastric disease

Plants	Part	Gastric disease treatment	References
Cinnamomum zeylanicum	Essential oils of dry bark	*C. zeylanicum* essential oil exhibited potent anti *H. pylori* effect IZD: 24.8 mm at 0.5 µl/ml MIC: 0.3 µl/ml	Hosseininejad et al. [57]
Coriandrum sativum	Aqueous suspension of seeds	Pretreatment at oral doses of 250 and 500 mg/kg provide a dose-dependent protection against the i) ulcerogenic effects of different necrotizing agents; ii) ethanol-induced histopathological lesions; iii) pylorus ligated accumulation of gastric acid secretions and ethanol related decrease of nonprotein sulfhydryl groups	Al-Mofleh et al. [59]
Malus domestica	Freeze dried apple flesh extract	i) Apple extracts decreased xanthine-xanthine oxidase or indomethacin induced injury to gastric epithelial cells by 50%; ii) catechin or chlorogenic acid (the main phenolic components of apple extracts) were equally effective as apple extracts in preventing oxidative injury to gastric cells; and iii) apple extracts increased fourfold intracellular anti-oxidant activity, prevented its decrease induced by xanthine-xanthine oxidase, inhibited ROS dependent lipid peroxidation and decreased indomethacin injury to the rat gastric mucosa by 40%	Graziani et al. [61]
Phyllanthus emblica	Ethanol extract of dried fruits	Oral administration of Amla extract at doses 250 mg/kg and 500 mg/kg significantly inhibited the development of gastric lesions in all test models used including pylorus ligation Shay rats, indomethacin, hypothermic restraint stress-induced gastric ulcer and necrotizing agents	Al-Rehaily et al. [69]
	Butanol extract of the water fraction of fresh fruits	Oral pretreatment, with the extract *P. emblica* fruits at the dose of 100 mg/kg body-weight, was found to enhance secretion of gastric mucus and hexosamine in the indomethacin induced ulceration of rats. The morphological observations also supported a protective effect of the stomach wall from lesion induced by indomethacin	Bandyopadhyay et al. [70]

Table 1. *In vitro* and *in vivo* studies on plants used in traditional Iranian medicine for the treatment of gastric disease (Continue)

Plants	Part	Gastric disease treatment	References
Pistacia lentiscus	TMEWP and isolated pure triterpenic acids fraction	Administration of TMEWP to mice infected with the *H. pylori* SS1 strain over the period of 3 months with an average dose of 0.75 mg/day led to an approximately 30-fold reduction in the *H. pylori* colonization The acid fraction was found to be the most active extract against a panel of 11 *H. pylori* clinical strains MBC: 0.139 mg/ml	Paraschos et al. 2007 [75]
Portulaca oleracea	Aqueous and ethanol extracts of leaves	Both *P. oleracea* extracts decreased total gastric acidity not only upon oral administration but also by intra-peritoneal route. Since gastric acid and pH are important factors for ulceration of pylorus-ligation, these results suggest that *P. oleracea* has gastro protective action	Karimi et al. [77]
Punica granatum	Methanol extract peel of fruit	Among 23 Iranian plants, the extracts of *P. granatum* and *Juglans regia* had remarkable anti *H. pylori* activity. In view of the results obtained with *P. granatum* the peel extracts of nine cultivars of pomegranate were further assayed against the clinical isolates of *H. pylori*. Iranian pomegranate cultivars, except one of them, showed significant *in vitro* anti *H. pylori* activity against the clinical isolates of *H. pylori.* *P. granatum* IZD: 39.0 ± 3.4 mm at 100 mg/disc cultivars of pomegranate IZD: 16-40 mm at 50 mg/disc	Hajimahmoodi et al. [87]
	Methanol extract peel of fruit	Methanol extracts of pomegranate rind showed the highest inhibition against *H. pylori* clinical isolates. Aqueous and butanol fractions of pomegranate peel showed good activity on *H. pylori* clinical isolates. Chloroform fraction had no activity against tested *H. pylori* isolates. Methanol extract IZD: 27.96 ± 0.97 mm at 2 mg/disc Aqueous fractions MIC: 156 µg/ml Butanol fractions MIC: 195.12 µg/ml	Nakhaei Moghaddam et al. [88]
Terminalia chebula	Ether, alcoholic and water extracts of fruit	Aqueous extracts of the plant were significantly more active than other extracts. The aqueous extract of *T. chebula* showed uniform anti-bacterial activity against 10 clinical strains of *H. pylori* MIC: 125 mg/l MBC:150 mg/l	Malekzadeh et al. [92]

H. pylori: *Helicobacter pylori*, IZD: Inhibition zone diameter, MIC: Minimum inhibitory concentration, MBC: Minimum bactericidal concentration, TMEWP: Total mastic extract without polymer, ROS: Reactive oxygen species

Cinnamomum zeylanicum known as "Darchin" is an efficacious remedy for the treatment of gastritis in TIM [30] and has widely used as a common condiment in Iranian food diets. The anti-microbial effects of plant essential oil and its two major components, cinnamic aldehyde and eugenol, has been shown. Previous studies have reported the high

in vitro anti-bacterial, anti-fungal and anti-tumor activities of *C. zeylanicum* essential oil [50], [51], [52], [53]. Cinnamaldehyde is an aromatic aldehyde and main component of bark extract of cinnamon which inhibited the growth of all the 30 *H. pylori* strains tested, at a concentration of 2 μg/ml [54]. It should also be mentioned that *C. zeylanicum* can inhibit urease activity and prevent gastric upsets [55]. Tabak et al. [56] demonstrated methylene chloride extract of cinnamon is able to inhibit the growth of *H. pylori*, while ethanol extract counteracted its urease activity. The inhibitory effect of the essential oils of *C. zeylanicum* against clinical isolate of *H. pylori* are presented in table 1 [57].

Coriandrum sativum (Coriander) known as "Geshniz" is another natural product used in TIM for gastritis [58]. The seeds of coriander are used as an anti-spasmodic, carminative, stomachic, and against gastrointestinal complaints such as dyspepsia, flatulence, and gastralgia. The seeds are also used as an ingredient in herbal preparations to prevent stomach griping [59]. *C. sativum* demonstrated significant suppression of ROS from *H. pylori*-infected cells. Anti-inflammatory and cytoprotective effects of this plant which could partially validate the traditional use of these plants in gastrointestinal disorders particularly associated with *H. pylori* [60]. Results of a study clearly demonstrate that aqueous suspension of coriander confers a dose-dependent protection against gross damaging action of ethanol and other necrotizing agents on gastric mucosa of rats [59].

Malus domestica, with the common name as apple, is another natural product for the treatment of gastric ulcer and gastritis in TIM [59]. In general, dietary anti-oxidants play a crucial role in the maintenance of gastric homeostasis by preventing the potentially mucosal damaging effects exerted by ROS. Accordingly, a diet rich in apple anti-oxidants (phenolic compounds) might exert a beneficial effect in gastric ulcer and prevent gastric mucosal lesions brought by a number of ulcerogens [61]. In addition, *in vitro* strong inhibition of tumor cell proliferation by apple extract is attributed to the presence of phytochemicals (phenolic acids and flavonoids) [62]. Polyphenol extract with powerful anti-oxidant activity may be useful in the prevention and/or treatment of NSAIDs-associated side effects [63]. In the other study, apple polyphenol extract reduces aspirin-induced gastric injury independently of gastric acid secretion inhibition [64]. Apple peel polyphenol-rich extract also displayed an *in vitro* anti-adhesive effect against *H. pylori*. This study also demonstrated orally administered apple peel polyphenols showed an anti-inflammatory effect on *H. pylori*-associated gastritis, lowering malondialdehyde levels, and gastritis scores [65]. The results of Graziani et al. [61] study are summarized in table 1. The data of this study revealed apple polyphenol extracts prevent exogenous damage to human gastric epithelial cells *in vitro* and to the rat gastric mucosa *in vivo*.

Phyllanthus emblica known as "Amla"or "Amlaj" is one of the important herbal drugs used in TIM for the treatment of gastritis [66]. Amla fruits are anabolic, anti-bacterial and are also used for the treatment of various gastric ailments including dyspepsia [67]. Novel anti *H. pylori* activity of ethanol extract of Amla fruit pulp has been reported [68].

Al-Rehaily et al. [69] demonstrated that Amla extract showed protection against ethanol-induced depletion of stomach wall mucus and reduction in non-protein sulfhydryl concentration. The results of this study offer that Amla extract possesses anti-secretory, anti-ulcer, and cytoprotective properties. According to data of another study butanol extract of the water soluble fraction of the fruits of *P. emblica* exerts cytoprotective action on gastric ulcer formation predominantly by its anti-oxidant property [70].

Pistacia lentiscus resin known as "Mastaki" has traditionally been used in the treatment of gastritis in Iran [71]. Mastaki has been referred to over centuries as having medicinal properties to treat a variety of diseases like diverse gastric malfunctions.

Mastaki at an oral dose of 500 mg/kg produced a significant reduction in the intensity of gastric mucosal damage on experimentally-induced gastric and duodenal ulcers in rats. These observations support the effectiveness of mastic in the therapy of duodenal ulcer [72]. The other study results suggest that mastic has definite anti-bacterial activity against *H. pylori*. This activity may at least partly explain the anti-peptic ulcer properties of mastic [73]. The results of an evaluation of the anti-bacterial activity of Mastaki against a panel of clinical isolates of *H. pylori* revealed it can kill 50% of the strains tested at a concentration of 125 µg/ml and 90% at a concentration of 500 µg/ml [74]. Paraschos et al. [75] showed that administration of total mastic extract without polymer may be effective in reducing *H. pylori* colonization and that the major triterpenic acids in the acid extract may be responsible for such an activity.

Portulaca oleracea called "khorfeh" is an annual plant, which is grown as a vegetable in many parts of the world. In TIM, this plant is utilized in the treatment of gastric mucosal diseases [31]. It is commonly used in Iranian folk medicine in gastro esophageal reflux [76]. In the recent investigation, the aqueous and ethanol extracts were studied in mice for their ability to inhibit gastric lesions induced by HCl or absolute ethanol. The extracts of *P. oleracea* showed a dose-dependent reduction in the severity of ulcers. This beneficial preventive effect on gastric ulcers may be an acid neutralizing action or anti-secretory activity through antagonizing muscarinic or H2 receptors. The anti-ulcer activity of the extracts of this plant may be is due to flavonoids, tannins, and anti-oxidants which present in extracts. Furthermore, this plant comprises some mucilages [77]. Gastro protective effect of flavonoids is explained with an increase of mucosal prostaglandin content, decrease of histamine secretion, and free radical scavenging activity [78]. Tannins render the outermost layer of the mucosa less permeable and more resistant to chemical and mechanical injury or irritation [79].

Punica granatum called "Anar" in TIM has been used for the treatment of gastritis [80], [81]. Anti-bacterial, anti-parasitic, and anti-viral effects have been reported for pomegranate peel, up to now [82], [83]. Furthermore, this plant can minimize the problem of anti-biotic resistance of *H. pylori* by increasing the cell surface hydrophobicity of *H. pylori* strains and inhibiting the attachment of this bacterium to the gastric mucosa [84]. The evidence strongly suggests that *P. granatum* has a potential preventative effect on *H. pylori* induced gastric disease by eradicating *H. pylori* as well as showing anti-inflammatory and anti-cancer effects [85]. Repeated oral administration of 400 mg:kg of *P. granatum* significantly lowered the severity of ethanol-induced gastric damage [86]. Hajimahmoodi et al. [87] showed a significant *in vitro* susceptibility of clinical strains of *H. pylori* to the extracts of several native Iranian pomegranate cultivars. The other study revealed that methanol extracts, butanol and aqueous fractions of *P. granatum* were capable of inhibiting the *in vitro* growth of 27 clinical isolates of *H. pylori*. It is possible that some of anti *H. pylori* activity of pomegranate peel is related to the presence tannin and phenolic compounds [88].

Terminalia chebula known as "Halile siah" has been used in TIM in southern and central parts of Iran as a remedy for human gastritis and peptic ulcers [89]. *T. chebula* has a strong laxative effect and increases the gastric emptying time. It seems that this action is balanced with a protective effect on the gastrointestinal mucosa, with the improvement in the secretory status of Brunner's gland involved in the protection against duodenal ulcer [90]. Chebulinic acid isolated from *T. chebula* fruit has gastro protective effect. Chebulinic acid significantly reduced free acidity, total acidity and upregulated mucin secretion and also, inhibited H(+) K(+)-ATPase activity *in vitro* [91]. Water extracts of *T. chebula* showed significant anti-bacterial activity. It is concluded that the traditional Iranian folk medicinal use of this plant to treat gastric infections is substantiated by the anti-bacterial

activity of its extracts against *H. pylori* [92].

3.2.2 Some recent studied Iranian medicinal plants, used for peptic ulcer and gastritis

The results of some Iranian researcher studies on folk medicinal plants in the treatment of gastric disorders are presented in table 2.

Table 2. Selected potent Iranian medicinal plants in treatment of gastric disorders

Study	Plant	Part	Results
Hassani et al. [97]	*Camellia sinensis*	Methanol/water extracts of young shoots	Both nonfermented and semifermented extracts had inhibitory effects against *H. pylori* and urease production. A concentration of 4 mg/ml nonfermented and 5.5 mg/ml semifermented extract were bactericidal for *H. pylori*
Shahani et al. [98]	*Geum iranicum* Khatamsaz	Methanol extract of the roots	The methanol extract of *G. iranicum* plant showed significant activity against one of the clinical isolates of *H. pylori* which was resistant to metronidazole. The aqueous fraction was the most effective fraction of the extract against all clinical isolates of *H. pylori*. The subfraction which contained Tannins were the effective fraction. It appeared that tannins were probably the active compounds responsible for the anti *H. pylori* activity of *G. iranicum* aqueous fraction IZD: 24-35 mm at 100 µg/ml
Nabati et al. [55]	*Rheum ribes*	50% methanol/water extract of root	Among 137 Iranian traditional medicinal plants which were tested for urease inhibitory activity, *R. ribes* extract inhibit urease enzyme. Urease inhibition IC50:92 µg/ml
Atapour et al. [106]	*Salvia mirzayanii*	Methanol extract of leaves	Among the 12 Iranian medicinal plants used in folk medicine for the treatment of gastric ailments including peptic ulcers disease *S. mirzayanii* was the most active plant, with strong anti-bacterial activity against 12 clinical isolates of *H. pylori* MIC: 32-64 µg/ml
Nabati et al. [55]	*Sambucus ebulus*	50% methanol/water extract of fruit	Among 137 Iranian traditional medicinal plants which were examined against Jack bean urease activity, the most potent urease inhibitory was observed for *S. ebulus* Urease inhibition IC50: 57 µg/ml
Nabavizadeh et al. [114]	*Stachys lavandulifolia*	Aqueous extract aerial parts	The *S. lavandulifolia* extract, protected gastric mucosa from an alcohol-induced gastric ulcer in rats. This gastro protection may mediate via gastric mucosal nitric oxide production
Khanavi et al. [117]	*Stachys setifera*	methanol extracts aerial parts	*S. setifera* among 10 species of *Stachys* and *Melia* showed the most potent anti *H. pylori* activity on the 12 isolates IZD: 38.3 at 8 mg/disc
Nariman et al. [119]	*Trachyspermum copticum*	Equal mixture of methanol/petroleum Benzene/diethyl ether extract of aerial parts	Extracts of *T. copticum* showed anti *H. pylori* activity against 70 clinical isolates from children. Over 93% of *H. pylori* isolates were sensitive to the extracts of *T. copticum* MIC: 31.25-250 µg/ml
Hosseininejad et al. [57]	*Zataria multiflora*	Essential oils of aerial parts	The essential oils of *Z. multiflora* demonstrated potent anti *H. pylori* effect IZD: 23.6 mm at 0.5 µl/ml MIC: 0.3 µl/ml

H. pylori: *Helicobacter pylori*, IZD: Inhibition zone diameter, MIC: Minimum inhibitory concentration

Camellia sinensis (green tea) is the species of plant whose leaves and leaf buds are the source of tea, the commonest beverage in the world. There are several reports of *in vivo* and *in vitro* anti-bacterial effects of *C. sinensis* extracts [93], [94]. In 1994 Diker and Hascelik [95] showed extracts of black and green tea inhibited *in vitro* growth of six clinical isolates of *H. pylori* in an agar diffusion assay. The results of a recent study revealed the protective effect of green tea against stomach cancer [96]. More recently, it has been shown methanol: water mixture extracts of young shoots of *C. sinensis* can inhibit the growth of *H. pylori* and in lower concentrations inhibit the function and the production of enzyme urease that is a major colonization factor for this bacterium. Decrease in *H. pylori* numbers and low urease production affect *H. pylori* colonization and therefore decrease the risk of chronic gastritis, peptic ulceration, MALT lymphoma, and gastric adenocarcinoma [97].

Geum iranicum Khatamsaz, belongs to the Rosaceae family. The genus *Geum*, is a perennial rhizomatous herb with five species in Iran of which *G. iranicum* Khatamsaz is an endemic one [98]. Some *Geum* species are used as medicinal plants in folk medicine. In Iranian folk remedy, the infusion of the root of *G. iranicum* is employed to treat gastrointestinal disorders like diarrhea, and a decoction of the whole plant is mixed with wheat flour and used as a poultice for frostbite [99]. In a study, the activity of various extracts, sub-fractions, and main components of *G. iranicum* against clinical isolates of *H. pylori* (resistant to metronidazole) has been evaluated [98].

Rheum ribes known as “Rivas” grows in Iran and Turkey, cultivated in some temperate countries for its edible red leaf stalks. Traditionally, *R. ribes* has been used in Iran as sedative and mood enhancer [100]. Chrysophanol, physcion, rhein, aloe-emodin, physcion-8-oglucoside, aloe-emodin-8-O-glucoside, sennoside A, rhaponticin, and flavonoids are the content of this plant [101]. A study revealed the methanolic extract of *R. ribes* has anti-ulcer activity comparable with standard drugs cimetidine [102]. The urease inhibitory activity was observed for *R. ribes* with IC50 values > 100 μg/ml. This plant has the ability to prevail *H. pylori*. The survival of *H. pylori* in the acidic stomach is dependent on urease, so specific inhibition or reduction of urease enzyme activity would result in an increased sensitivity of the bacteria in acidic medium [55].

Salvia mirzayanii is known locally as “Moor Talkh” grows in the southern parts of Iran and is widely used in Iranian folk medicine. Decoctions of this plant have many supposed medicinal properties and are used in folk medicine for the treatment of digestive disorders like stomach ache [103]. Several studies have shown the various biological activities of this plant including its anti-bacterial properties [104], free radical scavenging, and anti-oxidant activity [105]. In the screening of 12 Iranian medicinal plants, *S. mirzayanii* had the strongest activity against *H. pylori*, with an MIC of 32 μg/ml [106].

Sambucus ebulus called “Aghti” is a native perennial herb. *S. ebulus* has been shown to have anti-inflammatory, anti-nociceptive, anti-cancer, anti-angiogenic, and anti-oxidative activities. This plant was used in traditional medicines for the treatment of inflammatory reactions [56]. Pharmaceutical and biologically active ingredient of *S. ebulus* are isolated and identified as ebulitin, ebulin 1, flavonoid, anthocyanin, and other components [107]. Anti *H. pylori* effect of the *S. ebulus* chloroform extract was observed by using the agar dilution method [108]. Nabati et al. [55] showed *S. ebulus* have the potency to inhibit urease activity.

Stachys lavandulifolia is a medicinal plant in Iranian folk medicine and popularly known as “chaie koohi” which widely distributed in different regions of Iran [109], [110]. During past years pharmacological studies have confirmed that extracts of *S. lavandulifolia* exert significant anti-inflammatory, anti-bacterial, and wound healing effects [111], [112], [113]. Nabavizadeh et al. [114] investigated the therapeutic and preventive

effects of *S. lavandulifolia* extract on gastric acid-pepsin secretions together with nitric oxides possible role. The data of this study revealed that *S. lavandulifolia* extract has a protective role in alcohol-induced gastric ulcer in rats. The mechanism underlying the anti-ulcerogenic effect may be related to the flavonoid derivatives from luteolin present in *S. lavandulifolia* extract and in active fractions.

Stachys setifera is a native plant of Iran. The genus *Stachys* is as a source of biologically active substances of various classes which are responsible for the broad spectrum of pharmaceutical-therapeutic action of plants of this genus and drugs prepared from them [115]. Some species of this genus exhibited significant anti-bacterial activity [116]. Khanavi et al. [117] showed *S. satifera* exhibited potent anti *H. pylori* activity on the strains isolated from patients.

Trachyspermum copticum is known as "Zenyan" which the inhibitory effect of its essential oil on the growth of *Aspergillus parasiticus* shown in 118. The results of six native Iranian plants screening introduced *T. copticum* as a strong *H. pylorI* inhibitor [119]. Furthermore, the crude organic extracts of *T. copticum* fruit showed the high activity against *H. pylori* among the twenty Iranian plants extracts [120]. However, the results of other study showed that the extract of the fruits of this plant had only very weak anti *H. pylori* activity [106].

Zataria multiflora as "Avishane Shirazi" is an endemic plant to Iran with many traditional uses. For instance this plant has been used for relief of gastric pains and irritable bowel syndrome. The essential oil of the plant has shown high anti-oxidant and free radical scavenging effect in *in vitro* and *in vivo* studies [121]. The inhibitory effects of the essential oil of *Z. multiflora* against a wide range of Gram-positive and Gram-negative bacteria, fungi, and parasites have been reported [122], [123], [124], [125]. The analysis of the plant essential oil showed the presence of thymol and carvacrol as major compounds of the oil [121]. The essential oil of *Z. multiflora* has exhibited the most inhibition in different tested concentration [57].

5. CONCLUSION

Nowadays, people pay more and more attention to their health and a healthy stomach depends on nourishing. The health preservation concepts of TIM are beneficial to protect and treat the gastric diseases.

TIM has a number of herbal formulations that treat disorders of the digestive system. Some of the plants used in traditional medicine in Iran have been derived from the traditional books. For many of the plants used in TIM, there are various *in vitro* and *in vivo* studies demonstrating their efficacy in gastric disorders. Studies on TIM and some Iranian folk medicinal plants revealed modes of action of these plants. These medicines have shown their usefulness in gastric disease by different mechanisms of action including inhibitory effects against *H. pylori* and urease production, preventing ROS induced injury to gastric epithelial cells, and increasing intracellular anti-oxidant activity. Further evaluations are needed to understand the mechanism of actions of these plants, and on the other traditional and folk medicinal plants of Iran.

6. CONFLICT OF INTERESTS

Authors have no conflict of interests.

REFERENCES

[1] Balunas MJ, Kinghorn AD. Drug discovery from medicinal plants. Life Sci 2005; 78(5): 431-41.
[2] Cragg GM, Newman DJ. International collaboration in drug discovery and development from natural sources. Pure Appl Chem 2005; 77(11): 1923-42.
[3] Douglas KA. Pharmacognosy in the 21st century. J Pharm Pharmacol 2001; 53(2): 135-48.
[4] Farnsworth NR, Akerele O, Bingel AS, Soejarto DD, Guo Z. Medicinal plants in therapy. Bull World Health Organ 1985; 63(6): 965-81.
[5] Bai RL, Paull KD, Herald CL, Malspeis L, Pettit GR, Hamel E. Halichondrin B and homohalichondrin B, marine natural products binding in the vinca domain of tubulin. Discovery of tubulin-based mechanism of action by analysis of differential cytotoxicity data. J Biol Chem 1991; 266(24): 15882-9.

[6] Newman DJ, Cragg GM, Snader KM. The influence of natural products upon drug discovery. Nat Prod Rep 2000; 17(3): 215-34.
[7] Ebule IA, Longdoh AN, Paloheimo IL. Helicobacter pylori infection and atrophic gastritis. Afr Health Sci 2013; 13(1): 112-7.
[8] Mahadeva S, Goh KL. Epidemiology of functional dyspepsia: a global perspective. World J Gastroenterol 2006; 12(17): 2661-6.
[9] di Mario F, Franze A, .Cavallaro LG. A non-invasive approach to diagnosis of upper gastrointestinal diseases. Milano MI: Via Comelico; 2008. p. 5-64.
[10] Sande N, Nikulin M, Nilsson I, Wadstrom T, Laxen F, Harkonen M, et al. Increased risk of developing atrophic gastritis in patients infected with CagA+ Helicobacter pylori. Scand J Gastroenterol 2001; 36(9): 928-33.
[11] Hansson LE, Nyren O, Hsing AW, Bergstrom R, Josefsson S, Chow WH, et al. The risk of stomach cancer in patients with gastric or duodenal ulcer disease. N Engl J Med 1996; 335(4): 242-9.
[12] Kuipers EJ, Thijs JC, Festen HP. The prevalence of Helicobacter pylori in peptic ulcer disease. Aliment Pharmacol Ther 1995; 9(Suppl 2): 59-69.
[13] Castro-Fernandez M, Sanchez-Munoz D, Garcia-Diaz E, Miralles-Sanchiz J, Vargas-Romero J. Diagnosis of Helicobacter pylori infection in patients with bleeding ulcer disease: rapid urease test and histology. Rev Esp Enferm Dig 2004; 96(6): 395-8.
[14] Gisbert JP, Boixeda D, Aller R, de la Serna C, Sanz E, de Argila CM, et al. [Helicobacter pylori and digestive hemorrhage due to duodenal ulcer: the prevalence of the infection, the efficacy of 3 triple therapies and the role of eradication in preventing a hemorrhagic recurrence]. Med Clin (Barc) 1999; 112(5): 161-5.
[15] Kuipers EJ. Helicobacter pylori and the risk and management of associated diseases: gastritis, ulcer disease, atrophic gastritis and gastric cancer. Aliment Pharmacol Ther 1997; 11(Suppl 1): 71-88.
[16] Kashiwagi H. Ulcers and gastritis. Endoscopy 2003; 35(1): 9-14.
[17] Malfertheiner P, Megraud F, O'Morain C, Bazzoli F, El-Omar E, Graham D, et al. Current concepts in the management of Helicobacter pylori infection: the Maastricht III Consensus Report. Gut 2007; 56(6): 772-81.
[18] Suerbaum S, Michetti P. Helicobacter pylori infection. N Engl J Med 2002; 347(15): 1175-86.
[19] Bytzer P, O'Morain C. Treatment of Helicobacter pylori. Helicobacter 2005; 10(Suppl 1): 40-6.
[20] Egan BJ, O'Connor HJ, O'Morain CA. What is new in the management of Helicobacter pylori? Ir J Med Sci 2008; 177(3): 185-8.
[21] Foroumadi A, Sedaghat S, Emami S, Yazdanian M, Moshafi MH, Safavi M, et al. Synthesis and structure-activity relationship study of 2-substituted- 5-(5-nitro-2-thienyl)-1,3,4-thiadiazoles as anti-Helicobacter pylori agents. Letters in Drug Design and Discovery 2009; 6(6): 468-74.
[22] Foroumadi A, Safavi M, Emami S, Siavoshi F, Najjari S, Safari F, et al. Structure-activity relationship study of a series of N-substituted piperazinyl-fluoroquinolones as anti-Helicobacter pylori agents. Med Chem 2008; 4(5): 498-502.
[23] Foroumadi A, Rineh A, Emami S, Siavoshi F, Massarrat S, Safari F, et al. Synthesis and anti-Helicobacter pylori activity of 5-(nitroaryl)-1,3,4-thiadiazoles with certain sulfur containing alkyl side chain. Bioorg Med Chem Lett 2008; 18(11): 3315-20.
[24] Foroumadi A, Sorkhi M, Moshafi MH, Safavi M, Rineh A, Siavoshi F, et al. 2-Substituted-5-nitroheterocycles: in vitro anti-Helicobacter pylori activity and structure-activity relationship study. Med Chem 2009; 5(6): 529-34.
[25] Letafat B, Emami S, Aliabadi A, Mohammadhosseini N, Moshafi MH, Asadipour A, et al. Synthesis and in-vitro antibacterial activity of 5-substituted 1-methyl-4-nitro-1H-imidazoles. Arch Pharm (Weinheim) 2008; 341(8): 497-501.
[26] Mohammadhosseini N, Letafat B, Siavoshi F, Emami S, Safari F, Shafiee A, et al. Synthesis and in vitro anti-Helicobacter pylori activity of 2-[(chlorobenzyl)thio]-5-(5-nitro-2-furyl)-1,3,4-thiadiazoles. Medicinal Chemistry Research 2008; 17(9): 578-86.
[27] Mohammadhosseini N, Asadipour A, Letafat B, Vosooghi M, Siavoshi F, Shafiee A, et al. Synthesis and in vitro anti-Helicobacter pylori activity of 2-(substituted benzylthio)-5-(5-nitro-2-furyl)-1, 3, 4-thiadiazole derivatives. Turkish Journal of Chemistry 2009; 33(4): 471-8.
[28] Moshafi MH, Yahya-Meymandi A, Esmaeil S, Ebrahimi S, Emami S, Nakhjiri M, et al. Synthesis and biological activity of 5-nitrofuran-containing (1, 3, 4-thiadiazol-2-yl) piperazine moieties as a new type of anti-Helicobacter pylori heterocycles. J Serb Chem Soc 2011; 76(2): 201-10.
[29] Tafti AF, Akbarzadeh T, Saniee P. Synthesis and anti-Helicobacter pylori activity of (4-nitro-1-imidazolylmethyl)-1, 2, 4-triazoles, 1, 3, 4-thiadiazoles, and 1, 3, 4-oxadiazoles. Turkish Journal of Chemistry 2011; 35(2): 307-16.
[30] Arzani M. Tebb-e-Akbari. Tehran, Iran: Research Institute for Islamic and Complementary Medicine; 2005. p. 636-7, 640. [In Persian].
[31] Chashti MA. Romuz-e-Azam. Tehran, Iran: Research Institute for Islamic and Complementary Medicine; 2008. p. 396. [In Persian].
[32] Kuipers EJ, Klinkenberg-Knol EC, Vandenbroucke-Grauls CM, Appelmelk BJ, Schenk BE, Meuwissen SG. Role of Helicobacter pylori in the pathogenesis of atrophic gastritis. Scand J Gastroenterol Suppl 1997; 223: 28-34.
[33] Kuipers EJ, Appelmelk BJ. Helicobacter pylori

and atrophic gastritis. Biomed Pharmacother 1997; 51(4): 150-5.
[34] Chan FK, Leung WK. Peptic-ulcer disease. Lancet 2002; 360(9337): 933-41.
[35] Dimaline R, Varro A. Attack and defence in the gastric epithelium - a delicate balance. Exp Physiol 2007; 92(4): 591-601.
[36] Wallace JL. Prostaglandins, NSAIDs, and cytoprotection. Gastroenterol Clin North Am 1992; 21(3): 631-41.
[37] Tulassay Z, Herszenyi L. Gastric mucosal defense and cytoprotection. Best Pract Res Clin Gastroenterol 2010; 24(2): 99-108.
[38] Peskar BM, Maricic N. Role of prostaglandins in gastroprotection. Dig Dis Sci 1998; 43(9 Suppl): 23S-9S.
[39] Cave DR. Transmission and epidemiology of Helicobacter pylori. Am J Med 1996; 100(5A): 12S-7S.
[40] Ge Z, Taylor DE. Contributions of genome sequencing to understanding the biology of Helicobacter pylori. Annu Rev Microbiol 1999; 53: 353-87.
[41] Amieva MR, Salama NR, Tompkins LS, Falkow S. Helicobacter pylori enter and survive within multivesicular vacuoles of epithelial cells. Cell Microbiol 2002; 4(10): 677-90.
[42] Kwok T, Backert S, Schwarz H, Berger J, Meyer TF. Specific entry of Helicobacter pylori into cultured gastric epithelial cells via a zipper-like mechanism. Infect Immun 2002; 70(4): 2108-20.
[43] McGowan CC, Cover TL, Blaser MJ. Helicobacter pylori and gastric acid: biological and therapeutic implications. Gastroenterology 1996; 110(3): 926-38.
[44] El-Omar E, Penman I, Dorrian CA, Ardill JE, McColl KE. Eradicating Helicobacter pylori infection lowers gastrin mediated acid secretion by two thirds in patients with duodenal ulcer. Gut 1993; 34(8): 1060-5.
[45] El-Omar EM, Penman ID, Ardill JE, Chittajallu RS, Howie C, McColl KE. Helicobacter pylori infection and abnormalities of acid secretion in patients with duodenal ulcer disease. Gastroenterology 1995; 109(3): 681-91.
[46] McColl KE, El-Omar E, Gillen D. Interactions between H. pylori infection, gastric acid secretion and anti-secretory therapy. Br Med Bull 1998; 54(1): 121-38.
[47] Chatterjee A, Chatterjee S, Bandyopadhyay SK. H. pylori-induced gastric ulcer: pathophysiology and herbal remedy. Int J Biol Med Res 2012; 3(1): 1461-5.
[48] Tummuru MK, Sharma SA, Blaser MJ. Helicobacter pylori picB, a homologue of the Bordetella pertussis toxin secretion protein, is required for induction of IL-8 in gastric epithelial cells. Mol Microbiol 1995; 18(5): 867-76.
[49] Kushima H, Hiruma-Lima CA, Santos MA, Viana E, Coelho-Ferreira M, Brito AR. Gastroprotective activity of Pradosia huberi on experimentally induced gastric lesions in rodents: role of endogenous sulphydryls and nitric oxide. J Ethnopharmacol 2005; 101(1-3): 61-7.
[50] Chang CW, Chang WL, Chang ST. Influence of pH on bioactivity of cinnamon oil against Legionella pneumophila and its disinfection efficacy in hot springs. Water Res 2008; 42(20): 5022-30.
[51] Dehghan Noudeh G, Sharififa F, Dehghan Noodeh A, Moshaf MH, Ahmadi Afzadi M, Behrava E, et al. Antitumor and antibacterial activity of four fractions from Heracleum persicum Desf. and Cinnamomum zeylanicum Blume. Journal of Medicinal Plants Research 2010; 4(21): 2176-80.
[52] Matan N, Rimkeeree H, Mawson AJ, Chompreeda P, Haruthaithanasan V, Parker M. Antimicrobial activity of cinnamon and clove oils under modified atmosphere conditions. Int J Food Microbiol 2006; 107(2): 180-5.
[53] Sanchis V, Ramos A, Marin S, Egido J. Inhibitory effect of cinnamon, clove, lemongrass, oregano and palmarose essential oils on growth and fumonisin B1 production by Fusarium proliferatum in maize grain. International Journal of Food Microbiology 2003; 89(2-3): 145-54.
[54] Ali S, Khan A, Ahmed I, Musaddiq M, Ahmed K, Polasa H, et al. Antimicrobial activities of Eugenol and Cinnamaldehyde against the human gastric pathogen Helicobacter pylori. Ann Clin Microbiol Antimicrob 2005; 4: 20.
[55] Nabati F, Mojab F, Habibi-Rezaei M, Bagherzadeh K, Amanlou M, Yousefi B. Large scale screening of commonly used Iranian traditional medicinal plants against urease activity. Daru 2012; 20(1): 72.
[56] Tabak M, Armon R, Neeman I. Cinnamon extracts' inhibitory effect on Helicobacter pylori. J Ethnopharmacol 1999; 67(3): 269-77.
[57] Hosseininejad Z, Darvish Moghadam S, Ebrahimi F, Abdollahi M, Zahedi MJ, Nazari M, et al. In vitro screening of selected Iranian medicinal plants against Helicobacter pylori. Int J Green Pharm 2011; 5: 282-5.
[58] Razi MZ. Al-Havi. Tehran, Iran: Academy of Medical Sciences Islamic Republic of Iran; 2005. p. 227. [In Persian].
[59] Al-Mofleh IA, Alhaider AA, Mossa JS, Al-Sohaibani MO, Rafatullah S, Qureshi S. Protection of gastric mucosal damage by Coriandrum sativum L. pretreatment in Wistar albino rats. Environ Toxicol Pharmacol 2006; 22(1): 64-9.
[60] Zaidi SF, Muhammad JS, Shahryar S, Usmanghani K, Gilani AH, Jafri W, et al. Anti-inflammatory and cytoprotective effects of selected Pakistani medicinal plants in Helicobacter pylori-infected gastric epithelial cells. J Ethnopharmacol

2012; 141(1): 403-10.
[61] Graziani G, D'Argenio G, Tuccillo C, Loguercio C, Ritieni A, Morisco F, et al. Apple polyphenol extracts prevent damage to human gastric epithelial cells in vitro and to rat gastric mucosa in vivo. Gut 2005; 54(2): 193-200.
[62] Eberhardt MV, Lee CY, Liu RH. Antioxidant activity of fresh apples. Nature 2000; 405(6789): 903-4.
[63] Carrasco-Pozo C, Speisky H, Brunser O, Pastene E, Gotteland M. Apple peel polyphenols protect against gastrointestinal mucosa alterations induced by indomethacin in rats. J Agric Food Chem 2011; 59(12): 6459-66.
[64] D'Argenio G, Mazzone G, Tuccillo C, Grandone I, Gravina AG, Graziani G, et al. Apple polyphenol extracts prevent aspirin-induced damage to the rat gastric mucosa. Br J Nutr 2008; 100(6): 1228-36.
[65] Pastene E, Speisky H, García A, Moreno J, Troncoso M, Figueroa G. In vitro and in vivo effects of apple peel polyphenols against Helicobacter pylori. J Agric Food Chem 2010; 58(12): 7172-9.
[66] Aghili MH. Makhzan Al-Adviah. Tehran, Iran: Research Institute for Islamic and Complementary Medicine; 2008. p. 239. [In Persian].
[67] Chawla YK, Dubey P, Singh R, Nundy S, Tandon BN. Treatment of dyspepsia with Amalaki (Emblica officinalis Linn.)--an Ayurvedic drug. Indian J Med Res 1982; 76(Suppl): 95-8.
[68] Mehrotra S, Jamwal R, Shyam R, Meena DK, Mishra K, Patra R, et al. Anti-Helicobacter pylori and antioxidant properties of Emblica officinalis pulp extract: A potential source fortherapeutic use against gastric ulcer. Journal of Medicinal Plants Research 2011; 5(12): 2577-83.
[69] Al-Rehaily AJ, Al-Howiriny TA, Al-Sohaibani MO, Rafatullah S. Gastroprotective effects of 'Amla' Emblica officinalis on in vivo test models in rats. Phytomedicine 2002; 9(6): 515-22.
[70] Bandyopadhyay SK, Pakrashi SC, Pakrashi A. The role of antioxidant activity of Phyllanthus emblica fruits on prevention from indomethacin induced gastric ulcer. J Ethnopharmacol 2000; 70(2): 171-6.
[71] Akhvaini Bokharaee AR. Hedayat Almotoalemin fi Al-Teb. Mashhad, Iran: Ferdowsi University of Mashhad Publication; 1965. p. 252-5. [In Persian].
[72] Al-Said MS, Ageel AM, Parmar NS, Tariq M. Evaluation of mastic, a crude drug obtained from Pistacia lentiscus for gastric and duodenal anti-ulcer activity. J Ethnopharmacol 1986; 15(3): 271-8.
[73] Huwez FU, Thirlwell D, Cockayne A, Ala'Aldeen DA. Mastic gum kills Helicobacter pylori. N Engl J Med 1998; 339(26): 1946.
[74] Marone P, Bono L, Leone E, Bona S, Carretto E, Perversi L. Bactericidal activity of Pistacia lentiscus mastic gum against Helicobacter pylori. J Chemother 2001; 13(6): 611-4.
[75] Paraschos S, Magiatis P, Mitakou S, Petraki K, Kalliaropoulos A, Maragkoudakis P, et al. In vitro and in vivo activities of Chios mastic gum extracts and constituents against Helicobacter pylori. Antimicrob Agents Chemother 2007; 51(2): 551-9.
[76] Zargari A. Medicinal plants. Tehran, Iran: Tehran University Press; 1981. p. 218-20. [In Persian].
[77] Karimi G, Hosseinzadeh H, Ettehad N. Evaluation of the gastric antiulcerogenic effects of Portulaca oleracea L. extracts in mice. Phytother Res 2004; 18(6): 484-7.
[78] Borrelli F, Izzo AA. The plant kingdom as a source of anti-ulcer remedies. Phytother Res 2000; 14(8): 581-91.
[79] Asuzu I, Onu OU. Anti-Ulcer activity of the ethanolic extract of Combretum dolichopetalum root. Pharmaceutical Biology 1990; 28(1): 27-32.
[80] Jorjani SE. Al-Khafieh Al-Alaeieh. Trans. Velayati AA, Najmabadi M. Tehran, Iran: Ministry of Health and Medical Education; 1998. p. 178. [In Persian].
[81] Shirazi MT. Tashil-al-Alaj. Qom, Iran: Jalaledin Publication; 2008. p. 59. [In Persian].
[82] Duman AD, Ozgen M, Dayisoylu KS, Erbil N, Durgac C. Antimicrobial Activity of Six Pomegranate (Punica granatum L.) Varieties and Their Relation to Some of Their Pomological and Phytonutrient Characteristics. Molecules 2009; 14(5): 1808-17.
[83] Tayel AA, El-Tras WF. Anticandidal activity of pomegranate peel extract aerosol as an applicable sanitizing method. Mycoses 2010; 53(2): 117-22.
[84] Voravuthikunchai SP, Limsuwan S, Mitchell H. Effects of punica granatum pericarps and quercus infectoria nutgalls on cell surface hydrophobicity and cell survival of Helicobacter pylori. Journal of Health Science 2006; 52(2): 154-9.
[85] Rahimi H, Arastoo M, Shiri M. Punica granatum is more effective to prevent gastric disorders induced by Helicobacter pylori or any other stimulator in humans. Asian Journal of Plant Sciences 2011; 10(7): 380-2.
[86] Alkofahi A, Atta AH. Pharmacological screening of the anti-ulcerogenic effects of some Jordanian medicinal plants in rats. J Ethnopharmacol 1999; 67(3): 341-5.
[87] Hajimahmoodi M, Shams-Ardakani M, Saniee P, Siavoshi F, Mehrabani M, Hosseinzadeh H, et al. In vitro antibacterial activity of some Iranian medicinal plant extracts against Helicobacter pylori. Nat Prod Res 2011; 25(11): 1059-66.
[88] Nakhaei Moghaddam M. In vitro inhibition of Helicobacter pylori by some spices and medicinal plants used in Iran. Global Journal of Pharmacology 2011; 5(3): 176-80.
[89] Qarshi A. Almojez fi Al-Teb. Tehran, Iran: Research Institute for Islamic and Complementary

Medicine; 2008. p. 295. [In Persian].
[90] Bag A, Bhattacharyya SK, Chattopadhyay RR. The development of Terminalia chebula Retz. (Combretaceae) in clinical research. Asian Pac J Trop Biomed 2013; 3(3): 244-52.
[91] Mishra V, Agrawal M, Onasanwo SA, Madhur G, Rastogi P, Pandey HP, et al. Anti-secretory and cyto-protective effects of chebulinic acid isolated from the fruits of Terminalia chebula on gastric ulcers. Phytomedicine 2013; 20(6): 506-11.
[92] Malekzadeh F, Ehsanifar H, Shahamat M, Levin M, Colwell RR. Antibacterial activity of black myrobalan (Terminalia chebula Retz) against Helicobacter pylori. Int J Antimicrob Agents 2001; 18(1): 85-8.
[93] Hamilton-Miller JM. Antimicrobial properties of tea (Camellia sinensis L.). Antimicrob Agents Chemother 1995; 39(11): 2375-7.
[94] Toda M, Okubo S, Hara Y, Shimamura T. [Antibacterial and bactericidal activities of tea extracts and catechins against methicillin resistant Staphylococcus aureus]. Nihon Saikingaku Zasshi 1991; 46(5): 839-45.
[95] Diker KS, Hascelik G. The bactericidal activity of tea against Helicobacter pylori. Letters in Applied Microbiology 1994; 19(5): 299-300.
[96] Setiawan VW, Zhang ZF, Yu GP, Lu QY, Li YL, Lu ML, et al. Protective effect of green tea on the risks of chronic gastritis and stomach cancer. Int J Cancer 2001; 92(4): 600-4.
[97] Hassani AR, Ordouzadeh N, Ghaemi A, Amirmozafari N, Hamdi K, Nazari R. In vitro inhibition of Helicobacter pylori urease with non and semi fermented Camellia sinensis. Indian J Med Microbiol 2009; 27(1): 30-4.
[98] Shahani S, Monsef-Esfahani HR, Saeidnia S, Saniee P, Siavoshi F, Foroumadi A, et al. Anti-Helicobacter pylori activity of the methanolic extract of Geum iranicum and its main compounds. Z Naturforsch C 2012; 67(3-4): 172-80.
[99] Abutorabi H. Ethnobotanical and phytochemical study on the plants of Rouin region [Thesis]. Tehran, Iran: School of Pharmacy, Tehran University of Medical Sciences; 2001. [In Persian].
[100] Sayyah M, Boostani H, Malayeri A, Siahpoosh A. Efficacy of hydroalcoholic extract of Rheum ribes L. in treatment of Obsessive compulsive disorder: A double blind clinical trial. J Pharm Biomed Sci 2011; 1(3): 57-61.
[101] Oktay M, Yildirim A, Bilaloglu V, Gülçin I. Antioxidant activity of different parts of isgin (Rheum ribes L.). Asian Journal of Chemistry 2007; 19(4): 3047-55.
[102] Sindhu RK, Kumar P, Kumar J, Kumar A, Arora S. investigations into the antiulcer activity of rheum ribes Linn leaves extracts. International Journal of Pharmacy and Pharmaceutical Sciences 2010; 2(Suppl 4): 90-3.
[103] Soltanipoor MA. Investigation on relationship between ecological factors and natural distribution and density of Salvia mirzayanii Rech. & Esfand. medicinal species in Hormozgan province. J Med Plants 2007; 23(2): 218-25. [In Persian].
[104] Moshafi MH, Mehrabani M, Zolhasab H. Antibacterial activity studies of Salvia Mirzayanii and Salvia Atropatana against six standard gram-positive and gram-negative bacteria. J Kerman Univ Med Sci 2004; 11(2): 109-18. [In Persian].
[105] Moein MR, Moein S, Ahmadizadeh S. Radical scavenging and reducing power of Salvia mirzayanii subfractions. Molecules 2008; 13(11): 2804-13.
[106] Atapour M, Zahedi M, Mehrabani M, Safavi M, Keyvanfard V, Foroughi A, et al. In vitro susceptibility of the Gram-negative bacterium Helicobacter pylori to extracts of Iranian medicinal plants. Pharmaceutical Biology 2009; 47(1): 77-80.
[107] Shokrzadeh M, Saravi SS. The chemistry, pharmacology and clinical properties of Sambucus ebulus: A review. J Med Plant Res 2010; 4(2): 95-103.
[108] Yesilada E, Gurbuz I, Shibata H. Screening of Turkish anti-ulcerogenic folk remedies for anti-Helicobacter pylori activity. J Ethnopharmacol 1999; 66(3): 289-93.
[109] Ghasemi Pirbalouti A, Koohpyeh A. Wound Healing Activity of Extracts of Malva sylvestris and Stachys lavandulifolia. International Journal of Biology 2011; 3(1): 174-9.
[110] Hajhashemi V, Ghannadi A, Sedighifar S. Analgesic and anti-inflammatory properties of the hydroalcoholic, polyphenolic and boiled extracts of Stachys lavandulifolia. Res Pharm Sci 2006; 1(2): 92-8.
[111] Khanavi M, Sharifzadeh M, Hadjiakhoondi A, Shafiee A. Phytochemical investigation and anti-inflammatory activity of aerial parts of Stachys byzanthina C. Koch. Journal of Ethnopharmacology 2005; 97(3): 463-8.
[112] Maleki N, Garjani A, Nazemiyeh H, Nilfouroushan N, Eftekhar Sadat AT, Allameh Z, et al. Potent anti-inflammatory activities of hydroalcoholic extract from aerial parts of Stachys inflata on rats. J Ethnopharmacol 2001; 75(2-3): 213-8.
[113] Skaltsa HD, Demetzos C, Lazari D, Sokovic M. Essential oil analysis and antimicrobial activity of eight Stachys species from Greece. Phytochemistry 2003; 64(3): 743-52.
[114] Nabavizadeh F, Alizadeh AM, Adeli S, Golestan M, Moloudian H, Kamalinejad M. Gastroprotective effects of Stachys Lavandulifolia extract on experimental gastric ulcer. African J Pharm Pharmacol 2011; 5(2): 155-9.
[115] Kartsev V, Stepanichenko NN, Auelbekov SA. Chemical composition and pharmacological properties of plants of the genusStachys. Chemistry of Natural Compounds 1994; 30(6): 645-54.

[116] Skaltsa HD, Lazari DM, Chinou IB, Loukis AE. Composition and antibacterial activity of the essential oils of Stachys candida and S. chrysantha from southern Greece. Planta Med 1999; 65(3): 255-6.
[117] Khanavi M, Safavi M, Siavoshi F, Fallah Tafti A, Hajimahmoodi M, Hadjiakhoondi A, et al. Evaluation of anti-helicobacter pylori activity of methanol extracts of some species of stachys and melia. J Med Plants 2008; 4(28): 74-80. [In Persian].
[118] Rasooli I, Fakoor MH, Yadegarinia D, Gachkar L, Allameh A, Rezaei MB. Antimycotoxigenic characteristics of Rosmarinus officinalis and Trachyspermum copticum L. essential oils. Int J Food Microbiol 2008; 122(1-2): 135-9.
[119] Nariman F, Eftekhar F, Habibi Z, Falsafi T. Anti-Helicobacter pylori activities of six Iranian plants. Helicobacter 2004; 9(2): 146-51.
[120] Nariman F, Eftekhar F, Habibi Z, Massarrat S, Malekzadeh R. Antibacterial activity of twenty Iranian plant extracts against clinical isolates of Helicobacter pylori. Iran J Basic Med Sci 2009; 12(2): 105-11.
[121] Sharififar F, Moshafi MH, Mansouri SH, Khodashenas M, Khoshnoodi M. In vitro evaluation of antibacterial and antioxidant activities of the essential oil and methanol extract of endemic Zataria multiflora Boiss. Food Control 2007; 18(7): 800-5.
[122] Abdollahy F, Abdollahy H, Shabankhani, B, Azadbakht M. Effect of essential oils of Artemisia aucheri Boiss. Zataria multiflora Boiss, and Myrtus communis L. on Trichomonas vaginalis. Iran J Pharm Res 2004; 3(Suppl 2): 35.
[123] Fazeli MR, Amin G, Ahmadian Attari MM, Ashtiani H, Jamalifar H, Samadi N. Antimicrobial activities of Iranian sumac and avishan-e shirazi (Zataria multiflora) against some food-borne bacteria. Food Control 2007; 18(6): 646-9.
[124] Khosravi AR, Eslami AR, Shokri H, Kashanian M. Zataria multiflora cream for the treatment of acute vaginal candidiasis. Int J Gynaecol Obstet 2008; 101(2): 201-2.
[125] Ravanshad Sh, Basiri E, Dastgheib B. Antimicrobial Activity of Different Concentrations of Essential Oil of Zataria Multiflora on Enterococcus Faecalis. Shiraz Univ. Dent. J 2007; 8(1): 28-36.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 3, Issue 2, Spring 2018

Original Research

Roast Natural Products for Gastrointestinal Disorders

Mastoureh Nazari[1], Amir Azadi[2], Hajar Ashrafi[2], Parmis Badr[3,4*]

[1]*Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran*
[2]*Department of Pharmaceutics, School of Pharmacy, Shiraz University of Medical Sciences, Shiraz, Iran*
[3]*Phytopharmaceutical Technology and Traditional Pharmacy Incubator, Shiraz University of Medical Sciences, Shiraz, Iran*
[4]*Pharmaceutical Sciences Research Center, Shiraz University of Medical Sciences, Shiraz, Iran*

Received: 4 Apr 2018 **Accepted:** 21 Apr 2018

Abstract

The intensive heat treatment of roasting, a cooking method using hot air, has a major role in food industries. In Traditional Pharmacy of Iran, roasting was a common treatment for natural products. Therein, specific parts of medicinal plants and some minerals were necessarily roasted in order to obtain special characteristics. *Qarabadin Salehi* was searched to extract multi-component products which included roast ingredients. Effects and indications of each multi-ingredient, used part of ingredients, their proportion in formulation, and the percentage of roast part were mentioned. Thirty formulations which had at least one roast herbal or mineral component were found. They had been suggested for diarrhea, dysentery (*Zahir*), emesis, enteritis (*Sahj*), enteric ulcers, gastritis, gripe (*maghs*), hemorrhoid, and rectal hemorrhage. Other effects were carminative, digestive, liver tonic, stomachic, and tonic. Thirty cases of roast seeds, and ten cases of roast fruits were reported. Twenty-five compounds out of 30 improve abnormal fluid secretion into the small bowl and electrolyte imbalance symptoms. The formulations can be more effective in the case of liquid absorption. Generally, roasting has been a valuable treatment for processing natural products which are used in compounds for gastrointestinal disorders.

Keywords: Roasting, Traditional Persian Pharmacy, Gastrointestinal, Diarrhea

Citation: : Nazari M, Azadi A, Ashrafi H, Badr P. **Roast Natural Products for Gastrointestinal Disorders**. Trad Integr Med 2018; 3(2): 51-62.

*Corresponding Author: Parmis Badr
Pharmaceutical Sciences Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
Email: badrp@sums.ac.ir
Tel: +98-7132348930-4 ext.303
Fax: +98-7132333771

Introduction

The intensive heat treatment of roasting, a cooking method using hot air, has a major role in food industries. Through enveloping materials in dry heat of about 150-300 ºC, chemical reactions, including Maillard browning, Strecker degradation, and pyrolysis which are the most important flavor-producing reactions occur [1]. Generally, nuts, seeds, and fruits undergo this heat process, through which their physicochemical properties change depending on both roasting time and temperature [2]. Oil and water absorption capacity, along with antioxidant properties of sweet chestnut have increased by microwave roasting. However, its viscoelastic behavior has decreased [3]. Roasting causes development of crunchy texture of nuts [4]. Hazelnuts, apricot kernel, and pumpkin are some instances [2,5-6]. Monitoring fatty acid profiles by gas chromatography has proved dramatic changes after roasting yellow and brown varieties of flaxseeds [7].

In Traditional Pharmacy of Iran, roasting was a common treatment for natural products. Therein, specific parts of medicinal plants and some minerals were necessarily roasted in order to obtain special characteristics. According to medieval books of pharmacy, three methods used to be utilized for roasting various materials. Wrapped inside fruits like apple and quince, or dough, then put under fire or hot ash, natural products underwent *Tashvieh*. For another technique, *Tahmis*, herbs or minerals used to be poured in a hot pan, while being stirred quickly and continuously to prevent from burning. Changing aroma and color shows the end of process. However, if a little amount of oil is applied for roasting, the method would be called *Taghlieh*, mostly ended with light browning, or the fruits bursting [8-9]. Reaching the balance of natural products' properties was mentioned the philosophy behind these processes. Intensifying the strength of efficacy, reducing severe purgation, and slaking stringency were some reasons for necessity of roasting process in pharmacy [9].

Numerous roast plants and minerals exist in traditional compounds prescribed for gastrointestinal diseases. The current study deals with collecting gastrointestinal-targeted compounds which include roast plant parts. Moreover, therapeutic effects related to roasting will be discussed.

Methods

In order to extract multi-component products including roast ingredients, *Qarabadin Salehi* was searched to find keywords with the meaning of roasting and roast like *Tashvieh*, *Mashvi*, *Tahmis*, *Mohammes*, *Taghlieh*, and *Maghlou*. The compounds were categorized based on disease groups for which they had been suggested. Gastrointestinal (GI) formulations were analyzed to explain whether there is a reasonable relationship between roast ingredients and the treatment of the diseases or not. Scientific names of the plants were authenticated using indices of *Kitab-al Saydana fi Tibb* (10th century), *Al-Aghraz al-Tibbia* (11th century), *Al-Mojiz fi-Tibb* (13th century), and *Useful Plants of Iran and Iraq* (1937) in addition to being checked in www.theplantlist.org [10-14]. GI chapter of

Tib Akbari (1701) was studied to obtain mechanisms of treatment [15].

Any multi-component formulation with a roast animal part was excluded. Effects and indications of each multi-ingredient were extracted. The used part of ingredients, their proportion in formulation, and the percentage of roast part were mentioned.

Results

Thirty-two formulations which had at least one roast component were extracted from *Qarabadin Salehi*. Two multi-ingredients with roast animal part were excluded. As table 1 presents, dosage forms included two *javareshs*,one *hab*, one *dava*, thirteen *safoufs*, and thirteen types of *qors*. They had been suggested for diarrhea, dysentery (*Zahir*), emesis, enteritis (*Sahj*), enteric ulcers, gastritis, gripe (*maghs*), hemorrhoid, and rectal hemorrhage. Other effects were carminative, digestive, liver tonic, stomachic, and tonic. The least and the highest number of ingredients in formulations were three and twelve. Nine formulations included fifty percent or more roast ingredients. Out of 30 compounds, just one had a roast mineral (Terra armeniaca). However, the rest had one or more roast herbal parts. In Table 2, roast natural products, their used parts in each formulation, and the percentage of roasting part are listed. The total number of reports for each effect or indication is demonstrated in Figure 1.

Table 1. Gastrointestinal formulations with roast components, their effects, indications, ingredients, and their used parts, proportion, and percentage of roast parts [8].

Roast ingredients are underlined. In the last column, numbers in parenthesis show the sum of roast parts.

Effects are shown with -. Indications are presented with =.

Abbreviations for used parts are as below: ba: bark, bu: bud, ex: exudate (gum, gumresin, latex, oleogumresin, resin), fl: flower, fr: fruit, g: gall, le: leave, m: mineral, p: peel, r: root, rh: rhizome, s: seed, sm: stem, st: stigma.

	Compound	- Effects/ = Indications	Ingredients	Used part	Proportion	rost %
1	Javaresh (Bozouri)	- Carminative - Digestive - Stomachic	1.*Apium graveolens* L. 2.*Cinnamomum cassia* Blume. 3.*Juniperus sabina L.* 4.*Languas officinarum* Burkill. 5.*Lepidium sativum* L. 6.*Pistacia lentiscus* L. 7.*Syzygium aromaticum* L. 8.*Trachyspermum ammi* (L.) Sprague.	fr ba fr rh s ex bu fr	2 3 5 3 21 3 3 2	50
2	Javaresh (Khoozi)	- Stomachic	1.*Commiphora africana* (A.Rich.) Engl. 2.Fe_3O_4 (in vinegar) 3.*Lepidium sativum* L. 4.*Terminalia chebula* Retz. 5.*Trachyspermum ammi* (L.) Sprague. 6.*Zataria multiflora* Boiss.	ex m s fr fr le	10 10 5 10 2 3	13

3	Hab (Moghl)	= Rectal hemor-rhage	1.*Commiphora mukul* Engl. 2.*Pinites succinifer* 3.*Terminalia citrina* Roxb.	ex ex fr	5 1 3	33
4	Dava (Fars)	- Stomachic	1.Fe_3O_4 2.*Lepidium sativum* L. 3.*Terminalia chebula* Retz. 4.*Trachyspermum ammi* (L.) Sprague. 5.*Zataria multiflora* Boiss.	m s fr fr le	10 5 10 3 3	(48)
5	Safouf	= Diarrhea	1.*Acacia arabica* Willd. 2.*Ceratonia siliqua* L. 3.*Myrtus communis* L. 4.*Punica granatum* L. 5.*Punica granatum* L. 6.*Rhus coriaria* L.	ex fr fr fl s f	2 15 5 2 5 10	13
6	Safouf	= Diarrhea	1.*Acacia arabica* Willd. 2.*Castanea sativa* Mill. 3.*Ceratonia siliqua* L. 4.*Myrtus communis* L. 5.*Papaver somniferum* L.	ex fr fr fr s	1 2 2 2 2	22
7	Safouf (Jouz)	= Diarrhea	1.*Boswellia carterii* Bird. 2.*Juglans regia* L. 3.*Trachyspermum ammi* (L.) Sprague.	ex fr fr	1 6 1	75
8	Safouf (Zereshk)	= Diarrhea - Liver tonic - Stomachic	1.*Berberis vulgaris* L. 2.*Punica granatum* L. 3.*Rhus coriaria* L. 4.Sugar 5.*Trachyspermum ammi* (L.) Sprague. 6.*Zingiber officinale* Rosc. 7.*Ziziphus spina-christi* L.	fr s fr - fr rh fr	1 1 1 10 1 1 1	6
9	Safouf (Somagh)	= Diarrhea	1.*Acacia arabica* Willd. 2.*Anagyris foetida* L. 3.*Myrtus communis* L. 4.*Punica granatum* L. 5.*Punica granatum* L. 6.*Rhus coriaria* L.	ex fr fr fl s fr	2 15 5 2 5 1	17
10	Safouf (Tin)	= Diarrhea = Enteritis	1.*Acacia arabica* Willd. 2.*Ocimum basilicum* L. 3.*Plantago psyllium* L. 4.Starch 5.Terra armeniaca 6.*Teucrium marum* L.	ex s s - m s	1 1 1 1 1 1	(33)

11	Safouf (Tin)	= Dysentery = Enteric ulcers	1.*Acacia arabica* Willd.	ex	5	(78)
			2.*Lepidium sativum* L.	s	7	
			3.*Ocimum basilicum* L	s	7	
			4.*Plantago psyllium* L.	s	7	
			5.*Portulaca oleracea* L.	s	7	
			6.*Rumex acetosa* L.	s	7	
			7.Terra armeniaca	m	5	
12	Safouf (Moghliatha)	= Enteritis = Gripe = Hemorrhoid	1.*Allium porrum* L.	s	3	(93)
			2.*Carum carvi* L.	fr	2	
			3.*Lepidium sativum* L.	s	30	
			4.*Linum* spp.	s	2	
			5.*Pistacia lentiscus* L.	ex	3	
			6.*Terminalia citrina* Roxb.	fr	7	
13	Safouf (Moghliatha)	= Dysentery = Hemorrhoid	1.*Allium porrum* L.	s	2	(88)
			2.*Cuminum cyminum* L.	fr	5	
			3.*Lepidium sativum* L.	s	20	
			4.Linum spp.	s	2	
			5.*Taxus baccata* L.	l	2	
			6.*Terminalia citrina* Roxb.	fr	2	
14	Safouf (Moghliatha)	= Dysentery = Hemorrhoid	1.*Acacia arabica* Willd.	ex	5	(74)
			2.*Apium graveolens* L.	fr	2	
			3.*Lepidium sativum* L.	s	3	
			4.*Linum* spp.	s	3	
			5.*Plantago psyllium* L.	s	3	
			6.Terra armeniaca	m	3	
15	Safouf (Moghliatha)	= Diarrhea - Tonic	1.*Allium schoenoprasum* L.	s	10	(60)
			2.*Commiphora mukul* Engl.	ex	6	
			3.*Cuminum cyminum* L.	fr	10	
			4.*Lepidium sativum* L.	s	3	
			5.*Terminalia chebula* Retz.	fr	6	
			6.*Terminalia citrina* Roxb.	fr	6	
16	Safouf (Neshasteh)	= Diarrhea = Enteritis	1.*Acacia arabica* Willd.	ex	1	(100)
			2.*Berberis vulgaris* L.	fr	1	
			3.*Ocimum minimum* L.	s	1	
			4.*Salvia spinosa* L.	s	1	
			5.Starch	-	1	
17	Safouf (Yahya Masouye)	= Dysentery = Enteritis = Gripe	1.*Acacia arabica* Willd.	ex	2	27
			2.*Althaea officinalis* L.	s	2	
			3.*Malva rotundifolia* L.	s	2	
			4.Starch	-	3	
			5.Terra armeniaca	m	2	

18	Qors (Vard)	= Diarrhea	1.*Acacia arabica* Willd.	ex	5	(10)
			2.*Aquilaria agallocha* Roxb.	ex	3	
			3.*Bambusa arundinacea* Willd.	sm	5	
			4.*Berberis vulgaris* L.	fr	3	
			5.*Crocus sativus* L.	st	3	
			6.*Ficus laccifera* Roxb.	ex	5	
			7.*Rheum officinale* Baill.	r	4	
			8.*Rosa* × *damascena* Herrm	fl	5	
			9.*Rumex acetosa* L.	s	6	
			10.Terra armeniaca	m	7	
			11.*Valeriana jatamansi* Jones.	r/rh	3	
19	Qors (Vard)	= Dysentery = Enteritis	1.*Acacia arabica* Willd.	ex	1	(37)
			2.*Coriandrum sativum* L.	s	1	
			3.*Rosa* × *damascena* Herrm	fl	3	
			4.*Rumex acetosa* L.	s	2	
			5.Starch	-	1	
20	Qors (Gol)	= Gastritis	1.*Glycyrrhiza glabra* L.	rh	4	13
			2.*Rosa* × *damascena* Herrm	fl	6	
			3.Starch	-	2	
			4.*Valeriana jatamansi* Jones.	r/rh	4	
21	Qors (Gol)	= Diarrhea	1.*Acacia arabica* Willd.	ex	5	(20)
			2.*Aquilaria agallocha* Roxb.	ex	3	
			3.*Bambusa arundinacea* Willd.	sm	5	
			4.*Berberis vulgaris* L.	fr	2	
			5.*Crocus sativus* L.	st	3	
			6.*Ficus laccifera* Roxb.	ex	5	
			7.*Lilium canditum* L.	r	3	
			8.*Rheum officinale* Baill.	r	5	
			9.*Rosa* × *damascena* Herrm	fl	5	
			10.*Pinites succinifer*	ex	5	
			11.*Portulaca oleracea* L.	s	6	
			12.Terra armeniaca	m	7	
22	Qors (Hab-ol-aas)	= Diarrhea	1.*Myrtus communis* L.	fr	1	17
			2.*Quercus persic*a Jaub. & Spach	fr	1	
			3.*Rhus coriaria* L.	fr	1	
			4.Starch	-	1	
			5.*Tamarix gallica* L.	fr	1	
			6.Terra armeniaca	m	1	

23	Qors (Hab-ol-aas)	= Diarrhea = Dysentery = Emesis	1.*Commiphora africana* (A.Rich.) Engl.	ex	2	
			2.*Myrtus communis* L.	fr	10	
			3.*Punica granatum* L.	p	5	
			4.*Quercus* spp.	g	5	
			5.Rhus coriaria L.	fr	10	
			6.Starch	-	10	14
			7.*Tamarix gallica* L.	fr	10	
			8.Terra armeniaca	m	10	
			9.*Quercus persic*a Jaub. & Spach	fr	10	
24	Qors (Mourd)	= Diarrhea = Emesis	1.*Commiphora africana* (A.Rich.) Engl.	ex	2	
			2.*Myrtus communis* L.	fr	2	
			3.*Punica granatum* L.	p	1	
			4.*Quercus persica* Jaub. & Spach	fr	2	
			5.*Quercus* spp.	g	1	
			6.*Rhus coriaria* L.	fr	2	
			7.Starch	-	2	13
			8.*Tamarix gallica* Vahl.	fr	2	
			9.Terra armeniaca	m	2	
25	Qors (Tabashir)	= Diarrhea = Tonic	1.*Acacia arabica* Willd.	ex	6	
			2.*Bambusa arundinacea* Willd.	sm	6	
			3.*Berberis vulgaris* L.	fr	6	
			4.*Crocus sativus* L.	st	1	
			5.*Myrtus communis* L.	fr	6	
			6.*Rosa* × *damascena* Herrm	fl	20	
			7.*Rumex acetosa* L.	s	6	
			8.Starch	-	6	11
26	Qors (Tabashir)	= Diarrhea	1.*Acacia arabica* Willd.	ex	10	
			2.*Bambusa arundinacea* Willd.	sm	10	
			3.*Rosa* × *damascena* Herrm	fl	8	(50)
			4.*Rumex acetosa* L.	s	10	
			5.Starch	-	8	
			6.Terra armeniaca	m	10	
27	Qors (Tabashir)	= Diarrhea	1.*Acacia arabica* Willd.	ex	4	
			2.*Bambusa arundinacea* Willd.	sm	7	
			3.*Rosa* × *damascena* Herrm	fl	7	
			4.*Rumex acetosa* L.	s	4	
			5.Starch	-	2	7
			6.Terra armeniaca	m	4	

28	Qors (Tabashir)	= Diarrhea	1.*Acacia arabica* Willd.	ex	6	
			2.*Bambusa arundinacea* Willd.	sm	10	
			3.*Berberis vulgaris* L.	fr	6	
			4.*Crocus sativus* L.	st	1	
			5.*Ocimum minimum* L.	s	20	
			6.*Portulaca oleracea* L.	s	6	7
			7.*Punica granatum* L.	fl	6	
			8.*Rosa* × *damascena* Herrm	fl	14	
			9.*Rumex acetosa* L.	s	6	
			10.*Santalum album* L.	sm	4	
			11.Starch	-	6	
			12.Terra armeniaca	m	6	
29	Qors (Tabashir)	= Diarrhea - Tonic	1.*Acacia arabica* Willd.	ex	2	
			2.*Bambusa arundinacea* Willd.	sm	3	
			3.*Corallium rubrum* Lam.	r	2	
			4.*Cynomorium coccineum* L.	rh	2	
			5.*Papaver somniferum* L.	s	5	24
			6.pearl	m	3	
			7.*Pinites succinifer*	ex	2	
			8.*Rumex acetosa* L.	s	2	
30	Qors (Kafour)	= Diarrhea	1.*Acacia arabica* Willd.	ex	20	
			2.*Bambusa arundinacea* Willd.	sm	20	
			3.*Cinnamomum camphora* L.	ex	1	
			4.*Myrtus communis* L.	fr	20	
			5.*Rosa* × *damascena* Herrm	fl	20	
			6.*Rumex acetosa* L.	s	20	17
			7.Terra sigillata	m	20	

Table 2. Roast herbal or mineral components applied in thirty gastrointestinal formulations of *Qarabadin Salehi* and their percentage in each formulation.

Roast natural product	Family	Used part	Formulations	Percentage
Acacia arabica Willd.	Leguminosae	exudate	14.Safouf (Moghliatha)	31
			16.Safouf (Neshasteh)	20
			18.Qors (Vard)	10
			21.Qors (Gol)	9
			26.Qors (Tabashir)	18
Allium porrum L.	Alliaceae	seed	12.Safouf (Moghliatha)	6
Berberis vulgaris L.	Berberidaceae	fruit	16.Safouf (Neshasteh)	20
Carum carvi L.	Apiaceae	fruit	12.Safouf (Moghliatha)	4
Cuminum cyminum L.	Apiaceae	fruit	13.Safouf (Moghliatha)	15
			15.Safouf (Moghliatha)	24
Juglans regia L.	Juglandaceae	fruit	7.Safouf (Jouz)	75

Lepidium sativum L.	Brassicaceae	seed	1.Javaresh (Bozouri)	50
			2.Javaresh (Khoozi)	13
			4.Dava (Fars)	16
			11.Safouf (Tin)	15
			12.Safouf (Moghliatha)	63
			13.Safouf (Moghliatha)	60
			14.Safouf (Moghliatha)	19
			15.Safouf (Moghliatha)	7
Linum spp.	Linaceae	seed	12.Safouf (Moghliatha)	4
			13.Safouf (Moghliatha)	6
			14.Safouf (Moghliatha)	19
Ocimum basilicum L.	Lamiaceae	seed	11.Safouf (Tin)	15
Ocimum minimum L.	Lamiaceae	seed	16.Safouf (Neshasteh)	20
Papaver somniferum L.	Papaveraceae	seed	6.Safouf	22
			29.Qors (Tabashir)	24
Plantago psyllium L.	Plantaginaceae	seed	11.Safouf (Tin)	15
			14.Safouf (Moghliatha)	19
Portulaca oleracea L.	Portulacaceae	seed	11.Safouf (Tin)	15
			21.Qors (Gol)	11
			28.Qors (Tabashir)	7
Punica granatum L.	Lythraceae	seed	5.Safouf	13
			8.Safouf (Zereshk)	6
			9.Safouf (Somagh)	17
Rumex acetosa L.	Polygonaceae	seed	11.Safouf (Tin)	15
			18.Qors (Vard)	12
			19.Qors (Vard)	25
			26.Qors (Tabashir)	18
			30.Qors (Kafour)	17
Salvia spinosa L.	Lamiaceae	seed	16.Safouf (Neshasteh)	20
Starch	-	-	10.Safouf (Tin)	17
			16.Safouf (Neshasteh)	20
			17.Safouf (Yahya Masouye)	27
			19.Qors (Vard)	12
			20.Qors (Gol)	13
			22.Qors (Hab-ol-aas)	17
			23.Qors (Hab-ol-aas)	14
			24.Qors (Mourd)	13
			25.Qors (Tabashir)	11
			26.Qors (Tabashir)	14
			27.Qors (Tabashir)	7
*Taxus baccat*a L.	Taxaceae	leave	13.Safouf (Moghliatha)	6

Terminalia chebula Retz.	Combretaceae	fruit	4.Dava (Fars) 15.Safouf (Moghliatha)	32 15
Terminalia citrina Roxb	Combretaceae	fruit	3.Hab (Moghl) 12.Safouf (Moghliatha) 15.Safouf (Moghliatha)	33 15 15
Terra armeniaca	-	mineral	10.Safouf (Tin)	17

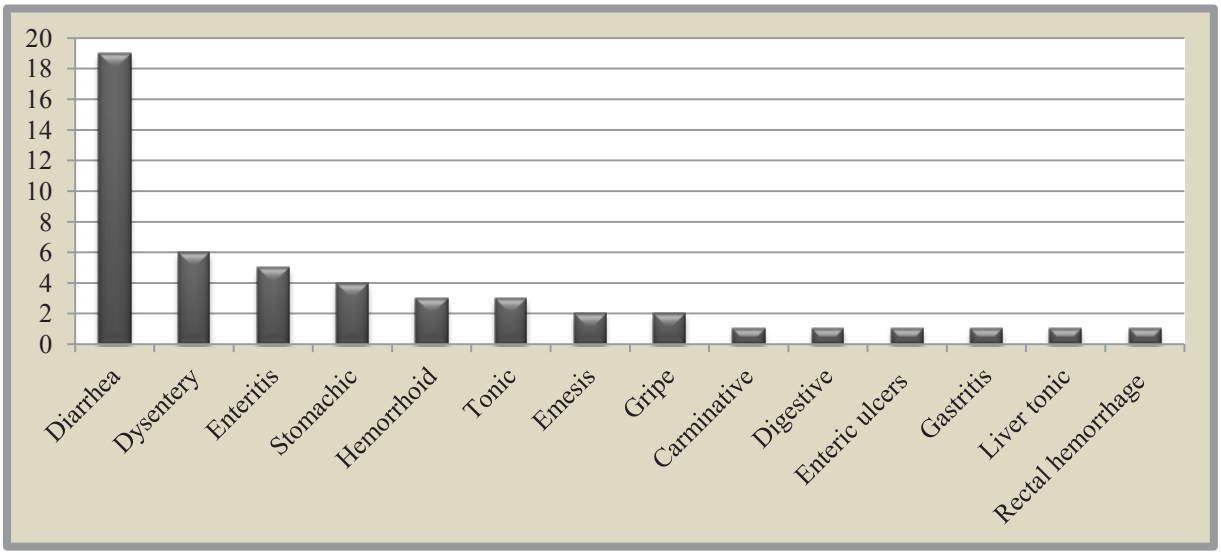


Figure 1. Number of compounds with roast ingredient suggested for each gastrointestinal indication (resulted from thirty formulations in Table 1)

Discussion

Roasting is a critical process for materia medica in Traditional Persian Pharmacy. However, no clear list could be found for natural products which needed to be roasted, and also, no clear reason has been mentioned for the necessity of this heat reaction for each case. Because the majority of compounds with roast ingredient(s) are allocated for gastrointestinal diseases, this study dealt with the role of roasting in such formulations. It is evident that roast ingredients were applied just in dry solid dosage forms, here mostly in *safouf* (13 cases out of 30 formulations) and qors (13 out of 30). *Safouf* is a powder dosage form, while *qors* is a combination of various powder bounded together applying a natural binder like quince seed mucilage, letting them become dried completely [8].

Except one case of roast mineral (Terra armeniaca) in formulation 10, the rest of cases was of herbal sources. Based on Table 2, thirty cases of roast seeds, and ten cases of roast fruits were reported. The only case of roast gum was *Acacia arabica* applied in five formulations. These numbers present the importance of roasting process for seeds mostly applied in gastrointestinal diseases. Among all materia medica in Table 2, roast seed of *Lepidium sativum* L. has been reported the most, besides its highest proportion in three compounds (63% and 60% in *safoufs Moghliatha*, 50% in *javaresh Bozouri*). Roast starch has been used in eleven formulations

with the proportion of around 10% - 25% in each formulation.

The roast part of seven formulations (no.7, 11, 12, 13, 14, 15, 16) was more than 50% of the whole ingredients. It proved that the highest proportions of roasting raw materials exist in completely dry dosage form of *safouf*. All components of *safouf Neshasteh* (no.16) which have been suggested for diarrhea and enteritis were roasted. Therefore, it is the unique formulation for GI disorders with 100% roast ingredients.

According to Figure 1, nineteen formulations and six ones are useful for diarrhea and dysentery, respectively. This means 25 out of 30 compounds improve abnormal fluid secretion into the small bowl and electrolyte imbalance symptoms. Because roasting process increases dryness degree and porosity of raw materials [8], the formulations can be more effective in the case of liquid absorption. Wet dystemperament due to diarrhea and dysentery are curable using multi-ingredient with dry temperament [15]. Eight multi-ingredient compounds act as tonic (4 stomachic, 3 tonic, 1 liver tonic).

Generally, roasting has been a valuable treatment for processing natural products used in compounds for gastrointestinal disorders. Although the effect of a multi-ingredient does not refer to one ingredient, each component has a share in presenting that property. Therefore, roast natural products in gastrointestinal compounds can affect the whole characteristics. It is suggested that physicochemical properties and clinical effects of roast natural products for gastrointestinal disorders, specifically diarrhea, be analyzed.

Acknowledgement

This reported research was supported by Vice-chancellor for Research, Shiraz University of Medical Sciences under grant no. 96-1-36-15131. The authors would like to thank Prof. Dr. Abdolali Mohagheghzadeh for his valuable comments and suggestions.

Conflict of Interest

None.

References

[1] Fagerson IS. Thermal degradation of carbohydrates; a review. J Agric Food Chem. 1969;17:747-750.

[2] Corrales CV, Lebrun M, Vaillant F, Madec MN, Lortal S, Perez AM, Fliedel G. Key odor and physicochemical characteristics of raw and roasted jicaro seeds (*Grescentia alata* K.H.B). Food Res Int 2017;96:113-120.

[3] Wani IA, Hamid H, Hamdani AM, Gani A, Ashwan BA. Physico-chemical, rheological and antioxidant properties of sweet chestnut (*Castanea sativa* Mill.) as affected by pan and microwave roasting. J Adv Res 2017;8:399-405.

[4] Schlormann W, Birringer M, Bohm V, Lober K, Jahreis G, Lorkowski S. Influence of roasting conditions on health-related compounds in different nuts. Food Chem 2015;180:77-85.

[5] Juhaimi FA, Ozcan MM, Ghafoor K, Babiker EE. The effect of microwave roasting on bioactive compounds, antioxidant activity and fatty acid composition of apricot kernel and oils. Food Chem 2018;243:414-419.

[6] Bowman T, Barringer S. Analysis of factors affecting volatile compound formation in roasted pumpkin seeds with selected ion flow tube-mass spectrometry (SIFT-MS) and sensory analysis. J Food Sci 2011;71:C51-C60.

[7] Moknatjou R, Hajimahmoodi M, Toliyat T, Moghaddam Gh, Sadeghpour O, Monsef-Esfahani HR. Effect of roasting on fatty acid profile of brown and yellow varieties of Flaxseed (*Linum usitatissimum* L.). Trop J Pharm Res 2015;14:117-123.

[8] Ghaeni Heravi SM. Qarabadin-e-Salehi. 1st ed. Choogan Press. 2013.

[9] Aghili Khorasani SMH. Makhzan-al-Adwieh, 1st ed. Rah-e-Kamal Press. 2009.

[10] Biruni A. Kitab-al Saydana fi-Tibb, Academy of Persian

Language and Literature. 2004.
[11] Jorjani SE. Al-Aghraz al-Tibbia val Mabahess al-Alaiia, 1st ed. University of Tehran Press. 2007.
[12] Ibn-e Nafis AGh. Al-Mojiz fi-Tibb, 1st ed. Abezh Press. 2011.
[13] Hooper D. Useful Plants of Iran and Iraq. Research Institute for Islamic and Complementary Medicine, Iran University of Medical Sciences. 2003.
[14] http://www.theplantlist.org/
[15] Arzani MA. Tib Akbari, 1st ed. Al-Maii Press. 2016.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 3, Issue 2, Spring 2018

Letter to the Editor

Necessity of Menstruation from the Viewpoint of Traditional Persian Medicine

Atieh Sadat Danesh[1], Fatemeh Nojavan[1, 2*]

[1]Department of Persian Medicine, School of Medicine, Qom University of Medical Sciences, Qom, Iran
[2]Spiritual Health Committee, Qom University of Medical Sciences, Qom, Iran

Received: 31 Jan 2018 **Accepted:** 27 Feb 2018

Dear Editor

Menstruation is the cyclic and regular discharge of blood and mucosal tissue from the inner lining of the uterus through the vagina. It is a result of the profound tissue remodeling that occurs each month in reproductive-aged women due to regular hormonal changes [1]. This phenomenon is necessary to prepare the uterus for conception and implantation the embryo and this is the ultimate function of this organ.

Persian medicine has a comprehensive approach to health and disease on its specific basis of temperament, or Mizaj. According to this viewpoint, each person has a unique temperament, determined by morphological, physiological and psychological features [2].

Based on the approach of Persian medicine, the health of women is based on healthy menstruation. This fact is so important that Avicenna (10 & 11th centuries) in his book (The Canon of Medicine) has emphasized that normal menstruation in quantity, quality and time is the guarantee of women's health [3].

Based on this, the main question is: what is menstrual bleeding and why happens just in women? The accepted response for such question in Persian medicine- needless to refer to recent histological, hormonal and cellular knowledge–is the woman's nature. Women are colder and wetter than men hence cannot use all the available blood. As a result, there is always some amount of surplus blood above the body's needs that must be discharged [3,4].

This discharge is of great necessity and excess blood in the body may cause serious complications and diseases, just as in women with polycystic ovarian syndrome with a history of amenorrhea or oligomenorrhea. These serious complications are described in Persian medicine thoroughly [3,5]. The connection be-

*Corresponding author: Fatemeh Nojavan
Department of Persian Medicine, School of Medicine, Qom University of Medical Sciences, Qom, Iran
E-mail: Mapfn2001@yahoo.com
Tel: +98-25-37707842

tween Mizaj and menstrual bleeding becomes more apparent when we see that heavy exercise causes cessation of menstrual bleeding. This is due to a greater demand and usage of available blood [6]. Based on Persian medicine this surplus blood is dedicated to the needs of the embryo that supposed to be created in the uterus. That is also, why women do not menstruate during pregnancy [3].

In other words, the blood that depletes every month from the uterus is what is expected by the embryo as food and when conception does not occur, this surplus blood must inevitably deplete. At this time, the menstrual cycle happens. As age increases, blood production in both sexes gradually decreases until it reaches to the point where there is no surplus of blood in the woman's body as food for the fetus or, in the absence of the fetus, the uterus disposes of it; This is when menstruation is interrupted and menopause commences [3].

Conflict of Interest

The authors declare that there is no conflict of interests.

Acknowledgements

None.

Citation: Danesh A, Nojavan F. **Necessity of Menstruation from the Viewpoint of Traditional Persian Medicine**. Trad Integr Med 2018; 3(2): 49-50.

References

[1] Cunningham F, Leveno K, Bloom S. (2014).Williams obstetrics. 1st ed. McGraw-Hill Education. New York 2014; pp 84-86.

[2] Mozafari O, Shirzadi MR, Shorofi SA, Mozafari A (2016). Crimean-Congo hemorrhagic fever in persian traditional medicine. Iran J Public Health 45:1243-1244.

[3] Avicenna. Canon of Medicine (Al-Qanun fi Tib). 1st ed. Dar Al Ehya Al Toras Al-Arabiya. Beirut 2005.

[4] Haly Abbas. The Perfect Book of the Art of Medicine (Kāmil al-Sinaā al Tibbiya). Ehyaye Teb Tabiei. Qom 1994; p 102.

[5] Arzani MA. Tebb-e-akbari. 1st ed. Institute of Medical History, Islamic and Complementary Medicine. Iran University of Medical Sciences. Tehran 2009; p 976.

[6] Jorjani SE. Zakhireye Kharazmshahi. 1st ed. Ehyaye Teb Tabiei. Qom 1391; p 912.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Intrgr Med, Volume 1 , Issue 4, Autumn 2016

Review Article

A New Way to Understand Healthy Sexual life: Traditional Medicine's Point of View

Elham Akhtari[1]*, Farnaz Sohrabvand[2]

[1] *School of Iranian Traditional Medicine, Iran University of Medical Sciences, Tehran, Iran*
[2] *Vali-e -Asr Hospital, Tehran University of Medical Sciences, Tehran, Iran*

Received: 4 Apr 2016 **Revised:** 5 Jun 2016 **Accepted:** 21 Jun 2016

Abstract

Health is an essential issue in our lives. According to Traditional Persian Medicine (TPM), having healthy sexual relationship is an important aspect in preventive medicine.

This study was performed by searching through Canon of Medicine by Avicenna, *Zakhireh Kharazmshahi* and *Kamel al-Sanaeh* in TPM as well as the medical literature. Sexual function and its role in a healthy life style were considered. We looked for sexual life and its relationship with eating, types of drinking, bathing, sleeping habits and times and periods of a day mentioned in those references.

In TPM, sexual life and intercourse are not only for pleasure. They are also important aspects of a healthy life style recommended to be performed with a certain frequency, in certain times, with a prologue and foreplay, and considering some limitations in drinking and eating. This study shows the essential role of a healthy sexual life according to TPM recommendations. Regarding the effects of a healthy sexual style in general wellbeing, it seems necessary to educate the public about related important issues in health clinics and primary care system.

Keywords: *Sexual Function, Traditional Iranian Medicine, Classical medicine, Preventive medicine*

Citation: Akhtari E, Sohrabvand F. **A New Way to Understand Healthy Sexual Life: Traditional Medicine's Point of View.** Trad Integr Med 2016; 1(4): 160 - 165

Introduction

Maintaining "Health" and adhering to health strategies for a healthy lifestyle are important issues during a human life. Preventive medicine, as a separate discipline, has been born out of such necessities. Every year, certain financial resources of governmental budgets are being allocated to health issues. The more those in budgeting hold a holistic and informed view of sexual issues, the more the funds would be raised for prevention and public trainings.

In ancient times, Persian physicians carried out many experiments concerning the healthy sex and obtained important knowledge and professional skills as to human health. TPM dates back to over 800 years B.C. that Avicenna was the most influential physician in that time. He lived in the medieval period (980-1037 A.D.) and authored his masterpiece in medicine as "Canon of medicine".

In that book, he adopted a health-oriented point of view toward public health, well-known as forerunner of preventive medicine. In recent times, researchers have taken up with a new interest in different medical topics in the "Canon". There are old "six principles of health" in the TPM which reflect the wisdom and insight of Iranian scholars in preventive medicine since more than a thousand years ago.

The six principles of health relate to everything that we face in our daily life, and also how things surrounding us not taken into consideration have

*Correspond auther at: Elham Akhtari
Email: elham_akhtari@yahoo.com

certain effects on our health status. Nowadays due to the hasty modern lifestyle the human suffers from polluted water and air, sleeping disorders, untimely awakenings during stressful situations, improper foods, packaged beverages and drinks prepared with artificial flavors and colors, being some of the various issues. Another issue especially after the first years of marriage is sexual performance which may lose its attractiveness due to several factors.

Accordingly, in this article we deal with almost all aspects of sexual life from traditional point of view and especially based on Avicenna's critical recommendations to define a specific protocol for having a healthy sexual life.

Methods

This study was a survey. The contents sexual lifestyle and intercourse are derived from the available reliable sources of TPM. These sources were *Kamel al-Sanaat al-Tibbyya* by Haly Abbas (949-982 A.D.), Canon of Medicine by Avicenna (980–1037 A.D.), *Zakhireye Khwarazmshahi* by Jorjani (1042-1137 A.D.), *Eksir-e-Azam* by Azam Khan (1810 A.D.), and other related but less famous textbooks in Persian medicine as well as a collection of classic articles in medicine and sex training points in sexology.

Issues like time of having meals, sleeping time, bath time and their relation to the time of intercourse, other items such as drinking cold or hot beverage, morning or night, calendar, dress and adornment, appropriate intervals, effects of extremes in sex and best position were searched and discussed. Then, the gathered information classified through major topics in the field of medicine and analyzed using "content analysis" method.

Results

Following a careful deliberation and organization of data, we provided an exhaustive review of the most significant viewpoints concerning sexual lifestyle and intercourse from the TPM resources. The topics were divided into eleven main groups involving the affection of the sex on the body, sex and temperaments, sex and times of having meals and drinking, sex and times of the day and the night, sex and the preliminary measures, sex and related positions, the frequency of intercourse, sex and the recommendations, sex and calendar, complications of excessive sexual action and the other items which have a positive impact on the sexual relationship. In this paper, major issues of these areas are presented and discussed.

The affection of the sex on the body

TPM believes in "nature" and its function as an alert for human beings. Sexual intercourse has serious effects on human nature. This subject contributes to the vitality and development of the body and eliminates the mental conflicts. Sexual intercourse can make a man brave and courageous and enable him to control his reactions and calm himself in tense situations [1-2]. It also provokes one's true appetite [3]. In TPM, there are two types of appetites i.e. false and true. It is actually the true appetite that leads to human health.

Sex and Temperaments

Traditional medicine believes in the existence of four temperaments: hot and wet, hot and dry, cold and wet and cold and dry. Each of these temperaments has a certain level of benefits for sexual act. Herein, extremes in sex habits (lack or excess) can have diverse effects on different temperaments [1]. A summary of each kind of temperament and their effect on having sex is listed as follows.

People with a white, white lead, soft and hairless pale skin, and narrow blood vessels, have a cold and dry temperament and produce low amounts of semen with thick consistency. They usually do not have autoerotism and also premature ejaculation does not occur. Frequent intercourse can damage their health [1].

Brunet people, with reddish, tawny, hairy, stiff and coarse skin with a chubby appearance and wide vessels, strong and prominent joints have hot and dry temperament. They tend to have a small amount of thick semen with high libido. They are very strong at sex but get easily exhausted and cannot continue. A person with

these characteristics can get excited with the least contact with the opposite sex or sexual imaginations and even may ejaculate [1]. Obese people who have less muscle mass with soft, white and hairless skin, joints hidden beneath fatty tissues with narrow vessels produce diluted semen. They usually have low libido, slow ejaculation and a cold, wet temperament. In case they have excess intercourse, they are prone to suffer backache and knee pain more than the others [1]. People with muscular obesity, red or tawny, hairy and hyperemic skin with wide, dilated vessels tend to have hot and wet temperament with high libido and frequent and fast ejaculations. They have an urge for more sexual activity. Only in this group of people having less sex can be harmful [1].

Sex and the times of eating and drinking

TPM believes in four humors: blood, phlegm, yellow bile and black bile. The four humors are derived from the gastric and hepatic digestion of food. Also they believe in a "leading natural power in the body" which manages all the body interactions every moment. Intercourse is another kind of motion of the nature. Therefore, it is better for body nature to be kept busy for each of its functions. Thus, the best time for having sex is after hepatic digestion or 2-3 hours after taking meals [1-2]. On the other hand, it is clear that having sex is not advised in fasting and hunger states [1-3].

Sex and the times of the day and night

The best time for having sex is the beginning of night. In this way, couple can have enough time for a long and deep sleep to restore the "body nature" and its lost power [1].The most suitable time for intercourse is when the body feels comfortable; i.e. no feelings of cold or hot. Also there is a need for a moderate temperature and humidity. From the nature point of view, the best time for intercourse is when there is a natural desire and seminal vesicles are full [1].

Sex and the preliminary measures

Having an attractive appearance such as wearing a makeup or a nice hairstyle, cleanliness, being pleasantly scented, using kind words, foreplay and touching, using inspirational words, kissing and hugging are parts of what is advised in TPM for starting intercourse. It is also remarked that these actions continue to such an extent that would lead to a simultaneous orgasm and ejaculation. This can be ultimately important for each partner's health [1, 4-5].

Sex and position

The best position for having sex is when the woman rests in a supine, semi- sitting position and the man takes an above position, putting his thighs over hers. In this way, semen can exit easily and penetration takes place without pain and suffering [1]. The worst position is when the man lies on his back and the woman takes an above position. Semen exits with difficulty and seminal vesicles cannot be evacuated completely. Also, the vaginal secretions flow in an opposite direction toward the uterus and the tubes. Among these complications, the worse is the difficulty in movement for the man which is also the case in other unusual positions such as sitting or standing, while having sex. These positions are also prohibited in TPM [1].

Frequency of sex

It takes three days for semen to be produced; therefore, it is advised to have intercourse once every three days [1-2, 6].

Sex and the following recommendations: Since the body's nature has had a serious motion, drinking cold water and other cold drinks are prohibited after intercourse. Cold beverages can be harmful for the body at this time. Instead, it is advised to take sweet and greasy fruits and foods. It is also advised to empty the bladder completely after having sex, avoid cold bath and exposure to cold weather [1].

Sex and calendar

According to Islamic teachings, having sex is prohibited at the evening of some religious holidays *(Eid al Fetr, Mid Shaban Eid, and Eid al-*

Adha). Also it is prohibited at the three first and the three last days of each lunar month, during lunar and solar eclipse and the day and night of an earthquake. It is especially recommended to avoid intercourse at these periods of time when couples are planning for a pregnancy [4].

Complications of excessive sexual act

Having too much sex can be harmful to one's health. It makes the body dry and cold. It leads to a gradual decrease of the body's "Instinctive Heat" (the energy that is generated at birth and is used through a whole life) and finally, the person becomes weak and exhausted. If in this situation, he keeps on overdoing, the body will become totally cold, he would lose his hearing and vision, the legs becomes weak and his feet are no longer able to tolerate his body. Gradually, he feels tingling in his spine and suffers from tinnitus and vertigo. He may also experience painful cramps and constipation. His mouth and gums smell bad and he gradually becomes depressed [1].

Other items with positive impact on sexual relation

A proper diet is very useful in making one fit for having a good sex. Taking foods such as yellow dry peas, beans, lamb and soft-boiled salted eggs can produce large amounts of warm and wet blood. Massaging with fragrant oils like Ores, Lily and Narcissus oils is also advised. There is a long list of seeds such as turnip seed, flaxseed, carrot seed, pepper seed as well as useful medical plants like *Tribulus terrestris* L., and spruce fruit (pistachio, hazelnut) that are helpful to enhance libido [1, 7].

Discussion

Sex has an enormous impact on human health in ways not previously understood. For example, research has demonstrated that male and female bodies have innate physiological and hormonal differences that result in different responses to alcohol, drugs, and treatment. In fact, the constitution of a body has inherent differences when compared, from cellular metabolism to blood chemistry. Researchers now claim that "every organ in the body -not just those related to reproduction- has the capability to respond differently on the basis of sex"[8].

From a classical medicine standpoint, there are some restrictions or special recommendations for having healthy sex. The main concept is that sex should be enjoyable and it can be practiced with no limitations in the time and location. The quality of sex is important. When a couple enjoy from each other, it is enough without any limitation [9]. However, if sex becomes repetitive and lacks enough fun, some solutions are suggested. In conventional medicine, the key for improvement is finding ways to strengthen a couple's relationship. In this regard, it is recommended to make a change in the lifestyle which can improve the libido.

One of the proposed solutions is to perform aerobic exercises or walking that can result in sweating. This type of exercise should be continued until it can affect the individual's emotions and have a positive change of his self image. It also leads to a better mood which can further improve sexual health [10].

The other important issue is about the daily life and work. We should guide people to learn certain skills to increase their adjustment with social and occupational issues. The more one can adjust himself with his surroundings and unpredictable circumstances, the more the stress can be reduced and as a result, the libido would gradually improve [11].

Another topic is bilateral relationship and talking to one's sexual partner. When the couple easily talks with each other about every aspect of their life, their emotion about each other and their relationship would become stronger and deeper. Naturally, this deep relationship improves their sexual life [11].It is also important to talk about sexual act. When a couple talk clearly about their interests, what they like or dislike, this type of conversation can also improve the relationship [11].It is recommended that the couple make plans for their sexual acts. If they feel that their relationship is getting boring, they should change the plan to get back to the previous enjoyable conditions [12].

Having a variety in sexual acts is refreshing. It is sometimes suggested to have sex in a different ambiance to prevent boredom. New settings can bring new flavor to an old relationship for a long time [13].

Sexual relationship is a mutual interaction. Any decrease in sexual desire in one of the couple can result in insufficient motivation in shaping and constructing a sexual relationship. This can damage the cycle of sexual enjoyment and lead to frustration and a feeling of being rejected in the sexual partner. At the same time the other couple who is suffering from a low libido feels that he or she cannot excite one another and would not be able to perform a romantic sex. These emotions gradually build up tension and stress between a couple. These tensions will negatively affect their sexual desire and lead more and more to a vicious cycle. [14, 9, 10].

A couple must also understand the fluctuation of libido in a menstrual cycle. These changes are transient and a couple would gradually be able to find the right time [15].

It is important for a couple to educate themselves about a healthy sexual life. They should be advised that having sex is not the only goal of living together. The couple must pay attention to other issues between themselves. They should try to know each other well in order to improve their marital relationship. It is suggested to make time for a long walking or jogging together, having a long sleep without stress (especially working couples), kissing each other when entering or leaving the house and having a private dinner in a restaurant can lead to an increased sense of well-being and being loved in the couple and invigorate their relationship [10, 16].

From TPM point of view, sex is not just for fun, but plays an essential role in a couple's health. The quality of sex is important to save health. TPM believes that both male and female produce semen, which is the most delicate end product of the humors [9].

If a couple has a proper sex, semen is exerted readily and improves their health. Sex can improve the healthy life if the couple does it in the right time, right location and right position.

Conclusion

The family foundation is based on several essential factors such as mutual love, having children, economic stability and also a proper sexual relationship. Everyday life is full of stress and one of the best means for getting relaxed is having good sex. It seems necessary to take a sexual function history from all patients who attend medical centers for various medical problems. This is only possible if the physicians recognize the importance of this issue, know its role in maintaining one's health and become familiar with the above mentioned subjects. This study represented the essential role of a healthy sexual life in general wellbeing according to the TPM recommendations. In this regard, it seems absolutely necessary to educate the public about these important issues by the media and health care centers. From TPM points of view, sex is a main aspect of the healthy life that can improve it as well.

Competing interests

The authors do not have any financial / commercial competing interest in the study presented here.

References

[1] Ibn-e-Sina (Avicenna Husain): Al-Qanun fit-tib [The Canon of Medicine], (research of Ebrahim Shamsedine). Beirut, Lebanon: Alaalami Beirut library Press; 2005; in Arabic.

[2] Jorjani, Syed Esmail: Zakhireh Kkharazmshahi [Treasure of Kharazmshahi]. In: Saidi Sirjani, Ali-Akbar, editor. Photoprint of the manuscript date 1206 AD. Tehran: The Iranian Culture Foundation; 1976, p. 153-156; in Persian.

[3] Arzani, Mohamad Akbar: Mofarah-ol-Gholoob. Lahoor edition, p171-177, 1954

[4] Alrashidi, Hasan ibn Ali ibn Ahmad: Bahjat ol roasa fi amraz al nesa. The History of Medicine Research Institue edition, Tehran, 2003.

[5] Anvar, Hossein Mohamad: Tohfeh al Asheghin. The History of Medicine Research Institue edition, Tehran, p.158,169,175, 2004.

[6] Ahvazi Ali, Kamel al Sanaeh. The History of Medicine Research Institue edition; Tehran, 2009, vol 2, p. 489-487.

[7] Azam Kan M: Exir-e-Azam. Photoprint of the manuscript; Tehran, 2007, v 3, 2nd ed., p 530-583; in Persian.
[8] Johnson JL, Greaves L, Repta R. Better science with sex and gender: Facilitating the use of sex and gender-based analysis in health research. Int J Equity Health. 2009; 6; 8:14.
[9] Beier KM, Loewit KK. Sexual Medicine in Clinical Practice. Springer Scienc+Business Media LLC, 2013
[10] Shifren JL. Sexual dysfunction in women: Epidemiology, risk factors, and evaluation. In: Uptodate http://www.uptodate.com/home/index.html. Last accessed on Nov. 14, 2011.
[11] Shifren JL. Sexual dysfunction in women: Management In: Uptodate http://www.uptodate .com/home/index.html. Last accessed on Nov. 14, 2011.
[12] Lenz G. Emotional aspects of gynecology: Sexual function and dysfunction. In: Katz VL, et al. Comprehensive Gynecology. 5th ed. Philadelphia, PA.: Mosby Elsevier; 2007.
[13] Giustozzi AA. Sexual dysfunction in women. In: Ferri FF. Ferri's Clinical Advisor 2011: Instant Diagnosis and Treatment. Philadelphia, PA.: Mosby Elsevier; 2011.
[14] Clayton AH, et al. Female sexual dysfunction. Psychiatric Clinics of North America. 2010; 33:323.
[15] Biggs WS. Medical human sexuality: Female sexual dysfunction. In: Rakel RE, Rakel DP, eds., Textbook of Family Medicine. 8th ed. Philadelphia, PA.: Saunders Elsevier; 2011.
[16] Bhasin S, et al. Management of low desire and arousal in women. In: Kronenberg HM, et al. Williams Textbook of Endocrinology. 12th ed. Philadelphia, PA.: Saunders Elsevier; 2011.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 1, Issue 2, Spring 2016

Review Article

Comparative Approach of the Iranian and Conventional Medicine to the Geriatrics

Leila Oveidzadeh[1], Mohammad Bagher Minae[2]

[1] *Department of Traditional Medicine, School of Traditional Medicine, Yazd University of Medical Sciences, Yazd, Iran*

[2] *Department of Traditional Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran*

Received: 23 Jul 2015 **Reviesd:** 3 Sep 2015 **Accepted:** 12 Sep 2015

Abstract

In recent years, because of the reduction of infectious disease mortality, also changing age pyramid and the increase in human life expectancy, the elderly population is growing, and their medical and health needs are a more pronounced. Hence, to address this need, the field of geriatric medicine as a specialty is founded. The purpose of this study was to evaluate the comparative literature on traditional medicine and geriatric medicine in Iran. In this study, some credible Iranian traditional medicines books are evaluated including Ibn Sina's Canon of Medicine, Hakim Arzani's Mofareh al Gholoob, Hefz al sehat Naseri, and Baha al Doleh Razi's Kholasasat al Tajarob and wherever possible a comparison with the conventional medical texts and articles is expressed. In all of the mentioned books, geriatric is included as a chapter and mentioned as "Tadbire mashayekh." In this chapter a detailed description of geriatric health, nutrition, sleep, wakefulness, proper exercise, and commonly seen diseases, and their way of treatment is mentioned which may indicated to the importance of this period in humans' lifetime in Iranian traditional medicine. Although the geriatric medicine is often thought to be a scientific result of the new medicine, but by studying the Iranian traditional medicine resources, it is revealed that in all of the listed books, there is a full description of this lifetime period, which can answer at least a part of our needs, nowadays.

Keywords: Geriatric Medicine, Tadbir E Mashayekh, Iranian Traditional Medicine, Geriatrics

Citation: Oveidzadeh L, Minae MB. **Comparative Approach of the Iranian and Conventional Medicine to the Geriatrics**. Trad Integr Med 2016; 1(2): 54-8.

1. INTRODUCTION

The remarkable point in Iranian traditional medicine is human's lifetime classifications, which is divided into four periods of childhood, adulthood, the age of decline, and superannuation. The prior scholars had mentioned some specifications for each period and it is quiet notable that the periods

Corresponding Author: Mohammad Bagher Minae
Email: minaezb@sina.tums.ac.ir

required a more commands and attentions, describe under their title as commands, for example ante-natal care and infancy care [1], [2], [3], [4].

The period of superannuation is started from the age of 60 and continued until death, which is coinciding to the WHO's description of elderly; although some resources have mentioned 65 as the entering age to the elderly period. This is one of the susceptible periods of human's lifetime so that some of the traditional medicine resources do not distinguish the superannuations as thoroughly healthy people but between sick and healthy [2], [3].

World population growth pattern has changed in current decade, as now we are facing with reducing and controlling diseases and childhood mortality, reduced fertility and reduced mortality during aging, and as a result, elders' population gains a bigger share in human's population [5] the process of aging is known as a process of slowing down the constructions and operations (molecular, cellular, tissues and organs). Aged people lose their adaptability to stress, such as acute illness, trauma, surgery, and lifestyle changes. In the 6.8 billion population of the globe in 2009, almost 11% were above 60 years old [5] and it is predicted that until 2020, the above 65 years old population will increase from 40 to 55 million, equal to 20% [6].

Currently in many countries' health services, the field of geriatric medicine is defined, and the relevant specialists are providing services to this age group. In our country-Iran - also this necessity is quiet tangible due to the increase of the top pyramid population and life expectancy increase in Iranians to about 74 years [5] and in current years, this field has been paid attention.

Although in western books, elderly medicine is a new medical field but by studying the Iranian traditional medicine books, we can find this field's tracks and carefully attention to the elders. In this study, some Iranian traditional books such as Ibn Sina's Canon of Medicine, Jorjani's Aghraz Al tebiehye, Hakim Arzani's Mofareh al Gholoobe, Aghili e Khorasani's Kholasat al Hekmah, Hefz al sehat Naseri, and Baha Aldoleh Razi's Kholasat al Tajarob are investigated and where a comparison with conventional medicine was applicable, are mentioned. The recommendations for geriatrics in Iranian traditional medicine have been evaluated from six different aspects including air, food and drinks, physical movement, psychological states, sleep ad wakefulness, and retention and evacuation. Recommendations for each of these aspects have been discussed below.

1.1 Air

It is mentioned in Aghraz al Tebiyeh that the harm caused by air pollutions such as smoke and dust to the elders' body is more than the others, so these people have to avoid the above conditions [7] instead, smelling moderately warm perfumes is highly recommended [1], [2], [3], [8]. In Hefz al Sehat Naseri, it is recommended that elders live in areas where the weather is like spring [4]. In recent articles, also similar results are shown; for example, in a study performed in Thailand, the effect of cold air on stimulating the pulmonary obstructive disease crisis has been demonstrated [9]. In another article comparing the three cities of China environmental pollutants with the city of Bankok, it is shown that where the pollution was higher, the mortality rate of the old people was higher too [10].

1.2 Food and Drinks

As weakness of stomach is of its lifetime characteristics, it is recommended to eat food, 2 or 3 times a day and to avoid every hard and stiffs and difficult to chew and suggested the soft and light meals [8]. Of course here the persons' habits are considered, as Jorjani said in al Aghraz that if an elder has a powerful stomach, it is OK to have his total food all at once. Furthermore, it is recommended to make sure that one meal is taken in the evening because the digestive power is stronger at night [1] and sleeping while hungry is forbidden at night and will cause

body weakness [2], [3], [4]. Furthermore in conventional medicine, it is mentioned that the stomach digestion quality changes by age. As by aging, sense of taste, saliva secretion, stomach acids and pancreases excretions decrease which are all causes the weak stomach digestion [6]. The food intake is also very important, so it is recommended to have small food portions with high nutritional value and digestibility like egg yolk, meat potage, milk. Their consumed bread has to be well baked and moderately salted to be easily digestible. Furthermore after daily meals, it is recommended to use a laxative food [2], [3], [4]. In the other hand, some foods are forbidden to consumed by geriatrics such as eggplant, hunted meat, salted meat, cucumber, cucurbit, melon and stiff mean fish and, of course, acidic and sour food like vinegar and also spicy foods [2], [3], [4]. If these kinds of foods are eating it is better to use their justifiers while cooking [2], [3].

Regarding vegetables, bests are beetroot leafs, celery and a little bit of leek which causes laxation too [4]. In new articles also comparing the food regimens and their protective role in bone fracture, the vegetable, and fruit-full regimen has the best effect in preventing the bone fracture in the Japanese aged people [11].

Drinking milk is highly recommended in this lifetime because it is nutritive and moisturizing. But here also caring about the person's habits is more important. It is mentioned in Mofareh that drinking milk is very good for the old people who does not feel any itching or liver and abdominal pain afterward [1], [2], [3]. The best milk is goat's milk especially if it is add some salt and honey to it [1], [2]. It is better that milk being drunk hot and drinking cold milk is prohibited for elders [4].

In conventional food regimen, the elder's requirement to calcium will increase to 1200 mg a day because of their decreased gastrointestinal absorption and, of course, the main calcium resource is milk [6].

Eating garlic is also recommended especially if the person is used to it [2], [3]. Using hot temperament jams such as ginger jam is also recommended as it causes hotness and better digestion [2], [3]. As constipation is one of the worst complications in this period, there is lots of attention on laxatives and purgatives like fresh fig and flame in summer and dried fig drunken in honey mixed water in winter before the meal, and recipe of some foods like rock brake roots with chicken pottage or cabbage or beetroot stew, etc. But extra usage of purgative is prohibited and using such foods have to be limited to once or maximum twice a weak [1], [2], [3].

In conventional medicine, preventing the constipation is very essential for the elders, as using 10-25 g fiber and 1500 cc liquids/day and bulk laxative like psyllium is recommended [5].

1.3 Physical Movement

Sport is mentioned in Iranian traditional medicine as "Riazat," which is considered to be necessary in the elderly period but is different up to the people's physical situation, diseases, and habits. If the body is in balance, moderate sport is recommended [2].

Interesting point mentioned in books is that if a person has a headache or epilepsy or catarrh, he has to do the lower limb's sports and if he has any problem in his legs, the upper body sports such as throwing or lifting stones are recommended [1], [2] which needs to be further investigated.

Suggested sports in "Hefz al sehat Naseri" are horse riding and smoothly walking which doesn't cause fatigue and to take a shower with lukewarm water afterward [4]. Massage is also another subject mentioned under the title of "Riazat" in Iranian traditional medicine books. Massage is highly recommended in this age and has to be performed moderately [2], [3]. The duration has to be modest and rubbing should neither be very weak not very strong but up to the patient tolerability, and they should not massage weak or painful organs [1], [2].

Ibn Sina suggested using oils during massage. In Aghraz al Tebiyeh, moderate massage with moderate oils like Jasmine and

Lily and a little sporting is recommended [7]. But in Kholasat al tajarob, rest and stillness have been mentioned to be a more convenient in this period and recommended to use moisturizing and reinforcing oils for skin and body organs [8].

The center for disease control and prevention in the USA suggests at least 150 minutes of moderate aerobic activity a weak divided into 2 or more days a week to make up all the muscle groups at this age [12]. Moreover, a study in Japan found that walking in the forest air reduces stress hormones and blood pressure [13].

1.4 Psychological States

Using aromatics fragrances is recommended in elderly ages for modulating their mood [2]. Reinforcing the heart with refreshings and moderate heat perfumes and bracing things are also recommended [8]. Smelling cold tempered perfumes like camphor and water lily is forbidden [7]. In conventional medicine, depression in older age is a predictor of adverse outcomes in this period [6].

1.5 Sleep and Wakefulness

Ibn Sina believed that elders needs more sleep than young people. Hakim Arzani had mentioned in Mofareh al gholoob that the best for an elder is sleeping especially if he is used to it, because and elder requires sleep to keep his instinctive moisture and returning his lost body moisture back. In Iranian traditional medicine books, the best soporific command from Jalinus is to eat lettuce [1], [2], [3], [4].

1.6 Retention and Evacuation

In Iranian traditional medicine, phlebotomy and leech therapy are forbidden for over 60 years old people [2], [4]. In Kholasat al tajarob, sexual intercourse and evacuations are mentioned as the body weakening and body's main organs defective in elders and these people are prohibited from frequent sexual intercourse and even if libido still exists, the reduction is essential in this regards [2], [3], [4]. The best evacuation for elders is mentioned as moderate diarrhea [2], [3].

4. DISCUSSION

In Iranian traditional medicine, the elders temperament is different so that their boss organs are cold and dry but because of their improper digestion and undesirable moisture exist in their body, so we have to take a look at their external symptoms and if it is cold and dry, their food and other commands have to be hot and moist and if it is cold and moist, so their foods and other commands have to be hot and dry [1], [2], [3], [7], [8]. In Iranian traditional medicine, the basis is to do the preventions and keep people's health, and all the mention recommendations are emphasizing it. By comparing these doctrines with conventional medicine, it can be seen that the traditional medicine has yet many new things to say in this regard. Mentioned protocols in 6 essential aspects especially regarding nutrition, sport, psychological state and air are very compatible with conventional medicine.

We hope that by paying more attention to the above-mentioned recommendations, the applicable points are extracted and be used in current geriatric medicine.

6. CONFLICT OF INTERESTS

Authors have no conflict of interests.

7. ACKNOWLEDGMENTS

None.

REFERENCES

[1] Avicenna. The canon of medicine. Tehran, Iran: Soroush Publications; 1987. [In Persian].
[2] Arzani MA. Mofareh Al-Gholob. Tehran, Iran: Almaee; 2012. [In Persian].
[3] Aghili Khorasami MH. Kholase Al-Hekmat. Qom, Iran: Esmaelian Publications; 2006. [In Persian].
[4] Gilani MK. Hefz Al-Sehe Nasseri. Tehran, Iran: Almaee; 2009. [In Persian].
[5] Longo DL, Fauci A, Kasper D, Hauser S, Jameson J, Loscalzo J. Harrison's principles of internal medicine. 18th ed. New York, NY: McGraw-Hill Professional; 2011.
[6] Mahan L, Escott-Stump S, Raymond JL. Krause's food & the nutrition care process. Philadelphia, PA: Elsevier Health Sciences; 2012.
[7] Gorgani I. Zakhireye Kharazmshahi. Tehran, Iran: Academy of Medical Sciences; 2001. [In Persian].
[8] Razi B. Kholasat Al-Tejareb. Tehran, Iran: Rahe

Kamal; 2008. [In Persian].
[9] Tseng CM, Chen YT, Ou SM, Hsiao YH, Li SY, Wang SJ, et al. The effect of cold temperature on increased exacerbation of chronic obstructive pulmonary disease: a nationwide study. PLoS One 2013; 8(3): e57066.
[10] Wong CM, Vichit-Vadakan N, Vajanapoom N, Ostro B, Thach TQ, Chau PY, et al. Part 5. Public health and air pollution in Asia (PAPA): a combined analysis of four studies of air pollution and mortality. Res Rep Health Eff Inst 2010; (154): 377-418.
[11] Zeng FF, Wu BH, Fan F, Xie HL, Xue WQ, Zhu HL, et al. Dietary patterns and the risk of hip fractures in elderly Chinese: a matched case-control study. J Clin Endocrinol Metab 2013; 98(6): 2347-55.
[12] Leenders M, Verdijk LB, van der Hoeven L, van Kranenburg J, Nilwik R, van Loon LJ. Elderly men and women benefit equally from prolonged resistance-type exercise training. J Gerontol A Biol Sci Med Sci 2013; 68(7): 769-79.
[13] Li Q, Otsuka T, Kobayashi M, Wakayama Y, Inagaki H, Katsumata M, et al. Acute effects of walking in forest environments on cardiovascular and metabolic parameters. Eur J Appl Physiol 2011; 111(11): 2845-53.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 1, Issue 2, Spring 2016

Review Article

Vitiligo and its Medicinal Plants from the Viewpoint of Iranian Traditional Medicine

Maryam Ranjbar[1], Fatemeh Aliasl[2], Fatemeh Nejatbakhsh[3], Laila Shirbegi[3]

[1] *Department of Iranian Traditional Medicine, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran*

[2] *Department of Traditional Pharmacy, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran*

[3] *Department of Iranian Traditional Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran*

Received: 26 Oct 2015 **Revised:** 7 Nov 2015 **Accepted:** 25 Nov 2015

Abstract

Vitiligo as a common depigmenting skin disorder plays a very important role in patient's quality of life. It can cause serious emotional stress, which necessitates its treatment. Because of lack of desirable efficacy of conventional therapies, considering complementary therapies for the management of vitiligo is increasing. The aim of this article is to describe Iranian traditional medicine (ITM) approach to vitiligo mechanism and prognosis as well as medicinal plants proposed for the management of this disease. ITM believes human body organs consist of four fundamental humors. All of them are composed of very specific quantity and quality and any kind of diseases supposedly, is the result of excess or deficit of these humors. Changes in the quantity of "phlegm humor" and improper function of "expulsive faculty" are two main causes of vitiligo. In this paper, the vitiligo prognosis according to ITM and recommended herbal medicines according to the stage of disease have been explained.

Keywords: Vitiligo, Mechanism, Prognosis, Iranian Traditional Medicine, Herbal Remedies, Medicinal Plants

Citation: Ranjbar M, Aliasl F, Nejatbakhsh F, Shirbegi L. **Vitiligo and its Medicinal Plants from the Viewpoint of Iranian Traditional Medicine**. Trad Integr Med 2016; 1(2): 82-6.

1. INTRODUCTION

Vitiligo is a common depigmenting skin disorder and plays a very important role in patient's life. It is a chronic and progressive disease. There are many clinical trials showing decreased patients' quality of life due to this disorder. Therefore, managements should focus not only on a medical treatment but also psychological aspects should be considered completely [1]. The substantial disfigurement associated with vitiligo can cause serious emotional stress for the patients, specifically, women and adults which

Corresponding Author: Laila Shirbegi
Email: l.shirbeigi@tums.ac.ir

necessitate its treatment [2], [3]. Although there are several hypotheses about etiology of vitiligo such as neural and autoimmune mechanism or melanocytes apoptosis but none of them could describe its all aspects properly, and the main cause of the disease has remained unknown [4]. Accordingly, there are different approaches for vitiligo treatment such as topical steroids and narrowband ultraviolet B monotherapy as well as cosmetic comflauge products, immunomodulators, and surgery [2], [5]. Although treatments are able to restitute skin pigments, the most of them has complications and their efficacy is temporary. Therefore, vitiligo has been remained non-curable so far. Hence, in recent researches, there is a tendency to evaluate alternative therapies for dermatological disorders [6], [7]. There are some theories about vitiligo mechanism and prognosis in Iranian traditional medicine (ITM). The aim of this study is to describe ITM point of view about vitiligo mechanism and prognosis as well as introducing commonly used herbal medicines for the treatment.

2. METHODS

Medical manuscripts of medieval Persia from 10th to 19th centuries A.D which are noted as credible textbooks of ITM were reviewed for gathering information about definition, etiology, and prognosis of vitiligo. General information about these manuscripts is listed in table 1.

Table 1. ITM main textbooks used for gathering data about vitiligo

Manuscript	Author	Authoring date	Description
Kitāb al-Qānūn fī al-ṭibb (The Canon of Medicine)	Avicenna	11th century A.D	It is one of almost 450 treatises authored by Persian scientist and physician Avicenna. He has listed 800 medicaments, containing plant, animal and mineral substances, with descriptions on their administration and effectiveness
Kitāb al-Ḥāwī fī al-ṭibb (The Comprehensive Book on Medicine or Liber Continens)	Rhazes	10th century A.D	The book involves several chapters in medicine and pharmacy, 20th and 21st of which are on Material Medica and contain 898 simple drugs
Eksir-e-Aazam (The Grand Exir)	Azam Khan Cheshti	19th century	It is one of the most detailed medical encyclopedias of traditional Persian medicine in four large volumes and involves diseases from head to toe, general ailments and concerned treatments. The author gathered all experiences of other scholars from Persia, India and Greece as well as his own finding and authored the text in 30 years
Zakhire-eKharazmshahi	Seyyed Esmaeel Jorjani	12th century	It's one of the most famous books of traditional medicine of Iran which consists of practical and theoretical medicine in nine chapter. It is written in Persian and it is also one of the most detailed medical encyclopedias of traditional Persian medicine. This book was in third place after Rhazes's and Avicenna's books which has been studied by medical students
Tebb-e-Akbari (Akbar'sMedicine)	Akbarshah Arzani	18th century	It is a Persian medical textbook in 27 chapters (babs) and a conclusion (khatimah). Symptoms and treatment of diseases are mentioned in related chapters and compound remedies and medical terminology are discussed in conclusion part
Sharḥ al-Asbāb wa-al-'alāmāt	Nafīs ibn 'Iwāḍ al-Kirmānī's	15th century	It is a commentary on the "causes and symptoms" of diseases
Khulasat al-hikma	Aghili Alavi Khorasani Shirazi	18th century	It is written in Persian including two main parts of theoretical and practical medicine
Kamel al -Sina'ah al-Tibbiyah	Ali ibn al-'Abbas al-Majusi	10th century	It used to be a textbook of medicine in European medical schools by the name of Regius Liber

ITM: Iranian traditional medicine

Moreover, electronic databases including Google scholar, PubMed, and Scopus were searched from 1950 until August 2015 to find any evidence about the efficacy and possible mechanisms of action of medicinal plants used for the treatment of vitiligo in ITM.

3. RESULTS

Based on ITM human body consists of four cardinal humors including blood, phlegm, yellow bile and black bile. All of them are composed of very specific quantity and quality and any kind of diseases supposedly are resulted from an excess or deficit of one of these humors. According to ITM any change in these cardinal humors which is called *Sue Mizaj* or imbalanced temperament plays very important role in etiology of the disease. The specific characteristics of the body humors should be described completely to understand the mechanism of vitiligo. Blood is a liquid in red with sweat taste and flows in all vessels. Its major task is to carry "cardinal humors" to the whole body. Blood has the largest amount among body humors. It is the cause of body temperature and regulates it. Phlegm is a liquid in white color with a cold temperament which has a sort of sweat taste. It flows along with blood in all vessels through the whole body and is the basic part of brain and spinal cord structure. Increased amount of phlegm or changes in its quality specifically in brain can cause major problems such as stroke. This humor is an effective lubricant in the articular space and facilitates joint movements. Yellow bile is a liquid in bright yellow color and has bitter taste with warm and dry temperament. It dilutes blood viscosity and helps it flow easily in small vessels and capillaries. Its location is in gallbladder. Yellow bile releases into the small intestine cleans the surface by its bitterness and helps the fecal to be defecated completely. Based on ITM a comfortable, complete and voluminous defecation is one of the important natural functions in the human body, and yellow bile plays very important role in this process. Black bile is a liquid in dark gray color with sour taste. It locates in the spleen and releases to the upper part of the stomach during starvation and is the main stimulus of appetite. It forms a basic part of bones and teeth and has a cold and dry temperament. Black bile is very important in skin coloration and any increase in the amount of this humor can cause skin darkness [8], [9], [10]. On the other hand all organs in the human body like heart, liver, brain and skin need four vital powers for their proper function named "obedient (subservient) faculty." Their roles are as follows:

I. "Attractive faculty" which absorb substances (cardinal humors) from blood to the organ

II. "Retentive faculty" which hold substances inside the organ

III. "Transformative faculty" this faculty during "digestion process" transmits substances from its former state and makes it become useful for the organ

IV. "Expulsive faculty" which expels surplus substances when digestion process is completed [8], [9], [10].

According to above-mentioned vitiligo is caused by two factors:

1. Changes in quantity and quality of "phlegm" which means the concentration and viscosity of phlegm increases within the skin

2. Improper function of "expulsive faculty" that leads to increase the extra amount of phlegm in the skin structure.

In the light of above mentioned there are five clinical manifestations which describe vitiligo prognosis:

1. Skin surface geometry: Phlegm infiltration into dermis destroys the basic structure and causes skin surface depression. This sign shows poor prognosis of the disease. No changes in the skin surface geometry have better prognosis.

2. Appearance of the skin: Regarding to the fact that phlegm is a white and smooth substance, vitiligo is diagnosed by pure white and very shiny skin. It means there is a big difference between affected area and healthy skin. This distinctive clinical sign leads to poor prognosis of the disease.

3. Hair color: Phlegm infiltration into the

hair shaft can cause changes in the hair color to the gray or white, which means much more phlegm accumulation inside the skin. White hair color presents poor prognosis of vitiligo. In reverse, natural hair color of the affected area has a better prognosis.

4. Skin reaction to massage: When phlegm spreads inside dermis, it prevents normal blood perfusion through narrow vessels. Due to the complete changes of phlegm quality and quantity, it becomes condensed and viscose. Therefore, there is no sign of redness or reaction to skin massage and it shows poor prognosis of vitiligo. Contrary to the above-mentioned mechanism any sign of redness and/or reaction to massage reveals good prognosis of the disease.

5. Needle insertion into skin: As mentioned above phlegm infiltrates through the dermis and prevents normal blood perfusion through small vessels and capillaries. Thus, no blood or a few drops of diluted liquid comes out from the skin after needle insertion. It means that condensed phlegm has been accumulated deeply inside dermis. This event indicates poor prognosis of the disease. In reverse normal bleeding after needle insertion of affected area reveals good prognosis of disease [11], [12], [13], [14], [15].

The main approaches of ITM to almost all diseases are categorized into three groups including diet therapy, herbal and natural therapies, and manipulations. Researches have been done for evaluating the effects of medicinal plants on vitiligo. *Psoralea corylifolia* L. (Fabaceae) Leaves mentioned as a Chinese medicine treatment for skin disorders like vitiligo [16]. Another research proposed *Cassia occidentalis* as a pigmentation inducer by affecting differentiation and migration of melanoblast cells of mouse and tyrosinase function [17]. Medicinal plants suggested in ITM for vitiligo and current evidence for their efficacy [18], [19], [20] have been described in table 2.

4. DISCUSSION

ITM has presented very simple and uncomplicated clinical examinations to predict vitiligo prognosis, and there are five simple clinical prognostic factors for it. According to the stage of disease, it has recommended different approaches for its treatment like herbal medicine which some of them were noted in this study. Further studies are needed to achieve to more conclusive results about the efficacy and safety of medicinal plants suggested in ITM for vitiligo.

6. CONFLICT OF INTERESTS

Authors have no conflict of interests.

7. ACKNOWLEDGMENTS

This work was supported by the School of Traditional Medicine, Tehran University of Medical Sciences.

Table 2. Medicinal plants for management of vitiligo in ITM and their proved mechanisms of action

Scientific name	Family	Common name	Temperament Mizaj	Iranian traditional Name	Mechanism	Part used
C. chinensis L.	Convolvulus	Dodder Seed	Warm and dry	Kashos	Promotes adhesion of melanocyte to fibronectin	Fruit
C. tinctorius L.	Compositae	Safflower	Warm and dry	Golrang	Promotes adhesion of melanocyte to fibronectin	Flower
P. corylifolia L.	Fabaceae	Babchi	Warm and dry	Babchi	Promotes both adhesion and migration of melanocytes and promotes melanocyte migration *in vitro*	fruit
P. nigrum L.	Piperaceae	Black pepper	Warm and dry	Felfel	Growth-stimulatory activity on cultured melanocytes	Fruit
T. terestris L.	Zygophyllacea	Bindii	Warm and dry	Hasak	Promotes melanocyte migration *in vitro*	Fruit

ITM: Iranian traditional medicine, *C. chinensis*: *Cuscuta chinensis, C. tinctorius*: *Carthamus tinctorius, P. corylifolia*: *Psoralea corylifolia, P. nigrum*: *Piper nigrum, T. terestris*: *Tribulus terestris*

REFERENCES

[1] Wong SM, Baba R. Quality of life among Malaysian patients with vitiligo. Int J Dermatol 2012; 51(2): 158-61.

[2] Yaghoobi R, Omidian M, Bagherani N. Vitiligo: a review of the published work. J Dermatol 2011; 38(5): 419-31.

[3] Bilgic O, Bilgic A, Akis HK, Eskioglu F, Kilic EZ. Depression, anxiety and health-related quality of life in children and adolescents with vitiligo. Clin Exp Dermatol 2011; 36(4): 360-5.

[4] van Geel N, Mollet I, Brochez L, Dutre M, de Schepper S, Verhaeghe E, et al. New insights in segmental vitiligo: case report and review of theories. Br J Dermatol 2012; 166(2): 240-6.

[5] Ghafourian A, Ghafourian S, Sadeghifard N, Mohebi R, Shokoohini Y, Nezamoleslami S, et al. Vitiligo: symptoms, pathogenesis and treatment. Int J Immunopathol Pharmacol 2014; 27(4): 485-9.

[6] Kim DY, Oh SH, Hann SK. Classification of segmental vitiligo on the face: clues for prognosis. Br J Dermatol 2011; 164(5): 1004-9.

[7] Whitton ME, Pinart M, Batchelor J, Leonardi-Bee J, González U, Jiyad Z, et al. Treatments for vitiligo. The Cochrane Library 2015; (2): 1-4.

[8] Jorjani E. Zakhireye Khwarazmshahi. Tehran, Iran: Cultural foundation of Iran; 1976. p. 60. [In Persian].

[9] Avicenna. The canon of medicine. Beirut, Lebanon: Institute Alaalami Library; 2005. p. 41-6, 111-3.

[10] Aghili Khorasani MH. Kholasat Al-Hekmah. Qom, Iran: Esmaeilian Publications; 2006. [In Persian].

[11] Ahvazi AIA. Perfect creation in medicine (Kamel Alsana'e). Qom, Iran: Jalaleddin Publications; 2009. [In Persian].

[12] Arzani MA. Akbari's medicine (Teb Akbari). Qom, Iran: Jalaleddin Publications; 2009. [In Persian].

[13] Azam Khan HM. The greatest elixir (Exir Azam). Tehran, Iran: Research Institute for Islamic and Complementary Medicine (RICM); 2009. [In Persian].

[14] Kermani NIA. Explain of the causes and signs (Sharh Asbab va Alaem). Qom, Iran: Jalaleddin Publications; 2009. [In Persian].

[15] Zakariya Al-Razi M. Al-Hawi. Beirut, Lebanon: Dare Ehya al Toras al Arabi; 2004.

[16] Yan DM, Chang YX, Wang YF, Liu EW, Li J, Kang LY, et al. In vivo pharmacokinetics of bakuchiol after oral administration of bakuchiol extraction in rat plasma. J Ethnopharmacol 2010; 128(3): 697-702.

[17] Babitha S, Shin JH, Nguyen DH, Park SJ, Reyes GA, Caburian A, et al. A stimulatory effect of Cassia occidentalis on melanoblast differentiation and migration. Arch Dermatol Res 2011; 303(3): 211-6.

[18] Zhang X, Feng J, Mu K, Ma H, Niu X, Liu C, et al. Effects of single herbal drugs on adhesion and migration of melanocytes. J Tradit Chin Med 2005; 25(3): 219-21.

[19] Mou KH, Zhang XQ, Yu B, Zhang ZL, Feng J. Promoting of melanocyte adhesion and migration by Malytea Scurfpea fruit in vitro. Methods Find Exp Clin Pharmacol 2004; 26(3): 167-70.

[20] Lin Z, Hoult JR, Bennett DC, Raman A. Stimulation of mouse melanocyte proliferation by Piper nigrum fruit extract and its main alkaloid, piperine. Planta Med 1999; 65(7): 600-3.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 3, Issue 2, Spring 2018

Review

Definition, Treatment and Special Role of Catarrh in Perspective of Traditional Persian Medicine

Zahra Jafari[1], Aniseh Saffarshahroodi[2], Laleh Oveidzadeh[1], Majid Emtiazy[1,3*]

[1]Department of Traditional Medicine, Faculty of Iranian Traditional Medicine, Shahid Sadoughi University of Medical Sciences, Ardakan, Yazd, Iran
[2]Department of Traditional Persian Medicine, School of Medicine, University of Medical Sciences, Shiraz, Iran
[3]The Research Center of the Iranian Traditional Medicine, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

Received: 21 Jan 2018 **Revised:** 15 Mar 2018 **Acceptad:** 28 Mar 2018

Abstract

Catarrh is a common problem everyone experiences many times in his lifetime. According to Traditional Persian Medicine (TPM), Catarrh is related to the terms:"Zokam" and "Nazleh". Zokam is defined as drainage of secretions through the nasal passage and Nazleh is defined as flow of them into the posterior nasal space and the oropharynx; Nazleh flows can also spread to the lungs, esophagus, stomach and some other organs and cause various complaints. Medieval Iranian physicians had paid special attention to appropriate treatment of Nazleh because they believed that it is the source for many chronic diseases. According to the organ affected by Nazleh various diseases were expected from head to toe. Despite the great advances in medical treatments in recent years, effective drugs are still needed to control the clinical manifestations of catarrh. Drug resistance and the complications of the drugs make this requirement more apparent. Some of the herbs that were prescribed by former physicians have indicated concomitant therapeutic effects in recent researches so it seems that some components of the herbs can be beneficial in producing new drugs. It is hoped that a review on therapeutic methods of TPM will prompt further clinical benefits.

In this study, we reviewed several valuable TPM text books and collected the master viewpoints about etiology, semiology and treatment of Catarrh (Zokam and Nazleh), then we searched through some scientific databases including PubMed and Google Scholar to match the findings with the new researches. The aim was to express the importance of these complaints and suggest convenient methods to treat them; considering that preventing and treating of some chronic diseases may relate to proper approach to Nazleh.

Keywords: Catarrh, Postnasal drip, PND, Traditional Persian medicine, Zokam, Nazleh

Citation: Jafari Z, Saffarshahroodi A, Oveidzadeh L, Emtiazy M. **Definition, Treatment and Special Role of Catarrh in Perspective of Traditional Persian Medicine.** Trad Integr Med 2018; 3(2): 91-105.

*Corresponding Author: Majid Emtiazy
Department of Traditional Medicine, Faculty of Iranian Traditional Medicine, Shahid Sadoughi University of Medical Sciences, Ardakan, Yazd, Iran
Tel: 0913 153 3073
Email: emtiazymajid@yahoo.com

Introduction

Catarrh is a common complaint everyone experiences many times in his lifetime. In medical literature postnasal drip (PND) is a common term that describes the condition as a feeling of something dripping down the throat or the presence of mucoid secretions in the nasopharynx and oropharynx. The diagnosis of the postnasal drip syndrome (PNDS) is based on the medical history and clinical examination; although some physicians consider a therapeutic response to a decongestant or antihistamines as a criterion too. The syndrome may also overlap with chronic unexplained cough, rhino-sinusitis or even esophageal reflux [1-3].

According to Traditional Persian Medicine (TPM), Catarrh is related to the terms:"Zokam" and "Nazleh". Zokam is defined as drainage of secretions to the nose and Nazleh is defined as flow of them into the posterior nasal space and the oropharynx; secretions may also flow down to the lungs, esophagus, stomach and some other organs [4-12].

There is a widespread rang of significant complications depending on the organ which accepts the Nazleh flows. Thus, it seems that we should have a proper and exact approach to such a simple disease and maybe we would find the inflection point to prevent, manage and treat many chronic diseases which relate to these strange flows.

Methods

In this review study we studied the etiology, semiology and treatment of Catarrh in several valuable TPM sources including *Zakhire Kharazmshahi* [12], *Moalejat-e-Aghil*i [9], *Sharh Al-Asbab va Al-Alamat* [10], *Kholase Al-Hekmah* [8], *Al-Qanon fi Al-teb* [5], *Kamel Al-Sanaat Al-Tebbieh* [7],*Teb-e-Akbari* [11], *Exir-e-Azam* [6], *Al-Mansoori fi Teb* [4], *Bahr Al-Javaher* [13] and *Al-tanvir* [14]. Our traditional words for extracting the first results were "Zokam" and "Nazleh"- synonymous with catarrh - according to *Ghamoos al-Qanon* [15] which is a dictionary to match ancient words with Latin equivalents.

We also searched in PubMed and Google Scholar databases with the keywords: Postnasal drip, PNDS and Catarrh to make a connection between the traditional and new findings. On the next step, disease types were classified based on the etiology and appropriate treatment mentioned for each group. Moreover the recommended therapeutic herbs were searched for new researches.

Findings

Definition of Catarrh (Nazleh and Zokam) in TPM:

According to the most of TPM text books and the viewpoint of master medieval physicians such as Avicenna and Rhazes, Zokam is drainage of secretions through the nasal passage and Nazleh is flow of them into the posterior nasal space and the oropharynx; secretions may also flow down to the lungs, esophagus and stomach [4-12].

They believed that Zokam and Nazleh are both originating in the brain. They have emphasized on such a brain cell disorder as the cause for Catarrh. It means that the cells are not capable of using nutrients so these substances excrete to

the inferior tract of the brain and flow down as Catarrh through a connection between the brain and nasopharyngeal space. These comments match the new scientific findings about the formation of the cerebrospinal fluid (CSF) and the existing communications between the brain and sinuses [2]. This process can be considered as one of the mechanisms for Nazleh formation.

Etiology of Zokam and Nazleh

As described in the conventional medicine, increase in the sinuses and nasal epithelial cell secretions in contact with allergens or any abnormal factors are thought to be the cause of Catarrh. But physicians of TPM believed that the main substance in Catarrh originates from the brain and Catarrh is more than a simple epithelial cell discharge; although these discharges are considered as a component for Catarrh [2]. This theory matches the new scientific researches about the formation of the cerebrospinal fluid (CSF), the CSF role in the brain extracellular clearance and the communications in which the fluid passes to the cranial sinuses. It is demonstrated that some metabolites derived from the brain cells metabolism take part in CSF formation in lateral ventricles, then the CSF cycles through the third and forth ventricles and exists to the subarachnoid space [16,17]. A substantial portion of subarachnoid CSF cycles through the brain interstitial space and takes part in the clearance of the interstitial solutes. It means that CSF enters the parenchyma along paravascular spaces surrounding the penetrating arteries and is cleared along paravenous drainage pathways [18]. Some CSF enter the bloodstream through the arachnoid villi and some components enter the cranial sinuses through the lymphatic vessels of the upper wall of the sinus, then they mix with the epithelial cell secretions and flow into the nasopharyngeal space [18,19]. Therefore, we can consider the metabolites of the brain cells that result from the metabolism of these cells, or, in other words, their temperament, as a constituent substance for Catarrh and CSF flow seems to be an exemplified of the Nazleh flows. The TPM physicians believed that whatever affects the body metabolism exactly the brain cells can create Catarrh. This included nutrition, physical activity, weather, sleep and wakefulness, neuronal responses, and pathogens. Attention to these health-related issues can help improve or prevent Catarrh.

The etiology of Nazleh and Zokam has been expressed in different categories in TPM texts [6,8,11,12,20,21] but the outcome is likely the same. The physicians of TPM have classified Catarrh as warm and cold, each type with specific cause and special manifestations. Since these physicians have considered such a brain cell malfunctioning to be effective in creating Catarrh, they have expressed the factors affecting the brain in the following categories:

1) External heat: like exposure to sunshine, embrocate the head with hot-natured oils and smell of hot fragrances such as saffron and musk.

Such options cause warm Catarrh so the patient would experience watery discharge of nose and dry throat in the first stages, desire to drink water and cold liquids [9,10], itching and irritating

nose [22], eye and nose redness (in some patients) and slight redness of skin. Fever is not necessarily present in all the patients, but if exists would exacerbate the ailment [9, 10].

2) Hot temperament of the whole body or the brain

These also cause warm Catarrh with the same signs as the first kind; changes in the pulse and the urine color which shifts to yellow would also appear [9,10].

3) External cold which affects the brain and leads to dystemperament: like exposure to cold weather. It would have a greater influence on the brain especially after taking bath, doing physical activity, intellectual work, anger or abundant phlebotomy [9,10].

The coldness would slow down the cells metabolism so the nutrients which come to the brain cannot be applied as competent and they become waste and should be washed out.

These patients would have cold catarrh with such signs as head heaviness and white compact discharge of the nose and the pharynx. Having fever together with this type would result in faster remission [9,10].

4) Cold temperament of the brain: For example in elderly [5].

Due to slow metabolism the brain is not capable of using nutrients competently so we would expect waste materials that have to be removed. If they are cleaned up regularly we would anticipate a continuous Catarrh for the patient [9] but if the waste remains there, various diseases such as stroke, epilepsy and drowsiness will be expected [12].

In this condition, the patient would experience cold Catarrh with the signs of blurred sense, head heaviness, headache and tension in the forehead. Keeping the head warm, would be helpful for these patients [9,10].

5) Repletion of the whole body and the brain

According to TPM bases, we have four types of humors; in digestive system foodstuffs will transform and become humors. Any abnormality or imbalance of these humors would cause diseases. We have four types of humors: blood or “Dam”, phlegm or “Balgham”, yellow bile or “Safra”, and black bile or “Sauda”; each type possesses a special quality [21] so due to the predominant humor we would expect various signs.

5-1) Yellow bile predominancy

The patient would experience warm discharge (This quality sometimes results in ulcers in the nose and phyltrum), yellow discharge, warm breath, irritated and tearful eyes, flushed face, thirst and headache [9,10].

5-2) Blood predominancy

The patient would have warm Catarrh and also the following features: red eyes, dizziness, desire to sleep but insomnia, itching in the uvula, gums, ears and the face, bloody discharge of the nose, sweetness and sometimes unpleasant taste of the mouth [9,10].

5-3) Phlegm predominancy

This type is the safest one [9,10]. Phlegm is the most suitable humor to feed the brain due to similar temperament.

The patient would have cold Catarrh and also the following signs: head heaviness, blurred sense, nasal speech, excessive humidity in the mouth, disability to find out the taste of foods and drinks and repeated bites on the tongue during sleep and eating [9,10].

5-4) Black bile predominancy

This type appears less than others do. Black bile is the least humor in the body, and it has the converse temperament besides the brain [10], so melancholic diseases rarely happen in the brain. This kind would result in cold Catarrh and also dry eyes, head heaviness, headache, unpleasant taste of the mouth (it seems like a burnt material is kept in the mouth), have a conception of smoke or stench while smelling things [9,10].

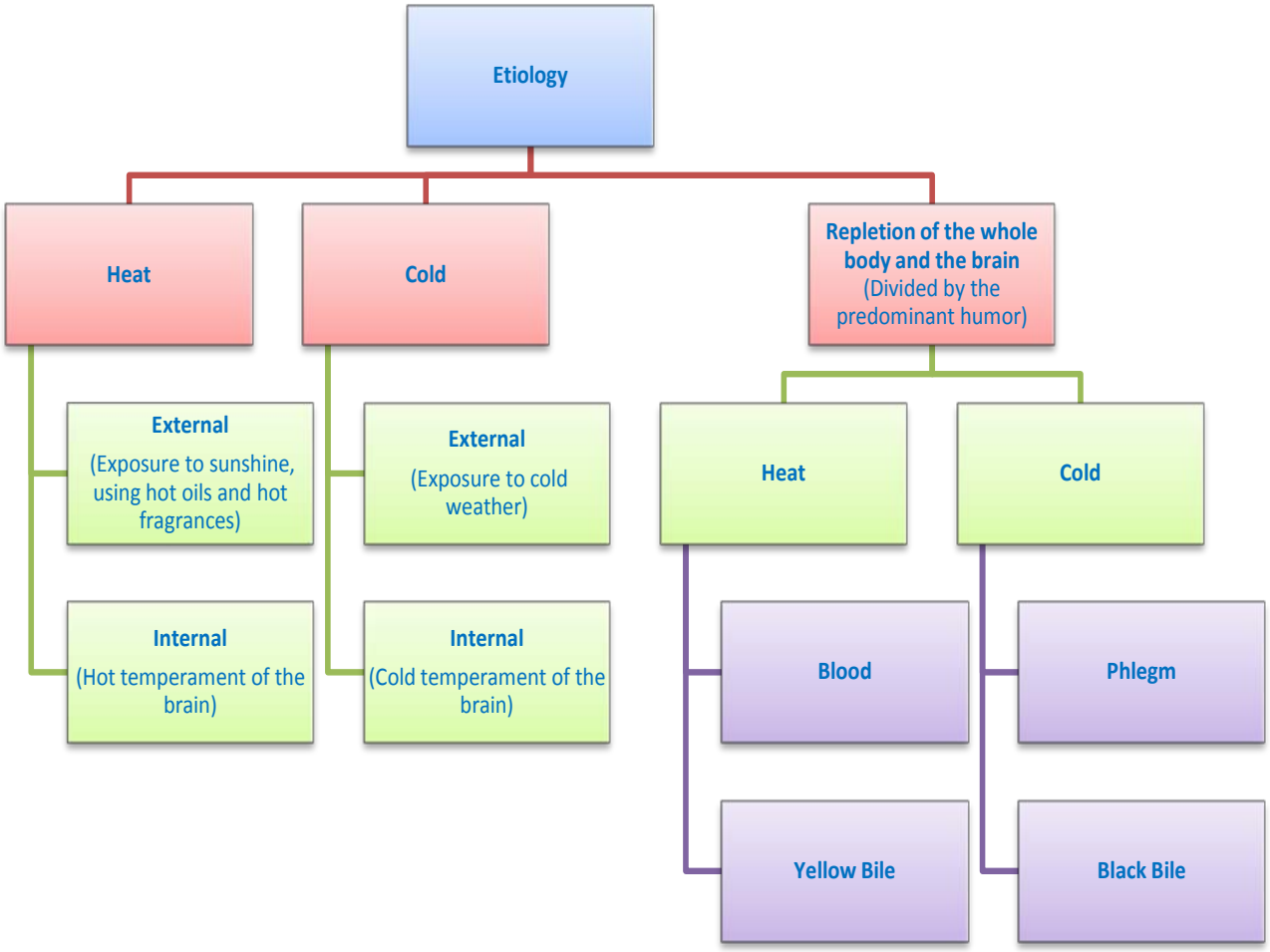


Figure 1. A Brief review in the etiology of Nazleh and Zokam [22]

Complications

According to the previous classification, we can consider two types of Catarrh: warm and cold. The complications vary depending on the type of Catarrh and the affected organ; the Eustachian tube, the lacrimal duct, the digestive tract and the respiratory tract are the assumed pathways to spread the Catarrh.

Table 1: Expected complaints due to catarrh flows based on TPM

Affected organ	Expected complaints*
Eye	Conjunctivitis [12]
Ear	Otitis Media with effusion [12]
Nose	Ulcers [12]
Palate	Uvulitis [12]
Throat	Pharyngitis [12]
Larynx	Laryngitis [12]
Stomach	Stomach pain and ulcers, gastrogenic diarrhea and canine appetite [12]
Lung	Cough, pleurisy and tuberculosis [12]
Diaphragm	Swelling in the flanks and pleurisy [12]
Intestine	Diarrhea, enteritis and intestinal ulcers [12]

* The words used in this column seems to be the most appropriate words for the terms mentioned in traditional medicine text books, but in some cases may not be matched perfectly.

As the TPM physicians believed in the brain origin for Catarrh, various problems would be expected if the substance remains in the brain. These problems include dizziness and vertigo, temporal headaches, epilepsy, stupor and mania and even stroke, cerebritis, meningitis and encephalitis [9, 12]. Although some complications such as otitis media, sinusitis, pneumonia, exacerbation of asthma and chronic obstructive pulmonary disease [23] have been mentioned for Catarrh in conventional medicine. The proposed complications of TPM are more detailed and serious, therefore more attention has been paid to treat Catarrh as a source for many chronic diseases.

Treatment

The TPM physicians have considered several items as the principles of treatment and based the therapeutic suggestions on these principles. These items are presented in Table 2. [4,5,12, 24-26]

Table 2: Treatment principles [4,5,12,24-26]

Principles of treatment		Details of treatment	
1	Reduce the amount of the disease substance	• Reduce the food quantity • Expulsion of the causative humor • Apply Laxatives • Cephalic vein Venesection in some cases in hot Catarrh	
2	Temperament modification	Hot Catarrh	• Lukewarm bath • Anoint the umbilicus with viola odorata *(Banafsaj)* oil
		Cold Catarrh	• Keep the head warm • Having light meal • Reduce the sleep (specially during the day)
3	Preventing the disease substance to spread to other organs	Hot Catarrh	• Drink Papavera somniferum (*Khashkhash*) syrup with Barley water (*Ma ol-shair*) • Taking cold cooked Lentil (*Adas*), Papavera somniferum (*Khashkhash*) and Zizyphus vulgaris (*Annab*).
		Cold Catarrh	• Drink Sweet decoctions • Taking warm cooked Lentil (*Adas*), Papavera somniferum (*Khashkhash*) and Zizyphus vulgaris (*Annab*).
4	Adjust the consistency of the disease substance	Hot Catarrh	• Concentrate the disease substance with Papavera somniferum (*Khashkhash*)
		Cold Catarrh	• Dilute the substance with Hyssopus officinalis (*Zufa*) syrup, Jollab with Glycyrrhiza glabra (*Sus*) syrup or Oximel (*Sekanjabin*).
5	Deviate the disease substance to an opposite side towards the head	• Veer the catarrh substance to nose by sneezing to prevent it from the throat and protect the lung. • Prevent sleeping in supine position.	
6	Prevent probable respiratory complications	• Drink barley water (*Ma ol-shair*) with violet syrup and rose oil (to cough up the sputum).	

Classification of treatment according to the cause

I. Hot dystemperament

1. Decrease the amount of food especially in primary three days of Catarrh [12].
2. Eat barley soup and a soup cooked with the water which stays on the soaked wheat bran, Broad bean (*Baqela*) flour, Starch, Sugar, Almond oil and Gum Tragacanth (*Katira*) [10, 12].
3. Drink decoctions of Opium poppy (*Khashkhash*), Violet (*Banafsaj*), Jujube (*Annab*) and Sebestan plums (*Sepestan*) [10, 12].
4. Drink decoction of Violet (*Banafsaj*), Lic-

orice (*sus*), Hollyhock (*Khatmi*), Jujube (*Annab*), Sebestan plums (*Sepestan*), Purging cassia (*Khiar shanbar*), Pockspray Manna (*Shir khesht*) and Barley water (*Ma-ol-shair*) (9, 10) as laxatives.
5. Inhalations of cold-natured oils/essences like Violet (*Banafsaj*), Water Lilly (*Niloofar*) and Zucchini (*Qarˆ*) oil; they relieve itching and adjust the brain temperament.
6. Incense Camphor (*Kafur*) and soaked bran in vinegar to prevent excretion flows in prolonged disease [10].
7. Venesection is recommended to decrease the disease substance and conduct it to an opposite side towards the head [10].
8. Take a bath with lukewarm water that can potentially cool down the body temperature and relieve the irritant itching.

II. Cold dystemperament
1. Eat a soup cooked with mung beans and sweet almond extract [9].
2. Cover the head with a bag containing warm millet (*Jawaras*).
3. Pour the warm decoction of Chamomile (*Babunaj*), Milk Vetch (*Aklil al-malek*) and Origany (*Marzanjush*) on the head [9, 10, 20, 21].
4. Inhalation of Aloes wood (*ud*); Black cumin (*shuniz*), laudanum (*Ladan*) and Costus (*Qost*) soaked in vinegar in order to adjust the brain temperament and resolve the probable obstructions [9,10,24].
5. Inhalation of Black cumin (*shuniz*), Anise (*anisun*), Musk (*moshk*) and Amber (*anbar*) [8-10, 20].
6. Take a hot bath would facilitate the secretions removal [9,10,24].

III. Repletion of the whole body and the brain
1. Yellow bile predominancy
• Laxation of the bowels with fruit juice, Purging cassia (*Khiar shanbar*), Camel's Thorn Manna (*Taranjabin*), and drink Barley water (*Ma-ol-shair*) [9,10].
• Drink the decoction of Opium poppy (*khashkhash*) if the discharge is so diluted [10].
• Inhalation of some burnt sugarplum (*Nabat*), Sesame Seed (*Konjed*) and coriander fruit (*Kozboreh*) in the case of ethmoid bone obstruction [9,10].

2. Blood predominancy
• Venesection of the Cephalic vein [9,10].
• Decoction of opium poppy (*khashkhash*) and Jujube (*Annab*) as laxatives [9,10].
• Incense of Indian valerian (*Sonboleti*b), Sandarac (*Sandarus*) and Aloes wood (*ud*) in the case of ducts obstruction [9,10].

3. Phlegm predominancy
• Decoction of Hyssop (*Zufa*), Licorice (*Sus*), Fig (*Tin*) and Camel's Thorn Manna (*Taranjabin*) as laxatives.
• Drink a syrup made of Rose water, Saffron and Sugar (*Jollab*), instead of water during the day.
• Incense the decoction of Dill (*shebet*), Chamomile (*Babunaj*), Southernwood (Qeysum), Saatar (*Saˆtar*) and Milk Vetch (*Aklil al-malek*) [9,10].

4. Black bile predominancy
• Drink Barley water (*Ma-ol-shair*) boiled with Opium poppy (*Khashkhash*).
• Eat a soup cooked with Starch, Sugar and Almond oil.
• Incense violet (*Banafsaj*) and hollyhock (*Khatmi*), and also put them on the forehead [9,10, 27].

Table 3: Medical herbs recommended by TPM to treat catarrh

Scientific name	Common name	Traditional name	Type of cCatarrh	Current findings
Astragalus gummifer	Gum Tragacanth	*Katira*	Warm	Alcoholic extracts of the herb and roots showed significant anti-inflammatory and hepatoprotective activity in Wister rats [28].
Papavera somniferum L.	Opium poppy	*Khashkhash*	Warm	Antioxidant properties and antimicrobial activities were shown using ethanol and methanol extracts of the monofloral bee pollen [29]. It has long been used for pain relief and as an analgesic [30].
Viola odorata L.	Violet	*Banafsaj*	Warm	The antioxidant potency of the extract was shown in the in vitro models [31]. Violet syrup could enhance the cough suppression in children with intermittent asthma [32].
Cordia myxa L.	Sebestan plums	*Sepestan*	Warm	It is a great source of trace elements, phenolic and flavonoid compounds [33]. Phenolic compounds could be a natural source of antioxidants [34]. Anti-inflammatory effect was observed in induced colitis in rats [35].
Glycyrrhiza glabra	Licorice	*Sus*	Warm- Cold	Licorice and its natural compounds have demonstrated anti-inflammatory activities [36]. Pharmacological investigation on the active ingredients of licorice flavonoid concluded that they had antioxidant, antibacterial, antitumor and inhibiting HIV activities [37]. Glycyrrhiza glabra was identified as one of the best candidates for modulation of the immune system and inflammation [38].
Althea officinalis L.	hollyhock	*Khatmi*	Warm	A systematic review indicated Althea officinalis L. as one of the most promising herbs for diseases of respiratory tract [38].
Cassia fistula	Purging cassia	*Khiar shanbar (folus)*	Warm	Research findings have confirmed the therapeutics consequence of C. fistula in the health management via modulation of biological activities due to the rich source of antioxidant [39]. Fruit pulp extracts showed antibacterial and antifungal activities In vitro [40].
Cotoneaster numularioides Pojark, Cotoneaster numularia Fisch & May	Pockspray Manna	*Shir khesht*	Warm	Methanol and water extracts exhibited biological activities and appreciable antibacterial properties [41]. As one of the most widely used drugs for the treatment of jaundice in Iran [42].

Hordeum vulgare L.	Barley	*Shaeer (Jo)*	Warm	Bioactive components of some grains including barley, have demonstrated antioxidant and anti-inflammatory activities in cells and animals [43].
Nymphaea alba L.	Water Lily	*Niloofar*	Warm	Ethanolic and methanolic extract of N. alba showed strong antibacterial activity. Antitumor activity was obtained with methanolic extract; Ethanolic extract exhibited strong tumor inhibitions [44].
Cinnamomum camphora (L.) N. et Ebren	Camphor	*Kafur*	Warm	Ethanolic extract of Cinnamomum camphora, exhibited antibacterial activity against S.pyrogenes [45].
Panicum miliaceum	millet	*Jawaras*	Cold	
Matricaria chamomilla L.	Chamomile	*Babunaj*	Cold	Methanolic extract showed significant antibacterial activity against S.aureus. The free radical scavenging activity observed by DPPH assay, indicated antioxidant activity at all levels of concentrations in solvent [46].
Astragalus hamosus L.	Milk Vetch	*Aklil al-malek (nakhonak)*	Cold	Rhamnocitrin 4-β-D-galactopyranoside (RGP), isolated from A. hamosus, was effective protector and antioxidant in isolated rat hepatocytes [47].
Origanum vulgare L. subsp. Viride (Boiss) Hayek	Origany	*Marzanjush*	Cold	Origanum vulgare L. was identified as one of the best candidates for modulation of the immune system and inflammation [38]. O. vulgare extract exhibited the antioxidant capacity, in line with the rosmarinic acid and polyphenolic contents and the antimicrobial testing showed a significant activity against L. monocytogenes, S. aureus and C. albicans [48].
Aquilaria agallocha Roxb.	Aloes wood	*ud*	Cold- Warm	Aloes wood oil significantly reduced the skin thickness, oxidative stress and pro-inflammatory cytokines production in TPA-induced mouse ear inflammation model [49].
Nigella sativa L.	Black cumin (black seed)	*Shuniz (Siah daneh)*	Cold	A high level of natural antioxidants could be derived from NSO extracted by supercritical fluid extraction [50]. N. sativa essential oil microemulsion was highly effective against S. aureus, B. cereus and S. typhimurium [51]. Preventive effect of Nigella sativa was showed on tracheal responsiveness and lung

				inflammation of sulfur mustard exposed guinea pigs [52].
Cistus ladanifer	Laudanum	*Ladan*	Cold	Aqueous extract of C.ladanifer significantly reduced the edeme paw inflammation in rats in addition, the same AE demonstrates significant analgesic effect in thermal-induced pain model [53].
Costus speciosus	Galangal	*Qost*	Cold	Hexane extract showed promising antibacterial and antifungal activity. The isolated compound costunolide showed good antifungal activity [54].
Pimpinella anisum L.	Anise	*Anisun*	Cold	Anise essential oil exhibited antifungal activities against yeasts and dermatophytes [55]. Aqueous decoction of aniseed exhibited antibacterial activity [56].
Sesamum indicum L.	Sesame Seed	*Konjed*	Warm	Sesame showed relevant effects on oxidative stress [57]. Antibacterial assays against food borne pathogens revealed sesamol- the thermally degraded product of sesamolin -to be an antimicrobial agent. Sesamol also exhibited antioxidant and free radical scavenger properties [58].
Coriandrum sativum L.	coriander fruit	*Kozboreh*	Warm	C. sativum L. seed aqueous extract contributes in activating host defense against pathogens by stimulating the innate immunity [59]
Nardostachys jatamansi DC.	Indian valerian	*Sonboletib*	Warm	The study suggested that the herb unequivocally is a potential source of antioxidants and could aid in alleviating oxidative stress-mediated disorders [60].
Callitris quadrivalvis	Sandarac	*Sandarus*	Warm	
Hyssopus officinalis L.	Hyssop	*Zufa*	Cold	Hyssopus officinalis L. played an anti-inflammatory role by inhibiting the invasion of EOS and decreasing the levels of IgE, and affected as immune regulation in a mouse model of chronic asthma [61].
Ficus carica	Fig	*Tin*	Cold	Dried fig prevented oxidative damage in the tissues by inhibiting the production of ethanol-induced free radicals and hepatotoxicity in rats [62].
Alhagi persarum Boiss. & Buhse.	Camel's Thorn Manna	*Taranjabin*	Warm	A broad range of biological activities have been ascribed to different parts of Alhagi. It is also valued as a rich source of digestible protein and important minerals [63].
Anethum graveolens	Dill	*Shebet*	Cold	The essential oil inhibited the growth of selected bacteria [64]. Aqueous extract of Anethum

				graveolens showed antiglycation and antioxidant properties in rats [65].
Artemisia abrotanum	Southernwood	*Qeysum*	Cold	A nasal spray formulation containing an extract characterised by a mixture of essential oils and flavonols from Artemisia abrotanum L., appeared to be clinically suitable for the prophylactic and therapeutic management of patients with allergic rhinitis and adjuvant symptoms [66]. Flavonols with spasmolytic activity isolated from a methanol extract of Artemisia abrotanum L. [67].
Zataria multiflora Boiss.	Saatar	*Sa'tar*	Cold	Z. multiflora hydroalcoholic extract could inhibit the growth of important human pathogens [68].

Discussion

The study shows the importance of Catarrh from the perspective of TPM. Master TPM physicians have tried to explain the etiology and the probable complications with the assistance of experience, comparison and the body-nature functions; this concern expresses their awareness on all the aspects of the disease. They believed that the essential basis of prevention and treatment of many chronic diseases may relate to proper approach to "catarrh". In the state of treatment, they have also paid special attention to the patient's diet previous to drug administration; believing that suitable diet as one of the six essential principles of preventing and treating disease [68,69], is the first step of treatment by producing qualified humors; drug administration is the next following step and helps to adjust the deviant temperament. According to Table 3 most of the herbs used in TPM for treating Catarrh have indicated anti-inflammatory, antioxidant, antibacterial or antifungal effects in recent researches, so more investigations on such herbs may approve their traditional application.

Although the prevalent complaint of Catarrh disappears in the most cases, probable risk of serious and considerable complications leads to apply appropriate methods towards preservation and prompt and proper treatments.

It should be noted that this overview is the beginning for researchers who are interested in evaluating such complaints with a new outlook, and opens a new path through more comprehensive researches.

In addition, the theory of "remaining the waste -material derived from incomplete metabolism- in the body (due to any reason such as poor diagnosis, mismanage of the illness or disability of the body-nature to overcome the disease), would lead to serious and significant diseases in different organs" should be considered for more investigations.

Conflict of Interest

None.

Acknowledgment

None.

References

[1] Cathcart R, Wilson J. Should chronic catarrh patients seen in primary care be referred for further investigations? Int J Clin Pract 2011;65:985-988.

[2] Choopani R, Kaveh S, Sadr S, Dehghan S, Kaveh N, Mosaddegh M. Relationship Between Cerebrospinal Fluid and Catarrh According to Avicenna. Arch Pediatr Infect Dis 2016 ;4:e36431.

[3] Sylvester DC, Karkos PD, Vaughan C, Johnston J, Dwivedi RC, Atkinson H, et al. Chronic cough, reflux, postnasal drip syndrome, and the otolaryngologist. Int J Otolaryngol 2012;3:50-54.

[4] Razi M. Al-Mansoori fi Teb. Al-Monazama Al-Arabia Al-Tarbia va Al-Seghafa va Al-Olum. Kuwait 1987.

[5] Ibn Sina H. Al-Qanun fi Al-Teb. Sorush. Tehran 1989.

[6] Chashti MA. Exir-e Azam. Research Institute for Islamic & Complementary Medicine. Tehran 2008.

[7] Majoosi Ahwazi A. Kamel Al-Sanaat Al-Tebbieh. Jalal al-din. Qom 2008.

[8] Aghili khorasani MH. Kholase-Al-Hekmah. Ismaeilian. Qom 2006.

[9] Aghili khorasani MH. Moalejat-e Aghili. Iran University of medical sciences. Tehran 2008.

[10] Kermani IN. Sharh Al-Asbab va Al-Alamat. Institute of natural medicine's revival. Tehran 2009.

[11] Arzani MA. Teb-e Akbari. Jalal al-din. Qom 2008.

[12] Jorjani SI. Zakhireye Kharazmshahi. The academy of medical sciences publication. Tehran 2009.

[13] Heravi M. Bahr Al-Javaher. Jalal al-din. Qom 2008.

[14] Ghamari bokhari H. Al-Tanvir. Iran University of medical sciences. Tehran 2008.

[15] AbdolHamid, KabirAl-din, Zohoori A, Abdol Aziz M, Al-rahman F. Ghamoos Al-Qanon. 1st ed. Iran University of medical sciences. Tehran.

[16] Damkier HH, Brown PD, Praetorius J. Cerebrospinal fluid secretion by the choroid plexus. Phys rev 2013;93:1847-1892.

[17] Orešković D, Klarica M. The formation of cerebrospinal fluid: nearly a hundred years of interpretations and misinterpretations. Brain Res Rev 2010;64:241-262.

[18] Iliff JJ, Wang M, Liao Y, Plogg BA, Peng W, Gundersen GA. A paravascular pathway facilitates CSF flow through the brain parenchyma and the clearance of interstitial solutes, including amyloid β. Sci Transl Med 2012;4:111-147.

[19] Yoffey J. Passage of fluid and other substances through the nasal mucosa. J Laryngol Otol 1958;72:377-384.

[20] Jorjani SI. Al-Aghraz Al-Tebieh va Al-Mabahes Al-Alaeieh. Tehran University publication. Tehran 2006.

[21] Chaqmini Kharazmi M. Qanunche fi Al-Teb. Almaei. Tehran 2012.

[22] Choopani R, Emtiazi M, Tansaz M, Khodadoot M. Asbab va alaem (Alamat shenesi va tashkhis-e bima*rih*a dar teb-e sonnati-e Iran). Faraz andish sabz. Tehran 2009.

[23] Nahas R, Balla A. Complementary and alternative medicine for prevention and treatment of the common cold. Can Fam Physician 2011;57:31-36.

[24] Gharashi I. Al-Mujez fi Teb. Dar Al-Mahaja Al-Bayza. Beirut 2002.

[25] Razi B. Kholase Al-Tajarob. Tehran University publication. Tehran 2003.

[26] Arzani MA. Mizan Al-Teb. Noor-e Vahy. Qom 2010.

[27] Razi M. Borˆ Al-Saat. Safir-e Ardehal. Tehran 2011.

[28] Yusufoglu HS, Alam A, Zaghloul AM, Al-salkini MA, Alam P. Comparative anti-inflammatory and hepatoprotective activities of astragalus gummifer labill herb and roots in rats. Afr J Tradit Complement Altern Med 2014;11:268-274.

[29] Fatrcová-Šramková K, Nôžková J, Kačániová M, Máriássyová M, Rovná K, Stričík M. Antioxidant and antimicrobial properties of monofloral bee pollen. J Environ Sci Health B 2013;48:133-138.

[30] Heydari M, Hashem Hashempur M, Zargaran A. Medicinal aspects of opium as described in Avicenna's Canon of Medicine. Acta Med Hist Adriat 2013;11:101-112.

[31] Ebrahimzadeh MA, Nabavi SM, Nabavi SF, Bahramian F, Bekhradnia AR. Antioxidant and free radical scavenging activity of H. officinalis L. var. angustifolius, V. odorata, B. hyrcana and C. speciosum. Pak J Pharm Sci 2010;23:29-34.

[32] Qasemzadeh MJ, Sharifi H, Hamedanian M, Gharehbeglou M, Heydari M, Sardari M. The effect of Viola odorata flower syrup on the cough of children with asthma: a double-blind, randomized controlled trial. J Evid Based Complementary Altern Med 2015;20:287-291.

[33] Saki J, Khademvatan S, Pazyar N, Eskandari A, Tamoradi A, Nazari P. In vitro activity of Cordia myxa Mucilage extract against Leishmania major and L. infantum promastigotes. Jundishapur J Microbiol 2015;8:46-48.

[34] Aberoumand A. Natural compounds with Antioxidant

properties in selected plant foods. Int J Agric Food Sci 2011;1:27-29.

[35] Al-Awadi FM, Srikumar T, Anim J, Khan I. Antiinflammatory effects of Cordia myxa fruit on experimentally induced colitis in rats. Nutrition 2001;17:391-396.

[36] Yang R, Yuan B-C, Ma Y-S, Zhou S, Liu Y. The anti-inflammatory activity of licorice, a widely used Chinese herb. Pharm Biol 2017;55:5-18.

[37] Xing G-X, Li N, Wang T, Yao M-Y. Advances in studies on flavonoids of licorice. Zhongguo Zhong Yao Za Zhi 2003;28:593-597.

[38] Ayrle H, Mevissen M, Kaske M, Nathues H, Gruetzner N, Melzig M. Medicinal plants–prophylactic and therapeutic options for gastrointestinal and respiratory diseases in calves and piglets? A systematic review. BMC Vet Res 2016;12:89-94.

[39] Rahmani AH. Cassia fistula Linn: Potential candidate in the health management. Pharmacognosy Res 2015;7:217.

[40] Bhalodia NR, Nariya PB, Acharya RN, Shukla VJ. In vitro antibacterial and antifungal activities of Cassia fistula Linn. fruit pulp extracts Ayu 2012;33:123-129.

[41] Zengin G, Uysal A, Gunes E, Aktumsek A. Survey of phytochemical composition and biological effects of three extracts from a wild plant (Cotoneaster nummularia Fisch. et Mey.): a potential source for functional food ingredients and drug formulations. PLoS One 2014;9:e113527.

[42] Amiri MS, Joharchi MR, TaghavizadehYazdi ME. Ethno-medicinal plants used to cure jaundice by traditional healers of Mashhad, Iran. Iran J Pharm Res 2014;13:157.

[43] Lee Y-M, Han S-I, Song BC, Yeum K-J. Bioactives in commonly consumed cereal grains: implications for oxidative stress and inflammation. J Med Food 2015;18:1179-1186.

[44] Yildirim AB, Karakas FP, Turker AU. In vitro antibacterial and antitumor activities of some medicinal plant extracts, growing in Turkey. Asian Pac J Trop Med 2013;6:616-624.

[45] Marasini BP, Baral P, Aryal P, Ghimire KR, Neupane S, Dahal N. Evaluation of antibacterial activity of some traditionally used medicinal plants against human pathogenic bacteria. Biomed Res Int 2015;4:13-15.

[46] Munir N, Iqbal AS, Altaf I, Bashir R, Sharif N, Saleem F. Evaluation of antioxidant and antimicrobial potential of two endangered plant species atropa belladonna and matricaria chamomilla. Afr J Tradit Complement Altern Med 2014;11:111-117.

[47] Kondeva-Burdina M, Krasteva I, Mitcheva M. Effects of rhamnocitrin 4-β-D-galactopyranoside, isolated from Astragalus hamosus on toxicity models in vitro. Pharmacogn Mag 2014;10(Suppl 3):S487.

[48] Benedec D, Hanganu D, Oniga I, Tiperciuc B, Olah N-K, Raita O. Assessment of rosmarinic acid content in six Lamiaceae species extracts and their antioxidant and antimicrobial potential. Pak J Pharm Sci 2015;28:2297-2303.

[49] Yadav D, Mudgal V, Agrawal J, Maurya A, Bawankule D, Chanotiya C. Molecular docking and ADME studies of natural compounds of Agarwood oil for topical anti-inflammatory activity. Curr Comput Aided Drug Des 2013;9:360-370.

[50] Mohammed NK, Abd Manap MY, Tan CP, Muhialdin BJ, Alhelli AM, Meor Hussin AS. The Effects of Different Extraction Methods on Antioxidant Properties, Chemical Composition, and Thermal Behavior of Black Seed (Nigella sativa L.) Oil. Evid Based Complement Alternat Med 2016;5:31-33.

[51] Shaaban HA, Sadek Z, Edris AE, Saad-Hussein A. Analysis and antibacterial activity of Nigella sativa essential oil formulated in microemulsion system. J Oleo Sci 2015;64:223-232.

[52] Boskabady MH, Vahedi N, Amery S, Khakzad MR. The effect of Nigella sativa alone, and in combination with dexamethasone, on tracheal muscle responsiveness and lung inflammation in sulfur mustard exposed guinea pigs. J Ethnopharmacol 2011;13:1028-1034.

[53] El Youbi AEH, El Mansouri L, Boukhira S, Daoudi A, Bousta D. In Vivo Anti-Inflammatory and Analgesic Effects of Aqueous Extract of Cistus ladanifer L. From Morocco. Am J Ther 2016;23:e1554-e1559.

[54] Duraipandiyan V, Al-Harbi NA, Ignacimuthu S, Muthukumar C. Antimicrobial activity of sesquiterpene lactones isolated from traditional medicinal plant, Costus speciosus (Koen ex. Retz.) Sm. BMC Complement Altern Med 2012;12:13-14.

[55] Kosalec I, Pepeljnjak S, Kustrak D. Antifungal activity of fluid extract and essential oil from anise fruits (Pimpinella anisum L., Apiaceae). Acta Pharm 2005;55:377-379.

[56] Chaudhry N, Tariq P. Bactericidal activity of black pepper, bay leaf, aniseed and coriander against oral isolates. Pak J Pharm Sci 2006;19:214-218.

[57] Vittori Gouveia LA, Cardoso CA, de Oliveira GMM, Rosa G, Moreira ASB. Effects of the Intake of sesame seeds (Sesamum indicum L.) and derivatives on oxidative stress: A systematic review. J Med Food 2016;19:337-345.

[58] Kumar CM, Singh SA. Bioactive lignans from sesame

(Sesamum indicum L.): evaluation of their antioxidant and antibacterial effects for food applications. J Food Sci Technol 2015;52:2934-2941.

[59] Ishida M, Nishi K, Kunihiro N, Onda H, Nishimoto S, Sugahara T. Immunostimulatory effect of aqueous extract of Coriandrum sativum L. seed on macrophages. J Sci Food Agric 2017.

[60] Razack S, Kumar KH, Nallamuthu I, Naika M, Khanum F. Antioxidant, Biomolecule Oxidation Protective Activities of Nardostachys jatamansi DC and Its Phytochemical Analysis by RP-HPLC and GC-MS. Antioxidants 2015;4:185-203.

[61] Ma X, Ma X, Ma Z, Wang J, Sun Z, Yu W. Effect of Hyssopus officinalis L. on inhibiting airway inflammation and immune regulation in a chronic asthmatic mouse model. Exp Ther Med 2014;8:1371-1374.

[62] Turan A, Celik I. Antioxidant and hepatoprotective properties of dried fig against oxidative stress and hepatotoxicity in rats. Int J Biol Macromol 2016;91:554-559.

[63] Muhammad G, Hussain MA, Anwar F, Ashraf M, Gilani AH. Alhagi: a plant genus rich in bioactives for pharmaceuticals. Phytother Res 2015;29:1-13.

[64] Snuossi M, Trabelsi N, Ben Taleb S, Dehmeni A, Flamini G, De Feo V. Laurus nobilis, Zingiber officinale and Anethum graveolens Essential Oils: Composition, Antioxidant and Antibacterial Activities against Bacteria Isolated from Fish and Shellfish. Molecules 2016;21:1414-1416.

[65] Oshaghi EA, Khodadadi I, Tavilani H, Goodarzi MT. Aqueous extract of Anethum Graveolens L. has potential antioxidant and antiglycation effects. Iran J Med Sci 2016;41:328.

[66] Remberg P, Björk L, Hedner T, Sterner O. Characteristics, clinical effect profile and tolerability of a nasal spray preparation of Artemisia abrotanum L. for allergic rhinitis. Phytomedicine 2004;11:36-42.

[67] Bergendorff O, Sterner O. Spasmolytic flavonols from Artemisia abrotanum. Planta Med 1995;61:370-371.

[68] Saeidi S, Hassanpour K, Ghamgosha M, Heiat M, Taheri RA, Mirhosseini A. Antibacterial activity of ethyl acetate and aqueous extracts of Mentha longifolia L. and hydroalcoholic extract of Zataria multiflora Boiss. plants against important human pathogens. Asian Pac J Trop Med 2014;7:S186-S189.

TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 3, Issue 2, Spring 2018

Review

Etiology and Symptoms of Epilepsy from the Perspective of Traditional Persian Medicine Scientists

Haleh Tajadini[1,2], Elham Akhtari[3,4*], Rostam Seifadini[5], Mahdiyeh Khazanehha[6]

[1]Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
[2]Department of Persian Medicine, School of Persian Medicine, Kerman University of Medical Sciences, Kerman, Iran
[3]Research Institute for Islamic & Complementary Medicine, Iran University of Medical Sciences, Tehran, Iran
[4]Department of Traditional Medicine, School of Traditional Medicine, Iran University of Medical Sciences, Tehran, Iran
[5]Neurology Research Center, Kerman University of Medical Sciences, Kerman, Iran
[6]Department of Knowledge and Information Science, Shahid Chamran University of Ahvaz, Ahvaz, Iran

Received: 12 Feb 2018 **Revised:** 7 Apr 2018 **Accepted:** 15 Apr 2018

Abstract

Epilepsy is a relatively common neurological disease classified as a chronic disease in modern medicine. Different treatments have been suggested for this disease, but they have failed in complete treatment of some types of epilepsy. Since Traditional Persian Medicine is one of the medical schools with special perspectives on epilepsy, we aimed to review the etiology and symptoms of epilepsy from the perspective of Dr. Ahmadieh, the contemporary physician, and some well-known traditional medicine practitioners [hakims] in order to obtain a new pattern in recognition and classification of epilepsy. Valid texts of traditional medicine in different historical periods including: The Canon of Medicine (Avicenna, 980-1037AD), Sharhe Asbab va Alamat (Nafis ibn Avaz Kermani), Zakhireye Kharazmshahi (Jorjani), Exire Aazam (Nazem Jahan), Moalejate Aghili (Aghili Alavai Khorasani Shirazi), Kholasat al-Hekma (Aghili Alavai Khorasani Shirazi), Tebe Akbari (Shah Arzani Dehlavi) and Mizan Al-Teb (Hakim Arzani) with focus on opinions of Dr. Ahmadieh (Abdollah Ahmadieh), were investigated. Relevant issues to epilepsy and its etiology and symptoms were reviewed and the common points and differences of various perspectives were gathered. According to traditional practitioners, epilepsy is a partial obstruction occurred in brain paths and ventricles preventing organs to perform their natural function. Familiarity with perspectives of traditional medicine from etiology and symptoms of epilepsy would help to suggest a new and practical classification of the disease. Thus, it seems that attention to these perspectives could provide a new approach for prevention, diagnosis and treatment of epilepsy.

Keywords: Traditional Persian Medicine, Epilepsy, Preventive Medicine

Citation: Tajadini H, Akhtari E, Seifadini R, Khazanehha M. **Etiology and Symptoms of Epilepsy from the Perspective of Traditional Persian Medicine Scientists.** Trad Integr Med 2018; 3(2): 84-90.

*Corresponding Author: Elham Akhtari
Department of Traditional Medicine, School of Traditional Medicine, Iran University of Medical Sciences, Tehran, Iran
Tel: 09123204006
Email: eli.akhtari@gmail.com

Introduction

Epilepsy is a relatively common neurological disease [1] and following stroke is one of the most common neurodegenerative diseases. This disease has affected more than 50 million persons around the world [2]. The mortality rate in children with epilepsy is 2-3 times more than that in unaffected population [3]. In this disease, abnormal electric discharge in a group of brain neurons causes repeated seizures [4]. In spite of great progress in medicine, the negative meaning associated with the word "epilepsy" affects the patient more than the disease, itself, or the adverse effects of the antiepileptic drugs [5]. Since these kind of diseases are chronic, long-term consumption of chemical medicines, especially conventional drugs, is associated with significant side effects. Moreover, approximately 20-30% of patients with epilepsy are resistant against medical treatment [6-8].

Considering the global attention to complementary medicine, care in applying diagnostic and therapeutic methods in complementary medicine including Traditional Persian Medicine is a necessity [9].

In Traditional Persian Medicine, diseases are investigated based on four humors [10,11] and since treatment is based on removing the cause of disease, major causes of disease are paid special attention [12]. The aim of the present study was to investigate the etiology and symptoms of epilepsy based on the perspectives of ancient physicians with a focus on perspectives of Dr. Abdollah Ahmadieh, an Iranian contemporary scientist who was familiar with old texts and was continuously busy with adopting old and modern medicines.

It seems that understanding and attention to strategies and opinions mentioned in Traditional Persian Medicine can solve treatment problems and led to the development of new fields of research related to the diagnosis and treatment of epilepsy.

Methods

We reviewed several sources of Iranian Traditional Medicine from different centuries including The Canon of Medicine (Avicenna, 980-1037AD), Sharhe Asbab va Alamat (Nafis ibn Avaz Kermani), Zakhireye Kharazmshahi (Jorjani), Exire Aazam (Nazem Jahan), Moalejate Aghili (Aghili Alavai Khorasani Shirazi), Kholasat al-Hekma (Aghili Alavai Khorasani Shirazi), Tebe Akbari (Shah Arzani Dehlavi) and Mizan Al-Teb (Hakim Arzani) with focus on opinions of Dr. Ahmadieh (Abdollah Ahmadieh) spread in his book named "The secret of Treatment". The reason of emphasizing on Dr. Ahmadieh opinions was his familiarity with both old and modern medicine.

All related issues to epilepsy in the mentioned books were recorded and analyzed in terms of etiology and symptoms. It should be mentioned that in Persian medicine texts, epilepsy is discussed under the topic of "head disorders".

Results

Definition of epilepsy

The word "epilepsy" means "to fall" [13-15]. According to physicians' expression, it is a partial obstruction in brain paths and ventricles that

prevents organs of nervous system to do their normal functions [16].

Etiology

According to the traditional medicine sages, partial obstruction [stenosis] in brain ventricles and neurotic pathways is the major cause of epilepsy. Although, epilepsy is related to the anterior section of brain, due to proximity with other parts, they are affected too [17-20].

There are three known causes of seizure in Traditional Persian Medicine

1- humors overload of the brain

2- Dryness

3- Constriction [13]

Jorjani in "Zakhireye Kharazmshahi" and Dr. Ahmadieh in the "Secrets of treatment" have said that brain suffers from vapor and undesirable substances, so that it constricts and irregular movements in the form of seizure occur; just like stomach when it constricts to remove the undigested spoiled food and as a result hiccup and nausea occurs. For this reason, brain epilepsy has been linked to hiccup. It should be mentioned that sneezing is small epilepsy and epilepsy is a great sneezing with the difference that sneezing causes head lightness and happens through nasal cavity and face muscles and, due to its strong power, the delicate and little substance is discharged immediately. But, in epilepsy, due to the large amount of substance and weak power, several organs are involved [17, 19].

The above mentioned causes, except dryness, can be considered as epilepsy causes, because epilepsy attacks happen suddenly while seizure resulted from constipation happens gradually and if dryness is as severe as causing seizure, death occurs prior to it [14, 19].

Individuals who are susceptible to epilepsy

- Children and those with overeating and dyspepsia
- Residents of regions with too south winds

Clinical symptoms of epilepsy

Common clinical symptoms in all types of epilepsy are as follows:

1- Tongue discoloration to yellow on superior part and green on posterior part

2- Coolness and heaviness in anger and sadness

3- Head heavy during attacks

4- Too much nightmares

5- Forgetfulness

6- Illogical fear of everything and every noise

7- Impatience and restlessness

8- Negative thoughts like melancholy

9- Taking small jobs too heavy and becoming furious without reason [12,17,19]

Types of epilepsy and clinical symptoms

Epilepsy has been classified in traditional medicine into three categories:

1- Originated from brain itself

2- Originated from other organs and then affected the brain

3- Epilepsy due to insect sting or brain potency [13,14]

According to Jorjani [*Zakhireye Kharazmshahi*], epilepsy, in whole, is related to brain, even though it is originated from another organ and suffering substance comes from another organ to the

brain. Moreover, epilepsy is related to the anterior segment of brain, but due to the proximity, other parts are affected too [19].

1- Epilepsy that originated from brain itself [13,14,20,21]: In this type, the patient feels like head heaviness and his sense is milder and weaker than the past. The patient suffers from dizziness and the symptoms exist even with empty stomach. This type of epilepsy has five causes:

1.1. The obtrusive annoying substance is phlegm [*balgham*]. It is the most common cause of epilepsy and its symptoms are poor sense, head heaviness, too much saliva, feebleness, pale color, cold *Mizaj* [temperament], slow motions and the exit of too much foaming at the mouth"

1.2. The annoying substance is black bile [soda]. The symptoms are the same as heart spasm and asphyxia. The patient mouth becomes sour and if he/she throws his saliva on sand, it bubbles due to saliva acidity. Negative thoughts, severe compulsion, slimness and increased appetite [13].

1.3. The annoying substance is yellow bile [*safra*]. In itself, it is rarely the major cause of epilepsy, because bile [*safra*] is delicate and thin, while brain spaces are large; so that, it should be in great amount or mixed with blood [*dam*], phlegm [*balgham*] or Soda (black bile). Its symptoms are thinking disorder, yellow eye and vomit. It should be mentioned that convulsion is not clear in this type, due to the tenuity of bile [*safra*]

1.4. The annoying substance is blood [*dam*]. Therefore, it is rare and it is in combination with phlegm [*balgham*] or black bile [soda] in the majority of time. Symptoms are blood overload in the head and as a result, temporal veins are full and also the patient has a red face. These symptoms are significantly seen during seizure attack and sometimes are accompanied with nose bleeding. Sometimes, the patient complains from different pains in head or empty stomach prior to the attack [13,14,21].

1.5. The substance is combination of all humors and symptoms are a collection of the mentioned symptoms [20].

2- Epilepsy that originated from other organs: It occurs with participation of all body organs or a single organ like stomach, liver, spleen, intestine, uterine, *vesiculae seminalis*, hand and foot. Based on the involved organ, types of epilepsy emerges as follows:

2.1. *Gastric epilepsy* [13,17,20,21]

Its origin is stomach. Whenever the stomach is filled with negative humors of, bad vapor is produced and since the brain is sensitive, as a result, it constricts and convulsion occurs. It is important to mention that if the substance is healthy or the brain sense is not strong, convulsion will not happen. Thick unhealthy substance in great amount causes thick and unhealthy vapors in stomach leading to obstruction in brain and brain paths [13,21].

Symptoms: Lightness feeling after vomiting,

gastric bloating, belching and gurgling are signs of gastric problems.

The symptoms of the presence of *soda* humor in stomach are severe appetite, compulsory thoughts and sour belching. *Safra* humor is associated with heartburn and thirst.

When gastric epilepsy is due to excess of humors, it occurs following dyspepsia and in this case, a severe pain between the two shoulders is felt that is not relieved until food digestion. Gastric pain after food digestion is related to dry temperament [*Mizaj*].

Gastric pain with empty stomach shows that epilepsy is due to smutchy humor but not great amount of humor, because spoiled humor empties the stomach and causes gastric pain and in this case by eating good food, epilepsy is relieved [19].

2.2. *Hypochondrial epilepsy* [13,21]

The cause is the presence of problem in a part of peritoneum and its symptoms are sour belching, abdomen distension, peritoneal irritation and vomiting undigested food [13,21].

2.3. *Spleen epilepsy* [13,14,21]

It occurs due to the accumulation of thick humor in the spleen and reaching to the brain. Spleen bloating, hardness and pain are the symptoms [13,14,21].

2.4. *Hysteric epilepsy* [13,21]

Its cause is accumulation of semen or menstrual blood leading to their transformation to annoying substances and vapors moving toward the brain. Intercourse quit and amenorrhea associated with pain and heavy feeling in thigh, genital organ, kidney region and back are the symptoms [13,17,21].

2.5. *Liver epilepsy* [13,14]

It is originated from the liver and its symptoms depend on the liver state. In the case of hot liver, the patient has hot symptoms and cold liver causes cold symptoms. These symptoms have been completely presented in traditional medicine texts under liver discussion [13,14].

2.6. *Intestinal epilepsy* [13,14]

In most of the cases it is due to the presence of worms in the intestine causing thick infected smutchy vapors moving toward the brain [13,14].

2.7. *Limbic epilepsy* [13,14,19].

Jorjani in "Zakhireye Kharazmshahi" has addressed this type of epilepsy as vapor epilepsy. It is originated from hand, foot or leg and gas moves toward the brain and seizure occurs. The reason of gas production in these organs is sticking of substance in the vessels of these organs. As a result, pneuma zoticon cannot reach that place and consequently the substance and blood that are in these vessels are cooled and the gas is produced. This coldness reaches to the brain and causes thickening of dampness in brain ventricles. Following this, passages of vital spirit are narrowed and seizure occurs. Symptom is feeling of the movement of cold gas from that site to the brain [like ant movement] associated with symptoms such as eyes dilation and watering, darkened skin, fingers and toes

bending and stretch feeling in hands and feet during the attack. At the same time, symptoms such as yawn, oral valley and urination are also probable [13-15,19].

3. *Epilepsy caused due to insects bite and brain potency*

3.1. *Sting epilepsy* [13,14,15]

Following insects' bites, poison moves from the skin toward the nerve and the poison reaches the brain and causes seizure [13,14,15].

3.2. *Brain potency* [13,14,15].

In this type, potent brain sense is the cause of seizure. In other words, the person immediately feels bad qualities which is bothering and results in seizure.

Miscellaneous types of seizure

Ablimia epilepsy [13,21]

In this type, the patient has no sensation and no movement and also it is the most fatal type of epilepsy. The cause is complete filling of all brain ventricles with thick humors causing a condition similar to stroke. Its substance is soda [*Black bile*] or *balgham* [*Phlegm*] humor and its symptom is convulsion in all body organs which differs from the other mentioned types [13,21].

Infantile epilepsy [13,14,21]

The cause of disease is brain moisture.

This type of epilepsy occurs in children following fever and hotness and for this, it has been classified under *safra (yellow bil)* epilepsy [13, 14, 21].

Conclusion

Approximately 20-30% of patients with epilepsy are resistant against medical drug [6-8]. Considering public attention to Traditional medicine, diagnostic and therapeutic methods would be applied in complementary medicine. Therefore, Traditional Persian Medicine is taken into consideration. However, it seems that modern medicine deny to believe in different humors and treats all patients with the same method. Therefore, in spite of its wide progress, it could not outreach traditional medicine in some aspects. In traditional medicine, there are different treatments based on different humors and so, therapeutic methods should be patient specific [17]. Furthermore, recognizing etiology and symptoms of diseases like epilepsy from traditional medicine perspective helps us to suggest a new practical classification for epilepsy and consequently it opens a new door to prevention and treatment of this disease.

Conflict of Interest

None.

Acknowledgment

None.

References

[1] Bradly WG, Daroff RB. Neurology inclinical practice. 5th ed. B&H Elsevier. Uk 2008.

[2] Katzung BG. Basic & clinical pharmacology. 8th ed. East Norwalk: Appleton & Lange 2001.

[3] Adams RD, Victor M, Ropper AH. Principles of neurology. 6th ed. McGraw-Hill. New York 1997.

[4] Pugh MJ, Berlowitz DR, Rao JK, Shapiro G, Avetisyan R, Hanchate A. The quality of care for adults with epilepsy: an

initial glimpse using the QUIET measure.BMC Health Serv Res 2011;11:1-2.
[5] Bekiroglu N, Ozkan R, Gurses C, Arpaci B, Dervent A. A study on awareness and attitude of teacherson epilepsy in Istanbul. Seizure. 2004;13:517-522
[6] Mostafavi J, Pakdamn A. Comparison of ancient medicine with modern medicine. Tehran University of Medical Sciences. Tehran 1980.
[7] Radhakrishnank. Challenges in the management of epilepsy in Resource-poor countries. Nat Rev Neural 2009;5:323-330.
[8] French JA. Refractoryepilepsy: clinical overview. Epilepsy 2007;48:3-7.
[9] WHO traditional medicine strategy 2002-2005.Geneva, 2002;1-3:43-47.
[10] Naseri M, Rezaei H, Chopani R. Anoushirvani M, Morouri bar kolieyat teb sonati. Nashr Shahr. Tehran 2009.
[11] Seifaddini R, Tajadini H, Choopani R. Physiopathology of dementia from the perspective of traditional persian medicine. Evid-Based Complementary Altern Med 2015;20:224-227.
[12] Ibn al-nafis. Al-mojz fel Al-teb. 2001.
[13] Arzani MA. Teb akbari. Institue of Medical History Studies, Islamic and Complementary Medicine. Tehran 2008.
[14] Aghili Khorasani Shirazi MH. moaalejet Aghili. Institute of Medical History Studies, Islamic and Complementary Medicine. Tehran 2008.
[15] Avicenna . al-Qanun fi Alteb. 3rd ed. Institue Alamy Lelmtboat. Beirut 2006.
[16] Aghili Khorasani M. Kholaseh al-hekmah. Qom 2006.
[17] Ahmadiyh A. Raz darman. Iqbal. Tehran 2008.
[18] Jurjani I. Al-aghraz al-tabieyh va al-mobahesat al-allaieyh. Tehran University. Tehran 2006
[19] Jurjani I. Zakhireh Kharazmshahi. Niyakan. Tehran 1977.
[20] Azam Khan M. Exir Azam. Tehran University of Medical Sciences. Tehran 2008.
[21] Kermani N. Sharh al-asbab va Al-alamat. Institue of natural Ahya'teb. Qom 2008.

Selected Unique Concepts in Persian Medicine

Avicenna

www.jtim.tums.ac.ir

Selected conceptual articles from the open access peer-reviewed journal of Traditional & Integrative Medicine

Ministry of Health
The Office of Persian Medicine

WWW.jtim.tums.ac.ir