

# Conceptual Comparison of Infectious Diseases of TIBBE-AKBARI and Modern Medicine: Akhlat and Mezaj Theory

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## Abstract

**Background:** Treating infectious diseases (ID) is the priority of health systems. Traditional Persian medicine (TPM) has diagnostic and preventive comments in most diseases. Readout TPM gives opportunity to know the viewpoints of ancient Iranian scholars for using these opinions in treating ID. In this regard returning to TPM options and modalities can be useful at least as complementary method in treating ID. For understanding the concepts of ID in TPM first of all it is needed to trace ID in TPM and translate them into western medicine language which is the goal of this report. **Methodology:** This research includes 80 ID mentioned in *TIBBE-AKBARI* (one of Persian Medicine textbook) for rewriting and comparing with conventional medicine findings. **Findings:** The majority of clinical signs, symptoms and physical examinations of ID are comparable with modern medicine except the viewpoint of TPM about aetiology which is based on *Akhlat and Mezaj* theory. By considering no option for antibiotic therapy in ancients time so there is a completely different opinion in treating ID with modern medicine. **Conclusion:** IDs have different names in TPM and conventional medicine. In contrast to modern medicine in which micro-organism are as etiologic agents, *Akhlat and Mezaj* theory of TPM has main role for description of ID, the subject which must to be decoded. Although they have completely different opinions in treatment, but with regard to the increasing of antibiotic resistance issue, TPM treatment comments may be useful in future in ID as complementary method beside antibiotics.

## Keywords

Akhlat/Mezaj Theory, Antibiotic, Infectious Diseases, Herbal Medicine,

## 1. Introduction

*Hakim Mohammad Akbar Arzani* (d. 1722) is one of the famous physicians of Traditional Persian Medicine (TPM) who migrated from Shiraz, Iran to India at the time of *ORANGZIB* a Mongolian empire government in India [1] [2] [3]. He attempted to write medical books like *TIBBE-AKBARI* in Persian (FARSI Language) to facilitate learning of medicine for Persian students [4]. *TIBBE-AKBARI* is a translation and description of the major book “*Sharh-ol-Asbabval Alama*” (Description of Signs and Symptoms) which was written 200 years before by *Nafis-ebne-Evaze-Kermani* (15<sup>th</sup> century) [5] in Arabic language and was a referral medical book all around India and Pakistan for more than 150 years [1]. In addition to the translation of this book, Hakim Arzani deleted and added some topics to the main book [6]. *TIBBE-AKBARI* has 27 chapters which started from head diseases and continues to cover lower parts of body. The last chapters are about limbs and cutaneous diseases and finished with chapter of miscellaneous diseases. Infectious Diseases (ID) have not been described in a unique chapter and distributed in various chapters. The tracing, description and treatment options of ID are the main goal of this study which may be useful for modern medicine that due to increasing in antibiotic resistance these finding may be helpful to find different approaches to deal with Infections Diseases (ID) in future. To reach this goal, the first step is to translate ID into the conventional medical language by this report.

## 2. Methodology

*TIBBE-AKBARI* doesn't have a specific chapter for ID and these diseases are distributed in other specific chapters so that recognition of ID needs study of whole book. In this regard 80 common ID were selected for investigation. The whole process was supervised by an infectious diseases specialist.

At the first step the clinical signs and symptoms for each selected disease were extracted from *TIBBE-AKBARI* and compared against the explained symptoms of known diseases in modern medicine. Then the extracted signs and symptoms were matched with Signs and symptoms of one or more already described diseases at Harrison's 2015 text book. At the end there is a discussion and comparison study in regard to aetiology between the described diseases at both references. The final effort of this report is to get easy comparison viewpoints between findings of ID in TPM and modern knowledge.

## 3. Findings

One of the most common theories for description of ID in TPM is *Akhlat/Mezaj theory*. First of all this theory must be decoded by which a comprehension of ID can be understood.

### **Humours (*Akhlat*) as foundation of Temperament (*Mezaj*)**

Humours (*Akhlat*) is made of foods and whatever entered into the body via inhalation or by penetration into skin. Humours will be an issue that are the base of healthy life. There are four symbolic quadruple humours in human body which have a constant movement in a circulating manner; *Blood* or *Dam* (thin liquid or water) in the blood vessel, *Phlegm* (thick liquid or water) in Lymphatic pathway and connective tissue. *Yellow bile* or *Choleric humour* as *Rouh/QI/ Energy* is circulating in the Primo Vascular System (PVS) [7]. *Black bile* or *Melancholic humour* as substance or material issue can be similar to circulating normal cells and abnormal cells (cancerous cells and or abnormal micro or macro molecules, for example low molecular weight protein) [8] or Waldenström macroglobulinemia [9]. These quadruple Humours have qualities by which can make the nature of native Temperament (*Mezaj*) in normal and healthy condition but in abnormal condition can transform this nature of native Temperament (*Mezaj*)/*Zheng* [10] to Dystemperament (*So-e-Mezaj*). The *Mezaj* (Temperament)/*Zheng* has been described in our previous report [10].

Any of these Humours have a stable amount in human body (in healthy state), so that in the case of increasing or decreasing in quantity and quality features of Humours, *Dystemperament* or disease will be presented.

In other words there will be a physiologic Humour which is base of normal Temperament/*Mezaj* (and necessary for optimal level of living and normal function) and the second one as pathologic Humour (pathogen, toxin...) which is harmful for living and lead to dysfunction. Any way both of them (in one side are food and drinking for normal Humours/Temperament and in other side are pathogens, bacteria and so on for pathologic Humours/Dystemperament) will enter into the body via eating, drinking or through skin and inhalation.

The inherited genes and chromosomes will determine the native Temperament or *Zheng/Mezaj* [10] of human but after birth, mentioned quadruple Humours will maintain the healthy state of Temperament human body or disease state or dystemperament (*SoeMezaj* or Bad *Mezaj*).

#### **What is the meaningful of humour in western Medicine?**

##### **Decoding of quadruple Humours in TPM**

1-Yellow bile or choleric humour;

Normally, it has the qualities of Heat and Dry, similar to fire, invisible state, penetrating into every hole of body and transmitting the heat and dryness into penetrated place.

Pathologically, in the western medical viewpoint acute bacterial and or viral infection can have features of choleric humour. Its colour is yellow, orange and or red such as colour of face in acute infection.

2-Blood or Dam humour;

Normally it has the qualities of Heat and Wetness, similar to air, by which lead to increasing the heat and wetness of penetrated place so that swelling such as inflammation can be resulted from a blood humour. Its colour is red.

Pathologically in the western medical viewpoint, the connective tissue disorders

with various inflammations can be classified in relation to the disorder of this humour in TPM. In addition any ID which is accompanied by swelling and redness (Bacterial skin infection) can result from a type of Blood Humour.

### 3-Phlegmatic humour

Normally it has qualities of Cold and Wetness, similar to water or liquid and by having a fluid feature has a directed and constant movement which in the case of any pathology in this movement leads to diseases. Stasis or "stop-motion" of water can be leading to the pathology of water, such as swamps, marshes.

Pathologically in the western medical viewpoint infective or non-infective pleural effusion, pericardial effusion, and obesity can be described by pathology of phlegmatic humour. Its colour is white.

### 4-Black bile or Melancholic Humour

Normally it has qualities of Cold and Dryness, similar to earth, and in the case of any pathology in the movement, by having of gravity, intends to stasis or stop-motion.

Pathologically in the western medical viewpoint, diseases related to Melancholic Humour are presented by disfiguration of tissue, such as cancers and or by deposition of Humour (cancerous cells and abnormal molecules) in the skin such as diabetic foot ulcer (or eczema and dermatitis) and or caused by impairing of the blood and lymphatic circulation leads to stasis and therefore chronic disease like chronic bed sores.

Based on presented *Humour/Temperament (H/T)* theory or *Akhlat/Mezaj (A/M)* theory, quadruple humours including Choleric, phlegmatic, Blood and Melancholic Humours can be suggested for understanding most of the ID. The some common diseases of ID will be presented based on this theory.

### 1-Humours/Temperament (H/T) theory or Akhlat/Mezaj (A/M) theory

The history of TPM indicates that ID are the most common diseases among the diseases of ancient time. In TPM aetiology of ID have been described and managed by several terminologies which the famous one is A/M or H/T theory [11].

#### 1-1-ZAAT OL JANB (pleural effusion) due to change of quality of Quadruple Humours (11)

There are four types of *ZAAT OL JANB* or Pleural effusion (PE) as *Pure*, *Pure Choleric*, *Pure Phlegmatic* and *Melancholic*. Decoding of this study may suggest that *Pure* type can be replaced by transudate pleural effusion, *Pure Choleric* can be bacterial and exudative PE, *Pure phlegmatic* can be chronic PE (for example TB with insidious course) and *Melancholic PE* due to primary and or secondary cancerous metastasis.

There are two other type of changes in humour as quality and quantity changes for description of ID.

#### 1-2-Infected or Putrefied Material (quantity change of Humours) [11]

It seems that scholars (Hakim) (12) of TPM knew that abnormal materials or subjects (quantity of pathologic humour) are added to human body. Intestinal parasite and *Dracunculus Medinensis* are categorized in this type of etiologic

agent. *FAZ, LEH-e-RADDIEH* (inappropriate) which is a term for description of *burnt Phlegm* or *burnt Melancholic* Humours are the etiologic agent of these type of ID [11].

The difference between this theory and previous theory is that in A/M theory, normal quadruple humours transformed into pathologic state (Quality) which lead to disease but base on this theory an abnormal and further Humour (Quantity) such as *burnt Phlegm* or *burnt Melancholic* Humours can lead to Dracunculus Medinensis or intestinal parasite [11].

Another example of this kind of disease is *ZAHABE* (Ludwig angina) which is presented by change of humour of blood into warm *thick and putrefied Sanguine (Blood)* which cause to disease. Also chronic prostatitis is due to *thick and slimy Humour* or Vincent's angina (*AKELAT OI FAM*) is presented by *infected and slimy Humour* [11].

In all of those examples, description of ideas is because there is an additional of transformed and abnormal *Humour* in human body [11].

### 1-3-Warm Dystemperament due to Change on quality of Humour

By considering these methods of decoding it can be understood that some other terminologies have been used for other description of ID. For example kidney can have a *Warm Inflammation*. Basically the temperament of kidney and urinary tract is cold and wet [11]. In the case of change in quality of kidney temperament from cold (normal) to warm feature (due to hyperemia) is called *Warm Inflammation*.

In other side warm is the quality of *Choleric Humour* (acute bacterial process), based on this decoding, *Choleric Humour* are expressed as acute bacterial agent so that *Warm Dystemperament* of kidney can be translated in to UTI due to bacterial agent.

Although scholars (*Hakim*) [12] of TPM didn't have any knowledge about epidemiology and transmission of ID but nevertheless in some of the ID such as Rabies the transmission of etiologic agent, from dog to human, has been indicated showing a knowledge behind theory. They have strongly prohibited any contact with infectious dog involved to rabies [13].

### 2-KHONAG as a Dystemperament (Bad Mezaj) due to change of quantity of Humour (11)

In other side, some other of IDs have been described based on So-e-Mezaj (Dystemperament) for example in *KHONAG* (pharyngo-laryngo-trancho-bronchitis) that can be manifested due to Dystemperament of Choleric, phlegmatic, Sanguine and Melancholic.

Given that decoding of this study, *Bloody Dystemperament* can be decoded as viral pharyngitis in which main manifestation is hyperemia of nasopharynx.

*Choleric Dystemperament* can be bacterial angina (like streptococcal angina with acute, short course severe manifestation).

Epstein Barr Virus angina with insidious course and sever swelling in tonsillar can be similar to *Phlegmatic Dystemperament*.

Finally nasopharyngeal and laryngeal cancerous state could be a state of *Melancholic Dystemperament*.

### 3-Other descriptions

In the following there are some other common clear examples of our comparative study but all mentioned ID with more details are presented in medical doctor's treatise of author [11] and suggested to read it for getting more knowledge:

#### **Cell or Tuberculosis:**

*Cell* in TPM means Tuberculosis (TB) has been repeatedly mentioned in TIBBE-AKBRI which in all of these diseases, TB does not used as meaning of tuberculosis in conventional medicine. The word of *Cell* (TB) seems that is unique category and is used for description of Anaerobic, gram negative and gram positive bacteria such as staphylococcal bacterial pneumonia.

Issue of TB is described neither by Temperament/Humour theory, nor putrefied infected material nor by change of quality and quantity of Temperament and Humour.

It seems that scholars of TPM have been interested in autopsy so that in postmortem autopsy any cavitation of lung was related to TB. In this case, all of the acute necrotizing pneumonia, wrongly, are categorized in the TB disease.

The symptoms of *CELL* (Tuberculosis) in TPM are mild fever, malar flush, and night sweating or sweating. In the end stage of disease there are the nails bed deformity and hair loss accompanied cachexia and limb swelling. In addition there are sever cough and haemoptysis [14].

In modern medicine in the prodromal stage of TB there is night sweating, weight loss, anorexia, general weakness and fatigue, non-productive cough in morning. The late stage of TB, sputum is accompanied with bloody colour and in some cases massive haemoptysis [15].

#### **JUZAM or Leprosy:**

The topic of leprosy, probably it seems that is one of the incorrect imagination of scholars, although their opinion about clinical manifestation of leprosy is admirable, and they have noted to details of leprosy.

In TIBBE-AKBRI, there are two describing of clinical types of leprosy which can be similar to presentation of Pauci-bacillary and Multi bacillary clinical presentation which have difference clinical pattern and have written in details as good as modern medicine.

Melancholic Humour is presented as the etiologic agent of leprosy and in other side decoding of Melancholic Humour (in meaning of Cancer state) will be indicated that there is not any incorrect definition. Melancholic Humour is used for presentation of end stage of diseases or cancerous state, in other side leprosy is accompanied with micro-necrosis of extremities and cold region of body such as fingers and nose. Final clinical manifestation of leprosy which is accompanied with necrosis is similar to cancerous state and chronic ulcers. Clearly the etiologic agent of leprosy can be presented as Melancholic humour [11].

#### **Head Diseases:**

*Sarsam* (central nervous system infection)

*Feleghmoni* is a kind of *Sarsam* which most of the times comes from bad

(TABAH) blood. Bad blood includes abnormal chemical composition (change of quality) which are harmful for health. Because of severity of oedema skull sutures are usually opened and brain's framework is destructed. Vigorous redness of eyes and pain in them as thought to be slighted are common signs. Sometimes it leads to seizure and vomiting [16].

The description of Feleghmoni in modern medicine can be described as brain abscess and or metastatic lesion in which there are signs of internal brain space occupation, headache, changes in level of consciousness, focal neurologic signs (seizure) and papilla oedema [17].

#### **Liver Diseases:**

Inflammation of Liver (Hepatitis)

*Choleric* inflammation is accompanied with yellow colour of face, secretion, fever, acute course and serious complication. This inflammation of liver can be manifested by yellow tongue, yellow stool and yellowish face plus redness of urine. Rapid pulse, bilious vomiting, sever inflammation, irritability, sever thirst, red papilla of tongue and in end stage purple colour of tongue are the other signs and symptoms [18].

In modern medicine prodromal stage of Hepatitis may include anorexia, nausea, vomiting, weakness and malaise, arthralgia, myalgia, headache, photophobia, pharyngitis, cough and coryza. Low grade fever are more common in Hepatitis A and E than Hepatitis C and B. Dark urine and acoloric stool before start of icterus can be presented [19].

#### ***Akeleh* (acute Necrotizing Clostridia infection in soft tissue)**

*Akeleh*, in TPM viewpoint, is defined by a necrotizing infection of organs and includes sever lesion, ulcer and inflammation or primary great ulcer which rapidly extended and lead to tissue (muscle and skin) necrosis... [20].

Necrotizing clostridia infection of soft tissue are characterized by rapid extension, tissue destruction and gaseous in tissue which is accompanied by shock and death [21].

## **4. Discussion**

The findings of this study indicate that ID have different names but same meaningful in TPM and modern medicine. Most of etiologic agents of ID in TPM have been presented based on Humour and Temperament (Akhlāt and Mezaj) theory [11] [22]. Based on this theory every disease of human body has an aetiology that may be due to one of four Humour of Sanguine or Damavi (Inflammation), Choleric (Acute Bacterial and other infectious agents), Phlegmatic (Chronic process and or Connective tissue disorder) and Melancholic (Cancerous condition). Nevertheless in some previous report of similar subject of our study, for some infection like Rabies, a transmission way from dog to human in supposed [13]. The subject which clear believes of scholar of TPM in the ID fields.

Comparative study of infectious diseases in Harrison's and TEBBEH AKBARI shows similarity of signs and symptoms. But an important difference is due to

lack of antibiotic therapy, the patients were observed up to end stage and there are some clinical findings which are not mentioned today. For example limb oedema in TB patients may be due to hypoalbuminemia in late stage of TB [15].

But it seems that in past and due to no specific treatment and by sever hypoalbuminemia, limb oedema was a common findings which at present time is reported rarely [14].

Tuberculosis is an old infection with a common finding of fever, night sweating, malar rash, weight loss, anorexia, early fatigue, cough and haemoptysis in both TEBBE AKBARI and Harrison's.

It is clear that autopsy was performed for some (if not in all) of death, so that TIBB-E-AKBARI mention from cavitation is some cases other than TB patients (for example necrotizing pneumonia) [15].

"Phleghmoni"; brain abscess or metastatic lesions are the CNS involvements which are characterized by increased intra cranial pressure (redness and protrusion of eye, convulsion, headache and in some cases opening of scalp suture). In Phleghmoni the hematogenous transmission is supposed so that it is mentioned that "phleghmoni is a kind of headache which occurred by infected or inappropriate blood transmission" [16].

## 5. Conclusions

This report indicates that IDs have different name in TPM and western medicine although they are showing one meaning. Based on decoding theory of this study, in AKHLAT (Humour)/MEZAJ (Temperament) theory of TPM can be defined:

- 1) ***Choleric Humour*** (in most of the cases) means acute process of, for example Gram negative, Gram positive and anaerobic infection.
- 2) ***Sanguine (DAM, DAMAVI or Bloody) Humour*** which presents hyperemia, tissue vasodilation, redness and swelling, in most cases means viral infection and sometimes bacterial agent.
- 3) ***Phlegmatic Humour*** means infective etiologic agent with chronic and insidious course such as mycobacterial and fungal infection.
- 4) ***Melancholic Humour*** indicates chronic tissue necrosis (sometimes acutely) which are mainly due to cancers and sometimes infectious disease.

This method of decoding can be useful and facilitate reading of the texts of TPM and there will open a new horizon for researcher in field of ID. So that reviewing the subjects of diagnostic, therapeutic and follow up methods of patients in TPM can suggest new insight of complementary methods in modern medicine. By considering that TPM suggests some different modalities for treatment of ID and given that resistant antibiotic in infectious diseases is increasing, a return back to infectious diseases and their treatment in traditional Medicine is obvious which may help to find an old suggestion of treatment for modern infections as a complementary method along antibiotics. The subject of treatment cannot be described as it was out of the scope this report but can be a new field for next researchers.



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