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Concept of Rasayana w.s.r Haritakyadi Yoga as stated in Charaka Samhita .

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ABSTRACT :

" Rasayana tantram naam vayasthaapanam ayurmedhabalakaram rogaapaharan samartham cha |" (Su. Su.

Here, according to Sushruta , Rasayana helps in arresting ageing process , lengthening of life span , improves memory , stamina and develops resistance against diseases . Acharya Charak has included 'Rasayana' as the first chapter in Chikitsasthan .

Owing to the immense importance given for rasayana , we are persuaded to think on the exact role of rasayana dravyas . Apparently , all the karmas appear unrealistic as to how can just a formulation simultaneously act on such a broad scale.

The following article throws light on the probable mode of action of Rasayana w.s.r. to Haritatakyadi yoga that is stated by Charak to be consumed before taking Rasayana therapy .

Keywords: *Rasayana , Haritakyadi yoga , etc.*

INTRODUCTION:

" Rasayanam tu tadneyam yat jaravyadhi nashanam |" (sharangdhara)

Acharya Sharangdhara has claimed the Rasayana to be effective in Geriatrics and also in increasing immunity .

Acharya Charak has stated to consume Hritakyadi yoga prior to Rasayana therapy . The Yoga is given to be as follows:

" Haritakinam churnani saindhav amalakam gudam |
Vacha vidangam rajani pippali vishwabheshajam ||
Pibet ushnambuna jantu snehasveda upapaaditam |
Ten shuddhasharirasya krut sansarjanaya cha ||" (Cha.Chi. 1/1/25)

If we look at the dravyas mentioned , they itself act as Rasayanas because each of them are a part of rasayana yoga later .

So, a curiosity arises to seek the reason behind advising consumption of this specific churna only before Rasayana . Otherwise as a part of prior detoxification i.e. Shodhana Karma , any Anulomak Kalpa could have been used.

Ayurveda has always stressed on *Tridosha Samya Siddhanta* as the homeostasis of these three doshas is very important to maintain good health. The very same concept is taking roots in modern medicine in consideration of cell homeostasis in physiology .

A cell is a fundamental unit of our body and so if it is healthy , the whole of our systems will be balanced in their functions .

" Vata pitta kapha dehe sarva sroto anusarina |" (Cha.Chi.28/59)

We can say that Vata , Pitta , Kapha hae their identity in each cell of our body as each of the cells can be correlated to srotasa .

In relation to disease , Sushruta stated :

" Sarvesham cha vyadhinam Vata pitta shleshmanam eva malamulakam |" (Su.Su.24/8)

Thus , imbalance of Vata , Pitta , Kapha at cellular level can be the precursor of a diseased condition .

Ayurveda as stated before claims to balance this status again with the help of Rasayana . Thus , Rasayana has an important role in maintaining homeostasis .

AIM : To derive the probable mode of action of Rasayana w.s.r Haritakyadi Yoga as stated in Charak Samhita .

DISCUSSION :

While explaining basic pathological process in any disease ,

"Kupitanam hi doshanam sharire paridhavatam |
Yatra sanga kha vaigunyat vyadhi tatra upajayate ||" (Su.Su.24/10)

So, we land up with the conclusion that disease is nothing but cellular equilibrium disturbance . We will able to decode this concept of ***" khavaigunya"*** by understanding oxidative stress.

Concept of Oxidative stress :[a]

In normal healthy human body , the generation of pro-oxidants in form of ROS & RNS are effectively kept in check by the various levels of anti-oxidant defence .

However , when it gets exposed to adverse physicochemical , environmental or pathogenic agents such as atmospheric pollutants , cigarette smoking , UV rays , radiation , toxic chemicals , over nutrition and advance glycation end products in diabetes , this delicately maintained balance is shifted in favour of pro-oxides resulting in oxidative stress . It has been implicated in the etiology of several diseases and in process of ageing . This oxidative stress disturbs normal cell

functions and this chain shifted to other cell types too . So we can correlate oxidative stress with ***" Khavaigunya" .***

Concept of 'Ama' :

Ayurveda also has a unique concept of 'Ama' which is also considered as one of the significant causes of ' vyadhi utpatti ' . This concept has a very broad view.

Acharya Madhavkar has explained -

" Aaharasya rasa shesho yo na pakvo agnilaghavat |

..... Sa mulam sarva roganam ....|"

It is believed that Ama is a residue containing toxins which is the undigested or unassimilated part of ahara rasa which causes diseases .

But it is not just improper assimilation that results into disease ! Charak adds to it :

" Matra api abhyavahrutam pathyam cha annam na jiryati |

Chinta shoka bhaya krodha dukha: shayya prajagarai: ||" (Cha.Vi.2/8)

He states that irrespective of consuming balanced diet in adequate proportions , exogenous factors like lifestyle , stress conditions , ill-habits also contribute in production of disease and ageing .

Taking into consideration such exogenous and endogenous factors in formation of 'Ama' , we can certainly think on the aspect of role of free radicals in disease and ageing .

Free Radicals : [b]

Free radicals are any chemical species capable of independent existence having one or more unpaired electrons .

These are highly unstable and reactive in nature and cause oxidative chain reaction .

The free radical oxidation moves from molecule to molecule , cell to cell causing immense damage to the human body . These are manly derived from oxygen (ROS –reactive oxygen species) and nitrogen (RNS) and are generated in our body by various exogenous systems , exposure to different physicochemical conditions or pathological states . These are five basic reaction characteristics of radicals . These reaction on biological organelle including lipids , proteins and DNA appear to occur

constantly in aerobic environment . When a free radical reacts with a non- radical , a new radical results and a chain reaction is set up .

This chain reaction usually causes a lot of alteration . The cumulative

effect of multiple changes by free radicals is the proximate cause of cell death .

" Uttarottara dhatu dushti" is nothing but the same .

Membrane lipids present in subcellular organelles are highly susceptible to free radical damage . This chain reaction of lipid peroxidation has deleterious effect on cells causes generation of large no. of toxic products which have their effects away from site of generation .
A close relation between lipid peroxidation in aortic wall and degree of atherosclerosis is a good example of same .

Another example is of accumulation of lipofusin , amyloid bodies , modified proteins and lipids which are not suitable for further metabolism .
Thus , we see there is a close connection between 'ama' , free radicals and ***" Khavaigunya "*** **.**

ANTIOXIDANTS :[c]

Herein lies the concept of rasayana.
Anti-oxidants are substances that neutralise either free radicals or their actions . These are present in cells itself for protection
They are :-
a) Superoxide dismutase
b) Catalase
c) Glutathion peroxidise
d) Glutathion reductase.
Apart from these , Vit E (alpha tocopherol) is an essential nutrient which functions as a chain – breaking anti-oxidant which prevents propagation of free radicals in cell membranes .
Vit C (ascorbic acid) , carotenoids , flavonoids and related polyphenols , alpha- lipoic acids are important .

Glutathione :[d] **Glutathione or GSH** is often referred to as master anti-oxidant composed of three amino acids cysteine , glycine and glutamate, it can be virtually found in each and every cell of human body .
The highest concentration of glutathione is in the liver making it critical in the detoxification process for the body.
Viruses , bacteria , heavy metal toxicity , radiation and medications and normal ageing process can cause free radical damage to the cells and deplete glutathione .

As the generation of free radicals exceeds the body's ability to neutralise and eliminate them , oxidative stress .

A primary function of glutathione is to alleviate this oxidative stress .

Glutathione is ubiquitous in animals , and micro-organisms and being water soluble is found in cell cytosol and other aquatic phases of living system .

Glutathione exists in two forms :

The anti-oxidant " reduced glutathione " tripeptide is conventionally glutathione and abbreviated GSH . The oxidised form is glutathione disulphide or GSSG .

The GSSG / GSH ratio can be a sensitive indicator of oxidative stress.

Thus , intracellular GSH status is a sensitive indicator of cell's overall health . GSH is under homeostatic control intra as well as extra- cellularly .

Liver parenchymal cells secrete GSH for P450 conjugation and other metabolic requirements and then export GSH as systematic source of SH- reducing power . GSH is carried in bile to intestinal lumen . The epithelial tissues of kidney tubules , lung has modest capacity to export GSH.

Mechanism of action and sites :

1) GSH is an extremely important cell protectant .

It directly quenches reactive hydroxyl free radicals and other oxygen centred free radicals .

2) GSH is a primary protectant of skin , lens , cornea , retina against radiative damage .

3) GSH availability down-regulates the pro-inflammatory potential of leukotrienes and other eicosanoids .

So , we can elaborate the Pharmacokinetics and dynamics of Rasayana drugs by using this concept .

As previously stated about Haritakyadi Yoga , let's have a look at their antioxidant capacities .

a) Haritaki : Terminalia Chebula [e]

In a comparative study of evaluation of anti-oxidant properties of Amalaki , Haritaki and Bibhitaki ; the following results were

obtained :

- T. Chebula i.e Haritaki was found effective in breaking the chain reaction better than Amalaki . Haritaki was proved to have the best hydroxyl radical scavenging activity in all . Thus , 'Karshana guna' of haritaki is proved .

b) Amalaki : Emblica Officinalis[f]

Amalaki is the richest source of ascorbic acid .

- Ascorbic acid is needed for smooth functioning of glutathione . An increase in concentration of Vit C increases concentration of glutathione . Vit C increases the cellular content of glutathione and ameliorates apoptosis . Thus , Vit C acts an anti-ageing and immunobooster (as it increases glutathione). Thus, Amalaki is proved to be Vayasthapan ...

c) Vacha : Acorus calamus [g]

In a study , Acorus calamus restored levels of GSH in a hepatotoxic model and also protected liver by reducing lipid peroxidation .

d) Vidang : Embelia ribes[h]

The polyphenols in Vidang have shown a positive neuroprotective function and increases GSH levels of brain so relieves the oxidative stress . It reduces lipid peroxidation .

e) Haridra : Curcuma longa [i]

The presence of phenoliic groups in ‘curcumin’ helps it in scavenging free radicals It is shown to increase GSH levels particularly in heart . (in DOX induced cardiotoxicity model) .

f) Shunthi : Zingiber Officinale [j]

This showed anti-oxidant activity which is attributed to its phenolic contents that are high . This is also a free radical scavenger .

g) Pippali : Piper longum[k]

These mainly act on catalase enzyme . Piper longum curtails lipid peroxidation and increases GSH content mainly in cardiotoxic model.

h) Guda : jaggery [l]

In a study , jaggery has antagonised many adverse effects of exogenous toxins like arsenic . It worked mainly on lungs and increased function of anti-oxidant enzymes .

i) Lavana in adequate amounts also helps to control lipid peroxidation .

CONCLUSION :

Here , all the contents of Haritakyadi Yoga are ***'Ushna viryatmak'*** and ' ***tikta katu rasatmak'*** . So also , all are used in 'sthaulya chikitsa' as well as 'ama pachana' . Haritaki is also Medohara . All this can be correlated with lipid peroxidation .

Thus , the moto behind selection of this role is to firstly break the chain reaction that produce free radicals and reduce lipid peroxidation i.e. have 'ama pachana'

All the Rasayanas have a specific organ related activity .Thus , by this churna will alleviate the imbalance caused by free radicals .

The purpose behind stating the consumption of this churna prior to Rasayana therapy is to clarify the cellular imbalance due to free radicals i.e Shodhana karma . This probably will help to increase cellular uptake of Rasayanas to the fullest and will enhance organ-specific activity i.e the rasayanas of respective Srotasa .

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