

CONCEPT OF ETIOLOGY IN AYURVEDA AND WESTERN MEDICINE

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ABSTRACT

Disease is as old as mankind itself. Man has always tried to understand natural phenomena and attempted to give his own explanation to it. The Indian system of medical thought has its origin in the *vedas* dated about 5000 years ago. Later *Charaka samhita* (1200B.C.), *Sushruta samhita* (1000B.C.) and *Ashtanga sangraha* (600B.C.) scientifically documented the bequeathed medical concepts. Disease or *roga* was described as an imbalance of the three humors of the body *vata*, *pitta*, and *kapha*. The western perspective on disease is recorded around 400 BC. Hippocrates has been considered the father of western medicine, which is otherwise known as biomedicine. He proposed the four humeral theories in which the Black bile, Yellow bile, Phlegm and blood are the governing factors of health or disease. Prior to Hippocrates, disease was thought of as the handiwork of witches and sorcerers over which humans had no control. During Renaissance in Europe, scientific thought grew by leaps and bounds and rational explanations were sought for every phenomenon. This situation gave rise to many discoveries in medicine too. Unlike *Ayurveda*, whose theories are founded on universal and holistic principles, and remained the same for over 5000 years, the western theories of philosophy of health and disease etiology have a relatively short history. Modern theories on disease etiology like the germ theory and the genetic theory were described in *Ayurvedic* scriptures in *Sanskrit* language. The notion that these theories were already proposed in *Ayurveda* is increasingly being recognized after the translation of *Ayurveda* books into English and other languages. Lifestyle disorders are gained utmost attention in recent times. In this regard *Ayurveda* attributes three prominent factors as the basic disease etiology. They are *asatmendriyarthasamyoga*, *prajnaparadha* and *parinama*. In this paper, we tried to trace the ancient Indian concepts of disease etiology.

Keywords: Etiology, Disease, *prajnaparadha*, *Ayurveda*

INTRODUCTION

Ancient civilization in the east or the west applied its rational to understand the etiology of disease. Each civilization had its own interpretation of what causes disease or the different factors that steer the course of a disease. The *Vedas* put forth three humeral theories as a possible explanation for the state of either health or disease¹. The *Rgveda* (3000 B.C.) which is regarded as the oldest scripture in the

world gives the earliest information on diseases, their etiology and treatment². While *Rgveda* contains details of three energies namely *vata*, *pitta*, and *kapha*³, *Atharvaveda* (1500 BC) goes into considerable details on aspects related to disease etiology and treatment⁴. Etiology is a clearly defined science in the *samhitas*, *Caraka*, *Sushruta* and *Kashyapa* and in the *Ashtanga sangraha*. The *samhitas* tried to offer a rational and

indigenous explanation for disease. From this front, it can be argued that concept of disease etiology has its roots in *Vedic* scriptures and *samhitas*, much before the modern medicine spoke anything about this.

Disease etiology has been discussed in different ways in the west too. Historically, before the advent of Hippocrates (450-380B.C.)⁵ and Galen (130-200A.D.)⁶ it is believed that disease is caused by the action of God. Further, such divine action is often described as a punishment for human sin. In idolatrous cultures disease was associated with gods, demons, witchcraft, curses and astrological influences. It was Hippocrates, (considered as the father of medicine) who first attempted to offer a rational explanation of disease in the west. Later, Galen tried to explain and correlated the anatomy of humans by performing anatomical dissections on animals, as human dissection was prohibited during those days.

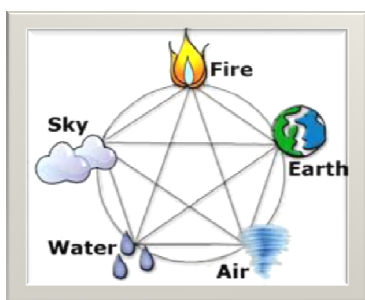
This paper attempts to correlate the humeral theory in *Ayurveda* and Western Medicine while trying to trace the

rationalistic evolution of the concept of etiology in both systems.

The *tridosha* vs the humoral theory

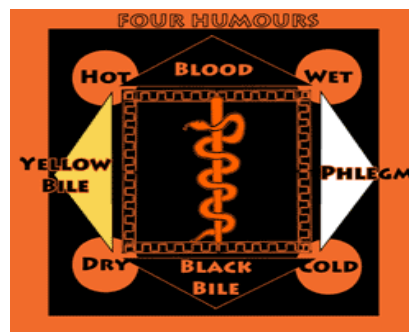
The *tridosha* theory

Vata, *Pitta*, and *Kapha* are called *Tridoshas* in *Ayurveda*⁷. *Tridosha* theory is the foundation of *Ayurvedic* concepts of health and disease. Further, there is an inherent link between *Tridosha* and *Panchamahabhuta* (five gross elements) theories. All material substances in the universe, animate or inanimate, are the manifested form of the *Panchamahabhutas*, viz. *Akasha* (Sky), *Vayu* (Air), *Agni* (Fire), *Ap* (Water) and *Pruthvi* (Earth)⁸. Graph 1 shows the conglomeration of the five gross elements. Man is no different from the universe where he inhabits, and actually is a microcosm of the macrocosm called universe⁹. Human body is the manifestation of the said gross elements wherein the *Tridoshas* can be said as the bio-energies. Amongst the *Tridoshas*, *Vata* is the outcome of the wind and earth elements, *Pitta* is the manifestation of fire element and *Kapha* is the result of the water and earth elements in the human body¹⁰.



Graph 1¹¹

The equilibrium between these elements (rather the energies represented by them) signifies health and in-equilibrium constitutes disease. Whatever is the cause



Graph 2¹²

of in-equilibrium in humors, it is the same that constitutes the etiology of the disease.

Hippocratic theory

In ancient Greece and Rome, numerous scholars, right from Hippocrates to Galen tried to render rationalistic explanation on disease affliction. The primary factors were considered to be four basic substances or humors called 'blood', 'phlegm', 'yellow bile' and 'black bile'. Hippocrates developed a naturalistic approach to medicine that contrasted sharply with the dominant religious views that preceded him. His four humeral theory was held in high esteem as the promoter of etiological concepts of disease, until the advent of the germ theory by Louis Pasteur in sixteenth century.

Hippocrates proposed that the four fluids blood, phlegm, yellow bile and black bile makes up one's constitution. Health is a state in which these fluids are said to be in equilibrium. As per Greek

philosophy, the universe has been believed to be evolved of four gross elements - 'earth', 'air', 'fire' and 'water'. These elements possess various combinations of qualities like moisture, dryness, hot and cold. The four humors also acquire these qualities in different ratios and human body is the outcome of these.

Each of these humors is associated with a major organ of the body.

- Blood- liver
- Phlegm- lungs
- Yellow Bile- spleen
- Black bile- gall bladder

Foundational principles of *tridosha* and Hippocratic theories

The following table shows the foundational principles of the *Tridosha* theory in *Ayurveda* and the four humeral theory of Hippocrates.

Table 1: Foundational principles of humors

Sl no	<i>Tridosha</i> Theory	Hippocratic Theory
1.	Stems from five elemental theory (<i>Akasha</i> , <i>vayu</i> , <i>Agni</i> , <i>Jala</i> and <i>Pruthvi</i>)	Theory stems from four elements theory (Wind, Fire, Water and Earth)
2.	Is the energy represented by conglomeration of respective elements	Are basically liquid body substances
3.	Constitutes the entire body though there are specific seats for individual <i>doshas</i>	Humors are liquids emanating from a vital organ
4.	<i>Tridoshas</i> are metaphysical, cannot be seen by naked eye but can only be understood by their way of functioning	Not the case here

Though foundational principles are seemingly different in both systems, there are certain commonalities in the theories. Commonalities are correlated as per the following table.

Table 2: Commonalities in humeral theories

Sl no	Three Humeral theory	Four Humeral theory
1.	An equilibrium of <i>Tridoshas</i> constitute health, in-equilibrium is disease	A right proportion of four elements is health, Disproportion of any is disease
2.	Represent the five elements and understood by the properties (smell, cold, touch, sound, hot) of the 5 elements	Represents the four elements and understood by 4 properties, moisture, and dryness, hot and cold.

Thus, in spite of differences in the foundational concepts of the *Ayurvedic* and Hippocratic theories, commonalities observed are a matter of interest for

anyone. Irrespective of the number of humors proposed in both the medical systems, it is common that health is a state of the homeostasis of the humors, and

disease a state in which the balance in the humors is deranged. In turn, the derangement gives rise to disease. Therefore, it is contextual to discuss about the etiologies of disease in the western and eastern systems. This discussion may bring about the intricacies in both systems.

The importance of etiology

Disease etiology is a crucial concept that facilitates proper treatment. Diagnosing the root cause of disease removes from the mental or physical pain. After all, removing the root cause of disease is the first step towards proper treatment, and sometimes, is the only step that is essential. Medical tradition in the west has paid considerable attention to etiology due to its valuable stake in the treatment process.

Western thought on disease etiology

In the west, Hippocrates has observed instances of hereditary traits in diseases. According to him, the phlegmatic nature is hereditary. Later, the first assertion of the genetic basis of a disease was discussed in Archibald Garrod's work on Alkaptonuria in 1901.¹³ Many other genetic disorders were identified further.

Hippocrates considered poor diet also as one of the prime factors of disease. However, he did not refer to the dietary supplements like vitamins, minerals etc. which is a recent phenomenon in 20th century.

Hippocrates has also added that the seasonal variations can alter the heat, cold, moisture and dryness like qualities thereby affecting humeral homeostasis.

On the other hand, Galen had focused mainly on circulatory system, nervous system, respiratory system and other anatomical structures.

After Hippocrates and Galen, for a long time, no new theory on disease

etiology was dominant until the arrival of "Germ Theory".

The germ theory

Until the 16 century, the disposition between the four humors was the only rational explanation given to disease etiology in the west. The discovery of fermentation technique and the analogy between disease and fermentation led to the transition between humeral theories to the germ theory. This transition represented a major conceptual revolution of etiology. When we look at the continuum of this transition, Fracastoro (1478-1553) an Italian physician wrote the first important work 'On Contagion' in 1546. The modern germ theory of disease developed with the research of Pasteur, Lister, Koch and others in 1860's and 1870's.¹⁴ Other radical changes happened in the 20th century with the discovery of genetic, nutritional and immunological causes of disease. Of late, infectious diseases are typically classified as bacterial, viral, protozoal and fungal. When we look back to Hippocrates, he has emphasized only on humoral imbalances with sketch knowledge of anatomy. The doctrine 'De Sedibus et Causis Morborum Per Anatomen Indagatis' states that 'disease has specific seats in particular body organs' that was developed by Morgagni. He has been considered as the father of modern anatomical pathology in the 18th century.¹⁵

Disease concept in the 21st century

Concepts of Disease, based on etiology in contemporary times can be summed up as:

1. Infectious diseases - caused by germs
eg: malaria, typhoid
2. Genetic diseases - caused due to hereditary factors
eg: heart disease
3. Nutritional disorders - deficiency of certain nutrients can be the cause for disease
eg: Anaemia

4. Immunological disorders - disease arising from attacks by the immune system on the body's own organs eg: Rheumatoid Arthritis.
5. Metabolic disorders - A hampering of metabolism causing disease eg: Diabetes
6. Cytological diseases - study of structure and function of cells. For eg: like in growth of Cancers

Indian thought on disease etiology

Sushruta stated that 'duhkha' (grief) is the root cause of diseases- "taddhukhasamyoga vyadhaya ucyante"¹⁶ /" (association of miseries is called 'duhkha'). That means, if one avoids *duhkha*, there would be no disease. In order to avoid, the removal of causes that are attributed with *duhkha*, needs attention. *Charaka* has listed the causes for *duhkha*. *Dhādhrtismrtivibhramsha samprapti kalakarmanam* |

asatmyarthagamashceti jnatavya dukhahetava ||¹⁷

"Derangement of intellect, restraint and memory, advent of time and action and contact with unsuitable sense objects should know as the cause of misery".

Charaka samhita has discussed three main reasons for disease:

"...*asatmyendriyarthasamyoga, prajnaparadha, parinamashceti trayastrividhakalpa hetavo vikaranam samayogayuktastu prakrtihetavo bhavanti*"¹⁸

1. *Asatmyndriyarthasamyoga*- Is extreme use, under use and abuse of sense organs while aligning with their objects. That means indulging cognitive organs, viz., eyes, nose, ear, tongue and skin, in contrary methods cause disease. For instance, listening music in high decibels triggers ear related diseases, which is called '*aindriyaka*'.

2. *Prajnaparadha*- Is intellectual blasphemy. Improper understanding of objects by intellect will result in adverse actions such as, negative thinking, misbehavior with noble people, lack of knowledge controlling mind, lack of good conduct are some of the reasons for intellectual errors.

3. *Kala*- Is seasonal variation. Improper intake of food such as untimely consumption of eateries while ignoring seasonal changes etc., are due to *kalaviparinama*. Improper intake of food also causes lot of life style disorders such as stress etc. As an effect, people also suffer with stress/anxiety disorders, work tensions and so on and so forth.

DISCUSSION

More or less, the five elemental theory is common to Hippocratic and *Ayurveda* systems. Humors make up one's constitution in Hippocratic and *Ayurveda* systems though respective constitutive members of humors vary in character, except the phlegm. In fact, the concept of 'phlegm' has been intended differently by *Charaka* as its scope is much wider than in Hippocratic system. Even though *tridoshas* pervade the entire body, specific regions are attributed as their seats. Phlegm is said to occupy the upper part of the body consisting head, neck, thorax, chest, upper stomach, fat tissues, lymph glands and joints¹⁹. Further, it can be postulated that the *tridoshas* are not measurable using scientific equipment, whereas the Hippocratic four humors are.

Factors listed in *Charaka* were said to produce disease due to the inequilibrium of *doshas*. *Charaka* and Hippocrates agreed upon the root cause of hereditary diseases. Also, both believed that poor diet and seasonal variation affects the equilibrium of humors. But the threefold etiology of *Charaka* is unique in

many ways compared to western medical system.

Astamyendriyarthasamyoga is related to incompatibility senses with their objects. Most professional hazards like continuous peering into computer monitors, listening high decibel sounds through various means, looking at high beam lights, exposure to extreme heat or cold temperatures, smelling of chemical pollutants are the 'asatmya' (incompatibility) of objects to corresponding sense organs. Abusing the sense of taste or its excessive usage could be termed as overeating which is the instigator for lifestyle disorders like Diabetes Mellitus.

Prajnaparadha carries a greater relevance in contemporary times. Committing errors willfully is nothing but an intellectual blasphemy. Errors like smoking, alcoholism, abusing elders and noble people, drug abuse and sedentary life style with faulty food habits results in *Prajnaparādha*. Humans have no control over seasonal variations. Hence, *Ayurveda* advocates *Ritucarya* and *pancakarma* therapy for prevention and treatment purposes.

Sushruta did consider divine/supernatural origin of disease amongst the other types. But in 'adibalapravrutta'²⁰ type of diseases 'genetic disorders' were discussed for the first time in indigenous medicine. This concept speaks of the disorders that can take place in the seed of the male and the female that leads to genetic disorders in the progeny. A concept on 'Janmabalapravrutta'²¹ speaks about disease occurring due to problems during pregnancy and child birth. For instance, long labor and hypoxia during child birth can lead to mental retardation of child.

Looking again at the modern theories of disease it is apparent that *Ayurveda* addressed the issue of the genetic theory and Lifestyle disorders or metabolic disorders gout, obesity etc. in the texts.

Cancer (*karkatarbuda*) was explained as an abnormal and unexplained growth of Cells and tissues. Nutritional deficiencies too were considered a reason for disease. The best example for that being *Pandu* or Anaemia. *Lohatata* or iron was advised for this right from the *samhita* times. Although vitamins and essential minerals were not explicitly named in those times, certain foods were considered healthy and certain to be unhealthy. Diet was a major factor behind health or sickness.

Immune disorders are described in *Charaka*. Immunity is known as 'ojas' and 'balam'. The impression that the body's immune system kills its own cells and tissues is an invention of the twentieth century which was not known earlier. It is a matter of issue that auto immune disorders respond positively to *Ayurvedic* immune modulators like *guduchi* (*tinospora cordifolia*) etc.

Amongst the study of most important aspect of all these theories the germ theory leads to interesting findings. Although *Ayurveda*, the Indian system of medicine, lays emphasis on the *tridosha* disturbance being the cause of disease in as much they cause the in-equilibrium or the *tridoshas*. Germs were recognized and called with different names such as, *Bhuta*, *Krimi* etc. *Charaka* has enumerated about twenty such germs/microbes. *Graharogas* (epidemic) mention isolating patients to avoid the spread of disease from person to person.

In *Charaka Samhitā*, a chapter called 'janapadodhwamsavimanadhyaya'²²

discusses epidemic breakouts and lists out polluted air, water and earth as its reasons. So, germ theory is entirely not unknown yet not overtly emphasized in the Indian school of medical thought. All factors of etiology were examined for the disturbance they could cause to *doshas*.

In addition to these *Ayurveda* went ahead of its times to describe the psychological component of disease etiology. Phobias and grief could cause disease. When *Charaka* spoke about the strong body-mind link and physical diseases causing psychological disturbances and psychological diseases causing physical disturbance, he was in fact speaking about psycho-somatic and somato-psychic diseases. This demands preventive or healing measures to mind and body.

CONCLUSION

The origin of the modern concepts of etiology was already laid in Indian system of thought (*Ayurveda*) in context of disease. The four humeral theory from the time of Hippocrates paved the way for other concepts of etiology like the germ theory and the genetic theory in the modern times. The *tridosha* theory is as relevant to *Ayurveda* today as it was 5000 years ago. The significant concepts of etiology in *Ayurveda* need a thorough revisit from the modern perspective.

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