



## PHYSIOLOGICAL REVIEW OF AGNI (THE ENRGY OF DIGESTIVE TRANSFORMATION)

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### ABSTRACT

*Agni* is the prime factor which determines the health and life of an individual. It is similar in its functions to *Pitta* and can be considered an integral part of *Pitta* system in body, functioning as catalytic agent in digestion and metabolism. *Agni* is believed to be the agency for any kind of transformation. *Ayurveda* identifies 13 distinct subtypes of *Agni* in the body, each defined by its specific physiological function as well as its location in the body. The mother of all of them is *Jatharagni*. The *Bhutagnipaka* follows the *Jatharagnipaka* and thereby the process of intestinal digestion is completed. The metabolic transformations are under the influence of *Dhatvagni*. The strength of living organism is depending upon *Agni*.

**KEYWORDS:** *Agni, Pitta, Jatharagni, Bhutagni, Dhatvagni.*

### INTRODUCTION

The concept of *Agni* in *Ayurveda* is a unique one. Existence of life is not possible without *Agni*. There is no fundamental difference in physical and biological fire or *Agni*, except that the latter is associated with living organism. The effect of fire at physic-chemical level is decompositions, disintegration and acceleration of various chemical reactions occurring in nature. Similarly the main function of the *Agni* in the body is to breakdown or to disintegrate the food into their simplest possible components making it fit for absorption and utilization by the body. The word *Agni* is derived from 'Agi Gatau Dhatu'<sup>[1]</sup> by applying *Sutra* 'Agniralopasca' and 'Gam' *Dhatu* is mostly used for 'Gatyartha' and 'Jyanartha'. So the literal meaning of the word *Agni* according to the derivation is that a particular substance which is having movement and through which perception of knowledge is made possible. The *Agni* within the body is mainly referred to as *Jatharagni*. This *Jatharagni* comprehends the other *Agni* situated at different sites in the body. It is also named as *Koshtagni, Audaryagni, Pachakagni*. This *Agni* accomplishes body requirements and is called *Kayagni* or *Jatharagni* which stays in *Jathara*. *Agni* in *Ayurveda* is reflected in the concept of *Pitta*. The term *Pitta* is derived from the root 'Tap' - to heat or to burn. This term is seen to have three meanings viz,

**Tap Aiswaryee** – refers to the factor which is responsible to make one achieve the eight kinds of benefit.

**Tap Dahe** – relates to the act of burning of the nutrition consumed.

**Tap Santaape** – refers to the generation of heat.

Acharya Sushruta has emphasized that *Pitta* itself is *Agni* and except *Pitta*, there is no other form of *Agni* in the body. This is so because *Pitta* performs the functions of *Agni* like *Dahana, Pachana* and such other functions. In a general sense, the term *Kaya* or body itself has been equated to *Agni*.

### MATERIAL AND METHOD

- Material has been collected from ancient *Ayurvedic* texts, research journals and electronic database.
- In this review efforts have been made to study the concept *Agni* with different aspects.

### CONCEPTUAL STUDY

According to fundamental principles of *Ayurveda*, *Agni* has an important role to play in the physiological functioning of body. This *Agni* provides fundamental knowledge for understanding of the theories of *Ayurveda* viz. *Aharapachana, Dhatu utpatti, Vyadhi utpatti, Ayu pariijnana* etc. The maintenance of human body, the origin of diseases as well as good and bad effects of the food consumed is dependent upon the nature of *Agni* dwelling inside the human body. This *Agni* present in us is concentrated towards the middle part of the body in the form of *Jatharagni*. Thus it can be assumed that, whatever changes take place in our body; *Jatharagni* is the primary factor concerned. It is based upon this status of *Jatharagni*, that the fate of the human body is determined.

*Agni* is the causative factor for lifespan, colour and complexion, strength, health, enthusiasm, nourishment and growth, huge, *ojas*, vigour. Life of an individual is also situated in *Agni*. If *Agni* is removed from the body, body becomes dead, because there is no tissue formation. If no tissue formation then there is no body. The strength of *purush* (living organism) is depending upon *Agni*.

### Definitions of *Agni*

A substance which is having spreading nature is called as *Agni*.<sup>[2]</sup> *Agni* is that which is always moving upwards. According to Dehadhatwagni Vigyana, *Agni* is mentioned as that which is responsible for the transformation of consecutive Dhatus and absence of which can cause death. It is the factor which stands first in all individuals. It is the first evidence of life.<sup>[3]</sup>

### Synonyms of *Agni*

- 1) *Vaiswaanara* – Its site being *Koshta* or *Kukshi*.
- 2) *Sarvapaaka* – It is responsible for *Pachana* of *Sthula* and *Sukshma Dravya*.
- 3) *Tanunapat* – Till the heat remains, the body is thought as alive one because of its quality of protecting the life and body.
- 4) *Ameevachaatana* – *Agni* is considered to be the destroyer of diseases.
- 5) *Suchi* – *Agni* purifies everything.

### Relation between *Pitta* and *Agni*

*Acharya Sushruta* has emphasized that *Pitta* itself is *Agni* and except *Pitta*, there is no other form of *Agni* in the body. This is so because *Pitta* performs the functions of *Agni* like *Dahana*, *Pachana* and such other functions. Therefore in support of this hypothesis, he has stated that when there is the deficiency of *Pitta* in the body the drugs and measures stimulating *Agni* are given to compensate the same. Therefore we can say *Agni* is the *Karana* and *Pitta* is the *Karya*. On the other hand, when *Pitta* is increased in the body, the use of substances having *Sheeta Guna* is required.

*Acharya Charaka* too has said *Agni* implicit to *Pitta*; this gives rise to beneficial or adverse consequences according as it is in normal or abnormal state of functioning. *Shrikanthadutta* and *Vijayarakshita* the famous commentators on *Madhava Nidana* have stated that whatever *Tejo bhaga* is in *Pitta* and this is only *Agni*. By applying *Pratyaksha* and *Anumana Pramana*, it is clear that *Pitta* is nothing but an *Antaragni*.

The *Pitta* and *Agni* are one and same but certain examples have been quoted to say there are some differences between *Pitta* and *Agni*. *Ghrta* taken is said to cause *Pittashamana* but *Agnidipana*, *Matsyadi* does *Pittavridhi* but not *Agnidipana*. Also *Agni* is responsible for *Ushmata* where as *Pitta* has qualities like *Drava*, *Snigdha* and *Adhoga*. *Pitta* is vitiated by excessive use of *Katu*, *Vidahi* (hyper-acidic), *Amla* etc. These things on other hand suppresses the *Agni*.

### Types of *Agni*

*Agni* is innumerable because of its presence in each and every *Paramanu* of the body. But enumeration of number of *Agnis* varies in various classical *Ayurvedic* texts as shown below:

- *Charaka* – *Charaka* has mentioned about 13 *Agnis*. *Antaragni-1, Butagni-5, Dhatvagni-7*.<sup>[4]</sup>
- *Susruta*- According to *Acharya Susruta*, five types of *Agni* are illustrated i.e., *Pachakagni, Ranjakagni, Alochakagni, Sadhakagni, Bhrajakagni*. Here there is an indirect reference of five *Bhutagnis* lying in the brief description made to the transformation of foodstuffs.<sup>[5]</sup>
- *Vagbhata*- *Vagbhata* has described about 18 *Agnis* i.e., 5 *Bhutagnis*, 7 *Dhatvagnis*, 3 *Doshagni*, 3, *Malagni*.<sup>[6]</sup>
- *Sharangadhara* – He has recognized five *Pittas* only.<sup>[7]</sup>
- *Bhavamishra* - Has followed *Acharya Charaka* and *Vagbhata*.<sup>[8]</sup>

### *Jatharagni (kayagni)*

It is also named as *Koshtagni, Audaryagni, Pachakagni*. This *Agni* accomplishes body requirements and is called *Kayagni* or *Jatharagni* which stays in *Jathar*.<sup>[8]</sup> It causes splitting of all types of food into two fractions, *Rasa* and *Mala*.<sup>[9]</sup> It maintains life and comprehends various biophysical and biochemical factors which participate in the course of digestion and metabolism. These factors either normal or abnormal are derived from and are dependent upon any increase or decrease of *Jatharagni*. The process of digestion can be compared to that of cooking rice. For cooking rice, we require a stove with flame, vessel and the rice. The flame burns with the help of air (*Vayu*). The stomach acts like a vessel (*Paatra*) which receives the food. The *Vata* acts as an air blower stimulating the *Agni* to function and start the process of digestion. The flame (*Pitta/ Agni*) acts like a stove providing optimum working conditions while the *Jala* (water) (*Kapha*) provides the moisture needed just like the water in the vessel. When all these factors are in balance, the ideal condition is achieved to digest the food. The *Jatharagni* is thus the backbone of all the *Agnis* in the body as this is responsible for the entire digestive, metabolic any other physiological transformation.

### Location

According to *Acharya Charaka* seat of *Jatharagni* is *Grahani* because of its power to restrain the food.<sup>[10]</sup> It is located above the umbilical region. *Susrutha Acharya* indicates the seat of *Jatharagni* is in between *Amasaya* and *Pakwasaya*.<sup>[11]</sup> *Vagbhata* combines both of the opinion and says the seat of *Agni* is same only names are different.

### *Bhutagni*

The *Agni* which is present in five *Mahabhutas* is called *Bhutagni*. The *Bhutagnipaka* follows the *Jatharagnipaka* and thereby the process of intestinal digestion is

completed. There are five kinds of *Bhutagnis* respective to each *Bhutas* – *Parthiva*, *Aapya*, *Aagneya*, *Vaayavya*, *Naabhasa*. The outcome of *Jatharagni Paka* are *Bhinna Sangata* where there is splitting of the complex food substance into their ultimate elemental units of molecules and there is the activation of the *Agnibhuta* present in each of the *Bhoutika* groups. This *Bhutagni* then digests the substance of that group i.e., *Parthiva Agni* digests *Parthiva Amsa* in *Ahara*. By this *Guna* of *Parthiva Ahara* are released. Eg *Gurutva*, *Katinya*, *Murtatva* etc and body uses it for nourishing attributes of body entities. The significance of *Bhutagni Paka* is said by *Acharya Sushruta* as the human body is composed of five basic elements, the food on which it survives is also made up of these five elements and this on digestion by *Jatharagni* is again dealt by the *Bhutagnis*. According to *Vagbhata* the separation of the *Sarabhaga* or nutrient fraction of the food from *Annakitta* i.e. undigested residue of the food takes place after the completion of the *Bhutagni Paka*.<sup>[12]</sup> The above concept of *Bhutagni Vyapara* can be reviewed as those functions performed in the body by the liver. The liver is responsible for all the biochemical reactions concerned with digestion and metabolism of all types of foods- carbohydrates, proteins and fats into plasma proteins, albumin, fibrinogen, prothrombin, glycogen, glycerols and so on.

#### **Dhatvagni**

In the context of *Ayurveda*, *Dhatu* is defined as, that which supports the *Shareera* (body), *Mana* (psyche or mind) and *Prana*. The form of *Agni* which is present inside the seven *Dhatus* is called *Dhatvagni*. The way *Annarasa* is absorbed and utilized by the body is described in the concept of *Dhatvagnipaka*. The *Saara Bhaga* of the food ingested and an outcome of *Jatharagni* and *Bhutagni Paaka* is absorbed (*Rasasoshana*) from the *Adho Aamashaya* and distributed throughout the body by the *Dhamanis* with the help of *Vyana Vayu*.<sup>[13]</sup> This method by which the *Annarasa* is utilized by the body is said as *Dhatvagnivyapara*. This is said to describe the internal transport system of nutrition. This term has been used to comprehend the metabolically processed nutrients as well as waste products (*Prasada and Kitta Bhaga*).

The metabolic transformations (*Paaka*) are under the influence of *Ushma (Agni or Pitta)* of the *Dhatus* and they are made available through their respective *Srotamsi*. The *Dhatvagnis* are seven in number–

- 1) *Rasagni*
- 2) *Raktagni*
- 3) *Mamsagni*
- 4) *Medogni*
- 5) *Asthyagni*
- 6) *Majjagni*
- 7) *Shukragni*

Each one of these *Agni* is responsible for bringing about the transformation of appropriate nutrient substance. These basic nutrients present in the *Aahara Rasa* are

absorbed and this is known as *Upadana Dhatus* (or the potential nutrients of tissues).

#### **Importance of Agni**

All the classical texts of *Ayurveda* unanimously accept the importance of *Agni* for the maintenance of health as well as manifestation of diseases. It is also an important factor to be considered while prescribing treatment. Importance of *Agni* has been seen in both the healthy and diseased condition. In healthy condition it is necessary for maintenance of health while in diseased condition it is important for diagnosis as well as treatment of the particular disease. The *Antaragni* is responsible for *Aarogya*, *Bala* or the *Vyadhikshamatva*, *Prana* (Immunity) of the person. *Bala* is the factor responsible for the destruction of the *Doshas* or disease causing factors. This *Agni* is also thus indirectly related to the *Ayus* of the person (longevity) because based on the *Indhana* (digestive fire) the state of *Doshas* and *Dhatus* are dependent. This *Indhana* (fuel) is achieved in the form of foods and drinks. As long as food is taken based on *Matra*, *Kaala*, *Vaya*, *Ritu* and such factors the *Agni* remains healthy and is responsible for *Varna*(complexion), *Swasthya- Utsaha* (Cheerfulness), *Upachaya* (plumpness), *Prabha* (lustre), *Ojas*(resistance to disease), *Teja*(energy), and *Praana* (life). Thus the *Agni* is responsible for digestion and metabolism, ensures protection against the disease of improper metabolism. *Acharya Charaka* describes that increase or decrease of the *Doshas* is dependent upon the status of *Agni*. Extinction of this *Agni* leads to death, its proper maintenance helps a person to live long.

Life and its impairment give rise to diseases. So this *Agni* should be always protected and causative factors for *Agni* vitiation should be avoided. According to *Vagbhata*, food provides nourishment to *Deha- Dhatu, Ojas, Bala, Varna*. But *Agni* plays vital role in this because tissue elements like *Rasa* etc cannot even originate from undigested food particles and all diseases arise due to *Mandagni*. *Acharya Susruta* while describing about *Swastha* he mentioned that *Agni* should be in *Samavastha*.

#### **Physiological and Pathological State of Agni**

- **Samagni-** When all the three *Doshas* are in equilibrium, the *Jatharagni* is also stated to be in the state of *Samagni*, where there is complete digestion at the proper time and no irregularity noticed.
- **Mandagni-** This is a state in which the action of *Jatharagni* is considerably inhibited due to the dominant influence of *Kapha*. Hence this state of *Agni* is known as *Mandagni*.
- **Teekshnagni-** In this state of *Jatharagni*, *Pitta* predominantly influences the action of the *Agni*. Under this state, *Agni* digests even a very heavy meal easily in a short period, causing voracious hunger, which is a condition usually described as *Atyagni* or *Bhasmaka* in the *Samhitas* when it crosses the normal limits.

- **Vishamagni**- An erratic state of *Agni* arises as result of the influence of *Vata* in the condition described as *Vishamagni*. The action of *Agni* is irregular and fitful. When this *Agni* is affected by the *Vata Dosha*, it creates different types of *vatavyadhi*.

#### Physiological and Pathological State of *Agni*

AGNI	DOSHA	SYMPTOMS
<i>Samagni</i>	<i>Tridosha</i>	Strong and appealing appetite that is easily satisfied with normal food.
<i>Mandagni</i>	<i>Kapha</i>	Causes <i>Udaragourava</i> (heaviness of the abdomen), <i>Shirogourava</i> (heavyness of the head), <i>Kaasa</i> (cough), <i>Shwasa</i> (dyspnea), <i>Praseka</i> (salivation), <i>Chardi</i> (emesis), <i>Gaatrasadana</i> (weakness).
<i>Tikshagni</i>	<i>Pitta</i>	Capacity to digest large amounts of food, frequent intake of food, after digestion produces <i>GalaShosha-Daaha</i> (parched throat), <i>OshtaShosha-Daaha</i> (parched lips), <i>Taalushosha-Daaha</i> (parched palate), <i>Santaapa</i> (heat and burning sensation).
<i>Vishamagni</i>	<i>Vata</i>	Digestion is sometimes irregular and produces <i>Aadhmana</i> (distension of abdomen), <i>Shula</i> (colicypain), <i>Atisara</i> (diarrhea), <i>Gourava</i> (heaviness), <i>Aantrakujana</i> (gurgling sound).

#### Physiological Significance of *Agni*

- *Agni* is employed to convert (cook) the food and render it fit for digestion. So food particles are become able to absorb into the system to reach every cell of the body. Hence nourishment of body takes place.
- In living organism it maintains the structural and functional integrity by performing the vital activities like *pakadi karmas* (biophysical and biochemical processes).
- In every tissue and cell *Agni* is present and necessary for maintaining the nutrition of the tissue and maintenance of the auto-immune mechanism.
- Helps build balanced *Dhatu*s.
- *Agni* destroys micro-organism, foreign bacteria, and toxins in the stomach and intestine. In this way it protects flora in these organs.

#### CONCLUSION

After a detailed discussion on *Pitta* and *Agni*, it is concluded that there is no fundamental difference in physical and biological fire or *Agni*, except that the latter is associated with living organism. The effect of fire at physic-chemical level is decomposition, disintegration and acceleration of various chemical reactions occurring in nature. Similarly the main function of the *Agni* in the body is to breakdown or to disintegrate the food into their simplest possible components making it fit for absorption and utilization by the body. *Agni* represents the root of healthy life when balanced. If deranged, it causes disease.

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