

CONCEPTUAL STUDY OF AGNI AND ITS IMPORTANCE IN GENESIS OF DISEASE

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ABSTRACT

Agni, is the basic Concept of *Ayurveda*. This siddhanta provides fundamental knowledge for understanding the theories of *Ayurveda* like, *Ahara Pachana*, *Dhatu utpatti*, *Vyadhi utpatti*, *Ayu Parijana* etc. *Agni* is responsible for Strength, health, longevity vital breathe and it determines the quantity of food to be consumed. *Agni* is believed to be the agent for any kind of transformation. It's a known fact that multiple transformation processes take place in the body every second. These may be Bio-chemical or Bio-physical or any other type of bio-transformation and due to these transformation procedures, body grows, develops & lastly gets destroyed too. It can be said that "life! is nothing but a constant process of transformation." Disease state of the body is also a pathological change either functional or structural. Thus, the principle of *Agni* becomes Vital as either the health or the diseased state can only be understood with understanding of changes.

Ingested food is to be Digested, Absorbed and Assimilated, which is unavoidable for the maintenance of life which is performed by *Agni*. According to the function an site of action, *Agni* has been divided into 13 types which are - 1 *Jathragni*(digestive enzymes), 5 *bhutagni*, 7 *dhatwagni*(metabolism at tissue level). *Jathragni* is the chief among all types of *Agni* because the function of *Bhutagni* & *Dhatwagni* depends on it. Aggravation and diminution of *Jathragni* results in Aggravation and diminution of *Bhutagni* and *Dhatwagni*

This article revolves around the details of *Agni* described in various text of *Ayurveda* which is an important concept for disease process & treatment

Keywords: *Agni, Jathragni, Bhutagni, Dhatwagni*.

INTRODUCTION: *Agni* is the most important factor in *Ayurveda* because from the beginning its balanced state is termed as *Swastha* by *Susruta*¹. *Ayurveda* has described an important factor of digestion and metabolism in our body as *Agni*. Ingested food is to be Digested, Absorbed and Assimilated which is unavoidable for the maintenance of life and is performed by *Agni*. So, the term *Agni* is used in the sense of Digestion of food & metabolic Products. *Agni* converts food in the form of energy which is responsible for all the vital functions of our body. Therefore, *Ayurveda* considers that *Dehagni* is the cause of life, Complexion, Strength,

health, nourishment, lusture, *Oja*, *Teja* (energy) and *Prana* (life- energy) About the importance of *Agni*, Acharya Charaka has mentioned that after stoppage of the function of *Agni*, the individual dies. When the *Agni* of an individual is *Sama* then the person would be absolutely healthy and would lead a long happy healthy life. If *Agni* of a person is vitiated, the whole metabolism in his body would be disturbed resulting in ill- health and disease hence *Agni* is said to be the base or *Mula* of life³.

UTAPATTI OF AGNI: Concepts of *Agni* in *Ayurveda* is quite different than of philosophical Concept. Various Indian

philosophies describe Agni as an important *tatva* [element] of the universe. Though there is some difference of opinions among philosophies regarding *utpatti* of agni eg: *sankhya* describes it as one of the *mahabut* generated from *rupa Tanmatra* which is resultant of *Tamasika Ahamkara*. *vaisesike* opines that Agni is one of the *Karan Drya* which is eternal and one of the material cause of the entire universe. If further mentions types of *Agni* one among them is *Audaryagni* which resides in the body of animate world performing the function of digestion and metabolism¹⁹. *Ayurved* deals with this kind of *Agni*. According to modern medicine metabolic process division and multiplication are going in all cells [*Dhatu paramana*] of our body , from birth till death . The cells is the functional unit of the body . According to charak , the constituents parts of the body, if future divided into the atoms ,are sure to become innumerable , as such cells or atoms are exceedingly numerous ,very minute and ultra sensory ,in the conjunction and disjunction of cell ,the activating factors are *vata* and the nature of action⁴. In *shushrut* ,we can see how the “*avayavas*” are formed from various *Dhaus*⁵.Thus based on *charak* and *shushrut* ,the above cells can be considered as “*Dhatu Pramanas*” for these constants process in all cells , a biological energy is constantly essential, without which the survival of our body will be quite impossible. the same biological energy is provided by *Agni* in *Ayurveda*. This *Agni* provided biological energy in the cells [*Dhatu paraman*] of our body is of two types potential and kinetic.

AIM AND OBJECTIVES :

1.General description of *Agni* in various *Ayurveda* texts .

2. To evaluate the process of digestion and metabolic in *Ayurvedic* classical texts.
3. Importance of *Agni* in the genesis diseases and its treatment.

REVIEW AND DISCUSSION: This article is review of various *Ayurveda* classical texts related to *Agni*. The references were compiled for understanding of the concepts of *Agni* and *Ahara Paka* [metabolic transformation] in *ayurveda*.in *Brahmasutra* , *Agni* has been meant be a sign of life in the body. great value of *Agni* has been shown by classical literature. *Acharya Yasaka..*has given the etymology. Of the terms *Agni* which is as follows *Agni* = A + G + NI ,the words “ A ” denotes root meaning ‘Togo’ “ G ” denotes the roots ‘ Anja ’meaning “ to glitter ” or “root ” “Daha ”meaning “ to burn ” and “ NI ” means “ to carry ”. The etymology given By *yasaka*, *shankaracharya* [*Vedantasutra shabda kalpa* drum] illustrates that *Agni* carries everything in it. it moves everywhere and metamorphoses substances burns, assimilates, glitters and grows. *Agni* its pivot around which the remaining factors responsible for the maintenance of health and causation of disease as well as decay revolve[*shabdakalpadrum*]⁶

In *shabdakalpa* *druma* synonyms of *Agni* have been compiled. these synonyms helps in explaining the nature and functions Of the *Agni* ,e.g :- *vaishvanara* ,*sarrava paka* ,*tanoonpata* , *amivachatana* , *damunasa* , *shuchi* , *vishwambhr* , *rudra* etc [*shabdakalpadrum*]⁷.

AGNI AS PITTA: Now there is a question as to whether *Pitta* and *Agni* are both the same or are different ? does any area exit of *Agni* without *pitta* , or is it that *pitta* is *Agni*. This should be clearly understood by the suggestion regarding *pitta* and *Agni* by different *Acharya*.

The origin of *pitta* is from ‘*tapa* ‘which mean Combustion/ digestion – to give nourishment to the body by digestion of ingested food . To maintain *heat* – by means of heat ,it maintain the color , *lusture* etc of the body⁸.

Agni in Ayurveda reflected in context of *pitta* which is similar to *Agni* because in performs the action like *pachana* [digestion] *dahana* [burning] *vinnasamghata* [splitting], *tapana* [Heat producing] and *parinama* [conversion] which similar to *Agni* hence it is also called as *antaragni*.

According to *sushruta* , there is no existence of any other *Agni* in the body without *pitta* ,because when there it increased digestion and combustion in the body due to *ushna guna of pitta* ,the treatments like *Agni*⁹ .

Acharya shusruta has described five types of *Agni* as the verity of *pitta*. *Acharya marichi* has also emphasized that *Agni* present in *pitta* gives good or bad results when it is normal or vitiated¹⁰ .

Chakrapani has commented on “ *pittantargatta* ” that the function of *pitta* inside the body is not combustion .but its work is to provide heat of *Agni*¹¹ .

Acharya Bhoja also considered *pitta* as *Agni* , digestive fire is included within *Agni* . which is specially meant for different enzymatic activities of the body i.e - *pachana,deepana,bhedana* etc.

According to *Hemadri* *pitta* of five division .which are located in the interior of the *pakvashaya* and *amashay*, thought it is composed of *panchabhutas* . Because of an increase of [predominance qualities] of *teja bhuta*, it is devoid of liquidity. also ,because it does not possess *snigdha* [viscidity], *sita* and such other properties, '*apabhuta*' it is called by the term “ *anal* ” because of its function of *paka*. It cooks

the food,dividing in into essence and waste separately. Being localized there, it bestows grace [help] to the other *pitta* present there and also the other *dhatwagni* present in the *dhatus* by giving them strength [power of functioning] which is known as *pachakapitta*¹² .

Different examples are available in our classics to indicate that *pitta* is the same of *Agni*. but same doubts arise behind the concept of whether *pitta* is *Agni*, e.g.

- appropriate example to highlight the above concepts that ghee alleviates *pitta* but enhances *Agni*
- the quotation of *acharya shusruta,samadoshah samganishcha(su.sha.15/48)* has clearly indicated that *pitta* and *Agni* are not the same.

This is quite in accordance with the concept of *pittosma*.The concept *pittosma* can be correlated with the modern concept enzymes required for any reaction along with the energy which combinedly digest the food. Thus *ayurvedic* concepts of *jataragni* is best explained in the terms of *pittosma* .

TYPES OF AGNI: *Agni* is innumerable because of its presence in each and every *Dhatu paramanu* [cell] of the body. But, enumeration of the number of *Agnis* varies in various classical *ayurvedic texts* as shown below

Agni as per *nya-vaisik* are 4 types
[1.]*Bhauma* /physical fire,
[2.]*Divya* /cellistial fire ,
[3.]*Auduryagni* /abdominal fire,
[4.]*Akaraja*/present in gold, silver, like metal

Most acceptable classification of *Agni* as described by *charka* and *Chakrapani* commentary is as 13 types of *Agni*¹³ .

1.*Jatharagni* :-1

2.*Dhatawagni* :-07

3.Bhutagni :- 05

-According to *sushruta-pachaka pitta* as *Agni* but classified broadly into 5 types viz *Pachakagni*, *ranjakagni*, *alochakagni*, *sadhakagni*, *Bhrjakagni*. There is an indirect reference of five *Bhutagni* underlying in the brief description made to the transformation of food stuff¹⁴.

Vagbhata has described different types *Agni*,viz-²¹

- 1.*Pittagni*-05
- 2.*Dhatwagni*-07
- 3.*Bhutagni*-05
- 4.*Dosagni*-03
- 5.*Malagni*-03

Sarangadhara has recognized five *pittas* only [*pachaka*,*bhrjak*,*ranjak*,*alochaka* and *sadhak*]¹⁵ *Bhavamishra* has followed *Acharya charak* and *Vagbhata*¹⁶.

Agni has been divided 13 types according to the function and site of action these are-
 1.*Jatharagni*- one *Agni* present in the stomach and duodenum.

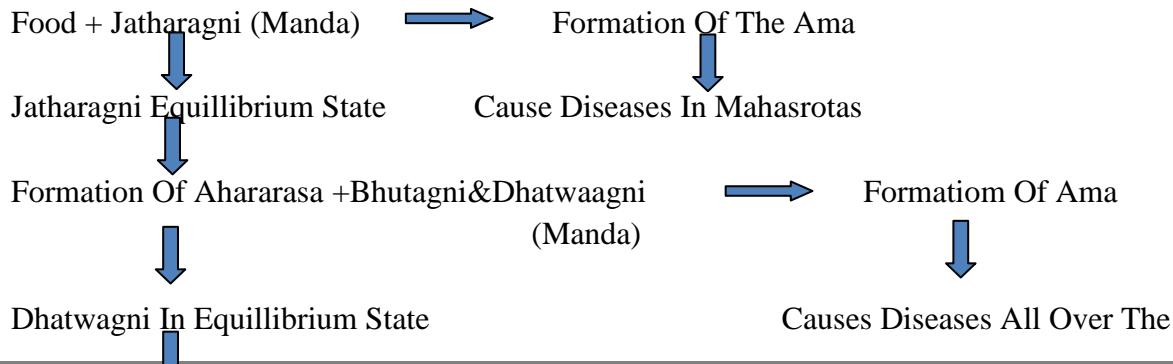
2.*Bhuagni*- five *Agni* from five basic elements.

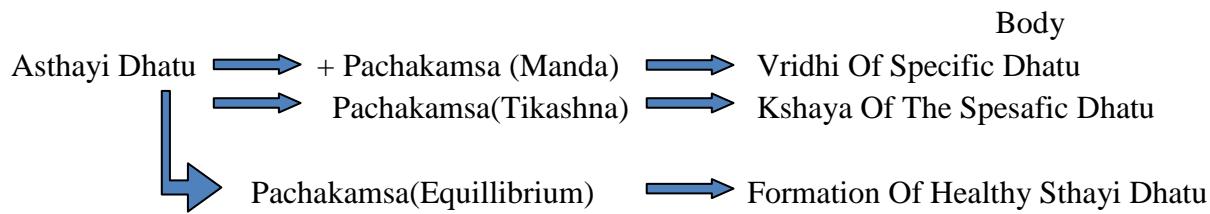
3 *Dhatwagni*- seven *Agni* present ,one in each of the seven *dhatus*.

Out of all these *Agni Jatharagni* is the most important among them because it helps in digestion, absorption and metabolism of ingested food, it also nourishes the *Dhatwagni* and *Bhutagni*. *kayagni* means the fire like agent present in kostha called as *kosthagni*. *Pachakagni*

is located in between *amasaya* and *Pakvasaya* which has power to digest the food and prepare nutrients materials for all *Dhatus* because of identical function , *dhatwagni* cooks nutrient materials prepared by *Jatharagni* and split in to further smaller particals and transfer the suitable material to individual *dhatus* by which *dhatus* are strengthen. *Atrye* also proclaims that there is *ushma* in *dosh* *dathu* and *malas*. Its seat is *grahni* so called because it with hold the food certain times inside *amasaya* to facilitate digestion. In opinion of *Dhanwantari* it is tha *Kala* know as *pitta Dhara kala* situated at the entrance of the *pakvasaya* and acting as a bolt to the door of path way of food, it is responsible for duration of life, health, *ojas*, strength of all the *bhutagni* and *dhatwagni* , when it is strong it withholds the ingested food stuff, cooks it well and bring in down but when weaks it allows even uncooked food to the *pakvasaya*. the strength and vitiation of *Agni* depends upon *grahni* and produces disease at vitiated state²⁰. The state of *dhatwagni* will be also similar with the state of *Jatharagni*. in its over function, it over cooks food stuff and very little or no nutrient gets formed which in terms leads to *dhatukshya* and its weaks also allows to accumulate the uncooked *dhatu* leads to *dhatuvriddhi* both leads to occurrence of many diseases.

SCHEMATIC DIAGRAM OF THE WHOLE DIGESTION PROCESS IS AS FOLLOWS





The entire process of digestion by *Jatharagni* in *Ayurveda* is given as –

- *Avasthapaka + Jatharagni paka*
- *Bhutagni paka*
- *Dhatwaagni paka*

(1) Avasthapaka: it refers to changes which *Aharadravya* (ingested food) undergoes in the *kostha*. it has two phase –

- *Prapaka* (chemical action)
- *vipaka* (action of *Jatharagni* in *Ahara* substrate)

Maharshi charka elaborate more clearly in *chikitsha*¹⁷. which Is as follows food ingested by mouths is swallowed and propelled into G.I.tract by *prana* *vata*. Hard masses split and made soft by liquid material (*kledaka kapha*).then *audaragni*

activated by *samana vayu* cooks the food present in the *amasaya* i.e. Digestion of ingested food inside stomach properly. although food consists of all the six *rasas* it first becomes *madhura* and gives rise to production of frothy nature *kapha*, next undergoing further cooking, it becomes *amla* and gives rise to production of *pitta* then getting expelled from *amasaya* it gets dried becomes solid and *katu* that gives rise to production of *vata*. *vipaka*

As per *vagvatta* –

the three successive stage of transformation of *rasas* by action of *jatharagni* is known as *vipaka* . Before going for *Dhatwagnipaka* and *Bhutagni paka* , six *rasas* are acted upon giving rise to 3 resultant *vipaka* which is as follows:

S.N	RASA	VIPAKA
1	<i>Madhura</i>	<i>Madhura</i>
2	<i>Amla</i>	<i>Amla</i>
3	<i>Lavana</i>	<i>Madhura</i>
4	<i>Katu</i>	<i>Katu</i>
5	<i>Tikta</i>	<i>Katu</i>
6	<i>Kasaya</i>	<i>Katu</i>

(2) Bhutagni paka: the fire *usma* via *bhauma* ,*apya* ,*agneya* ,*vayavya* ,and *navasa* cooks the *parthiva* and other qualities of foods each of its own kinds respectively and derives strength from *jatharagni* .The activity of *bhutagni* called *nistha paka* or second phase of digestion . The Qualites i.e *parthiva* qualities nourishes the *parthiva* material of body after *Bhutagni paka* .

(3) Dhatwagni paka: *Dhatwagni paka* means chemical reaction to which the

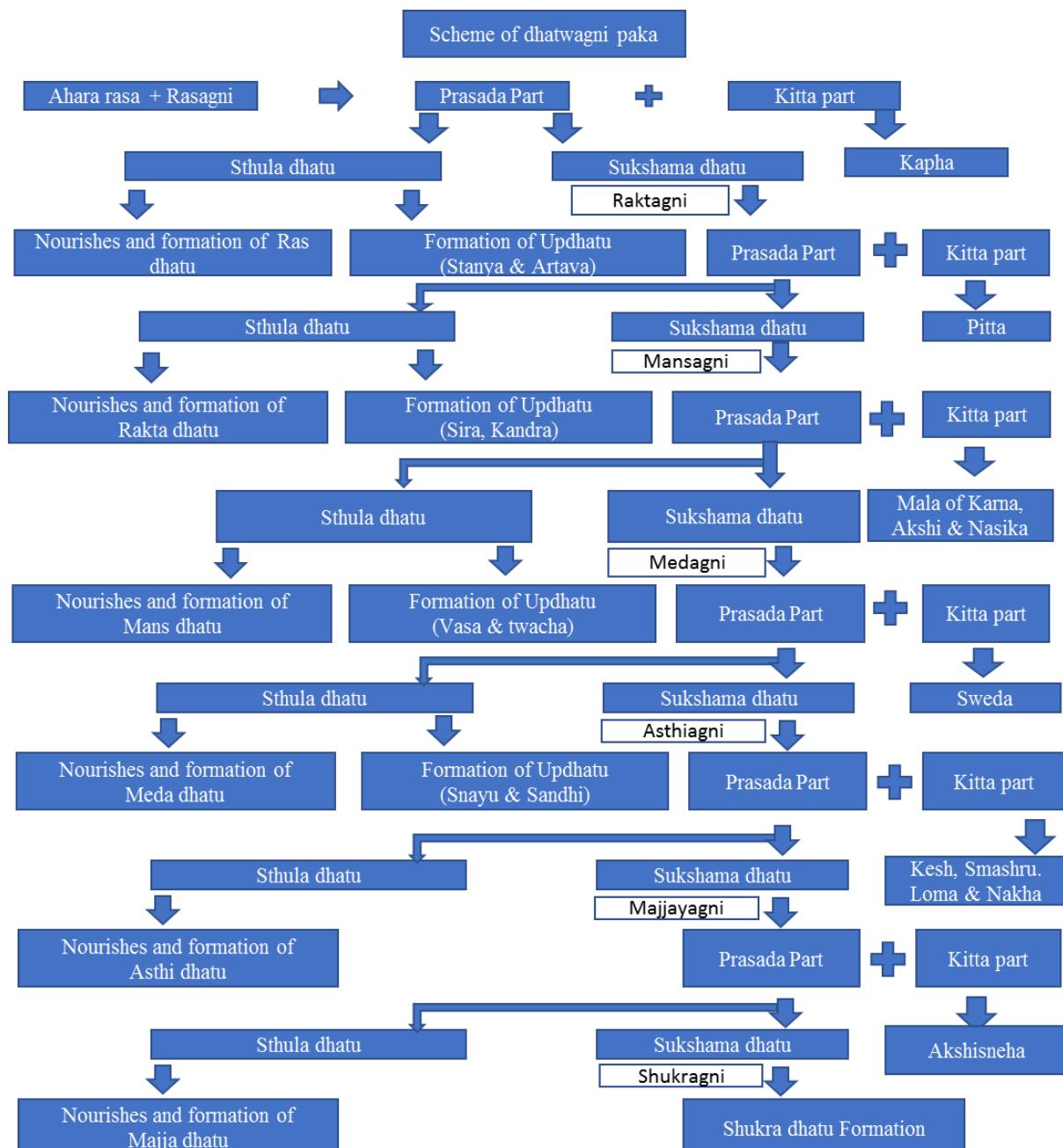
Ahara rasa absorbed from *adhaamasaya* (*grahani*)is subjected to before it is utilized by the *posya* or *sthayi* *dhatu* present in all part of the body .

The *sara* undergoes further cooking by seven *Agnis* of their own and two kind of material get formed viz.*kitta* and *prasada* .The *prasada* part is again of two types viz *stula* (use for its own growth) and *sukshma* responsible for the formation of next succeeding *dhatu*. *Rasa dhatu* by its name it is constantly circulating Hense the

proceeding *dhatu* giving rise to its succeeding *dhatu*, in this way from *rasa* to *rakta*, *rakta* to *mamsa* and so on. Last *dhatu* the *sukra* leads to the formation of embryo.

The formation and development of *dhatu* are after the other ensuing the growth of

the body, all these are known as *dhatu parinama*. The outcomes of *dhatwagni vyapara*, waste product of *dhatu* are *kapha*, *pitta*, *khamala*, *sweda*, *nakha*, and *roma*, fatty material of eyes, skin, faces and *ojas* respectively.



Agni plays an important role both for the genesis of disease and normal state of

healthy individuals. *sushruta* in *sutrasthana* 15 chapter describes the

importance of *Agni* as follows :-Balanced state of *Agni* keeps the *dosha* in Equilibrium state and by which digestion, absorption and metabolism is completed properly ,after that it nourishes all *dhatus* ,so that balanced state *Agni* means *swastha*. (healthy) all diseases are due to *mandagni* ,Here *mandagni* means abnormal state of *jatharagni*, *bhutagni* and *dhatwagni*.

which is described by *charak* - " *sarva rogapi mandognou* " The disorder of *Agni* plays on important role to producing diseases. *Ama* plays on important role for the production of diseases like *jwara* , *alasaka* ,*vilambika* etc. Hense it is on synonyms of *roga* and the production of *ama* is totally depends upon the *Agni*. In *Jwara* there is outflow or displaced of *Agni* from its normal site (*amasaya*),so aim of it is to enhance *Agni* by *langhana* ,*pachana* ,etc *Agni* played a vital role for

the production of *Medoroga*. Here the state of *jatharagni* well increase and there is reduction in the function of *medodhatwagni* which leads to the accumulation of *medo* in the body. *Madhavakar* described *panduroga* and *kamala roga* nidan after the *krimiroga* .*krimi* which are formed due to *Ajirna* again which is caused by the vitiation of *Agni*. In *Prameha* the main site affected is *kloma* .*kloma* is derived from *kapha* and *rakta* .*rakta* has similarity with *pitta* ,so in *Prameha* principle of it is augment the *Agni* .*Samhita granthas* have described four state of *jatharagni* i.e. *Samagni* (*Sama prakriti*) *visamagni* (*vata prakriti*) *tikshnagni* (*pitta prakriti*) and *mandagni* (*kapha prakriti*).The three abnormal state of *Agni* produces the following diseases whereas *samagni* properly digest the normal diet.

S.NO	DIVISION OF AGNI	DOSA PRIDOMINENCE	LAKSHAN
1	<i>Samagni</i>	<i>Tridosa</i>	digest normal diet
2	<i>Visamagni</i>	<i>Vata</i>	slow digestion , <i>adhmana</i> , <i>sula</i> , <i>udavarta</i> , <i>atisar</i> , <i>jathara gourava</i> , <i>antra kujana</i> , <i>pravahana</i> (dysentery) etc
3	<i>Tikshnagni</i>	<i>Pitta</i>	<i>vasmaka rog</i> , <i>daha</i> , <i>talusosa</i> , <i>galososa</i> , <i>osthasosa</i> , <i>santapa</i> etc
4	<i>Mandagni</i>	<i>Kapha</i>	<i>udara gourava</i> , <i>siro gourava</i> , <i>kasa</i> , <i>svasa</i> , <i>praseka</i> , <i>chhardi</i> , <i>gatrasadana</i> etc

In diarrhoea (*atisara*) there is reduction of *Agni* results from the increase in vitiated *jaliya dhatu* production of *grahani roga* is primly due to the affection of *Agni* and its

main treatment principle is *agnidipak* .*vagbhatta* described the disease primarily occurs due to vitiation of *Agni* (*mandagni*) are *arsha* ,*udorroga* and *grahani* . In udara

jatharagni vitiated along with *prana* and *apana vayu*. In *amavata* also the aetiological factor *visamasanagni* impaired and *srotavarodha* and leads to *dhatu kshaya*. So from the above discussion .It concluded that *Agni* is the fundamental factor for producing disease and its should be protect in any disease .So the entire life is depends upon it¹⁸.

CONCLUSION: The concept of *Agni* is basic concept of *Ayurveda*. *Agni* is believed to be the agency for any kind of transformation. it is a known fact that at each and every second multiple procedure or transformation take place in the body.These maybe bio chemical or bio physical or any other type of bio transformation. Due to constant transformation procedure body growth develop and lastly destroys too.

After a detailed discussion on *pitta* and *Agni* ,it is concluded that all theories in their regard have there on importance and it is very difficult to conclude which theory is more appropriate but one conclusion that can be drawn after going through the detailed is that in regard of treatment *pitta* and *agni* are same ,whereas in accordance to their ,build they differ from each other. Explaining briefly the digestion and metabolic function of *Agni* ,*acharya charka* has mentioned that various types of die tic material are digested by their own *agni*(*bhutagni*),encouraged and enhanced by *antaragni* (*jathargni*),which is further digested and metabolized by *dhatvagni* to associate the body with the nutritional strength, complexion and happy life along with providing energy to the seven *dhatus*.

Jatharagni situated below the *amasaya* in *garahani* is activated by *samana vayu* and digests the food which is taken in proper *matra* and in proper

manner observing all the *ahara vidhivisesayatanas* and *ahara vidhividhana* , in order to increase the longevity of life. Importance of *agni* has been in both the healthy and diseased condition .in healthy condition it is necessary for maintenance of health while in diseased condition it is importance for diagnosis as well as treatment of the particular disease. *Agni* is importance in all types of treatment like *samana ,sodhana and sastrakarma*. Moieties of *kayagni*, located to in its own place , are distributed to and permeate to all the *dhatu*. A decrease of it (below to the normal) makes for an increase of the *dhatus*. While an increase of it (above to the normal) makes for a decrease of a *dhatus*.

REFERENCES:

- 1.Sushruta samhita ,kaviraj ambika dutta shastri ,chaukhamba Sanskrit bhavan, ninth edition 1995 sutrasthan 15/48 page no. 64
- 2.Charka samhita sashtri kashinath ,pt.chaturvedi gorakhnath ,dr .ibid verse 15/4 varanasi chaukhamba bharti academy ,2004 chikitsa sthana 15/2 page no. 452
- 3.Charka samhita sashtri kashinath ,pt.chaturvedi gorakhnath ,dr .ibid verse 15/4 varanasi chaukhamba bharti academy ,2004 chikitsa sthana 15/4 page no. 452
- 4.Charka samhita sashtri kashinath ,pt.chaturvedi gorakhnath ,dr .ibid verse 15/4 varanasi chaukhamba bharti academy ,2004 sharir sthana 7/17 page no. 917
- 5.Sushruta samhita ,kaviraj ambika dutta shastri ,chaukhamba Sanskrit sansthan 2005 sarrir sthana 4/25-30 page no. 88
- 6.Shabdakalpadrum radhakantdev R editor amar publication Varanasi chaukhamba Sanskrit series 1967:8
- 7.Shabdakalpadrum radhakantdev R editor amar publication Varanasi chaukhamba Sanskrit series 1967:8

8.Sushruta samhita ,kaviraj ambika dutta shastri ,chaukhamba Sanskrit sansthan 2005 sutra sthana 21/5 page no. 87

9.Sushruta samhita ,kaviraj ambika dutta shastri ,chaukhamba Sanskrit sansthan 2005 sutra sthana 21/5 page no. 88

10.Charka samhita sashtri kashinath ,pt.chaturvedi gorakhnath , varanasi chaukhamba Sanskrit sansthan ,2004 sutra sthana 12/11 page no. 251

11.Chakrapanni tika on charak samhita of agnivesa by cakrapannidutta Varanasi chaukhamba vidya bhavan 2008 sutra sthana 12/11 page no.80

12.Kunte am sastri kr ,editor ashtanga hrdaya (a compendium of the ayurvedic system)of vagbhata sarvanga sundra of Arun Dutta tika and ayurvedarasayana of hemadri varanasi chaukhamba surbharti prakashan 2002 sutra sthana 12/10-12 page no.193

13.Charaka samhita shastri k chaturvedi G. editor Varanasi chaukhamba Bharti academy, 2004 chikitsa sthana 15/38 page no.458

14.Sushruta samhita ,kaviraj Ambika dutta shastri ,chaukhamba Sanskrit sansthan 2005 ,sutra sthana 21/10 page no.56

15.Tripathi b ,editor .sharagdhar samhita of pandit sharangdhar acharya dipika Hindi Varanasi chaukhamba Sanskrit sansthan 1994, sa.purva kh.5/32 page no. 41

16.Shastri bs vishyarl editor bhavaprakasha of shri Bhava Mishra the vidyotini hindi commentary ,Varanasi, chaukhamba Sanskrit sansthan 1999,Bhav. Pu.kh. 3/169 page no.37

17.Charaka samhita shastri k chaturvedi G. editor Varanasi chaukhamba Bharti academy, 2004 chikitsa sthana 15/9-11 page no.457

18.Charaka samhita shastri k chaturvedi G. editor Varanasi chaukhamba Bharti academy, 2004 chikitsa sthana 15/4 page no.457

19. padartha vigyan prof. yogesh chandra mishra chaukhmaba publication first edition 2004 page no.105

20. kunte AM ,navre KR.asthanga hrdaya(a compendium of ayurvedic system) of vagbhata , "sarvangsundara" of arun dutta tika and "ayurvedarasayana" of Hemadri varanasi chaukhamba surbharti prakashan 2002 page no.394

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