



Original Article

ROLE OF STRESS IN PREMATURE AGEING(AKALAJA JARA) AND ITS PREVENTION BY MEDHYA RASAYANA-A REVIEW

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Abstract

Deterioration of quality of life due to Premature Ageing in the world population needs to be addressed and a suitable solution. Mental stress is directly linked to over production of free radicals. The changes induced by free radicals are believed to be a major cause of ageing, disease development or death. Premature ageing(*Akalaja jara*) needs solutions in the form of medicines either herbal or modern medicines. Modern medicine contributed oral anti-oxidant tablets.*Rasāyana* is an agent which prevents premature ageing, promotes intellect, memory, provides immunity against diseases & thus helps an individual in living an energetic life.*Medhya Rasayana* helps in bringing positive impact on intelligence, its retention and quick recall. As per *Acharya Charaka*, *Medhya Rasayana* not only acts on rejuvenating the nervous system but also helps prolong life, capable of curing several diseases, improve overall immunity, digestion, lustre of skin, and speech (voice) .

Keywords: *Akalaja Jara, Rasayana, Medhya Rasayana.*

INTRODUCTION

Ageing has been defined as deleterious, progressive and universal process which is generalized impairment of function resulting in a loss of adaptive response to stress and in a growing risk of age-associated disease. We live in a world overrun by stress. Global urbanization, competition and the spread of technology have created a world in which access to information has become an obligation

and necessity. This is an accelerated aging due to many reasons, in which biological aging is more intense irrespective of chronological age.

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Aging does not take place simultaneously in all tissues. *Ashtanga Samgraha* was the first to mention how aging proceeds decade wise, whether it starts simultaneously in all tissues or from particular part of the body. According to this view, some qualities are being deteriorated in each decade of life beginning from, for instance at the end of first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, and tenth decade; the childhood, growth, complexion, intellect, skin luster, reproductive capacity, vision, hearing, mind, and functions of sense organs are lost, respectively,ⁱ and the maximum life span is 100 years.

According to Acharya Charaka *Jara* starts after 60th year of age. There is diminution of the Dhatus (tissue elements), strength of sense organs, energy, power of understanding, retention, memorizing, speech and analyzing facts. There is gradual diminution in the qualities of Dhatus and dominance of Vata during this ageⁱⁱ

Various Manasika Nidanas like Chinta, Shoka, Krodha etc. directly affect Agni results in Mandagni. Here again Dhatus get malnourished due to Mandagni and *Jara* is a manifestation of Dhatu Kshaya.ⁱⁱⁱ

In today's era of modernization psychological factor play a major role in the manifestation of diseases. Premature ageing or *Akalaja Jara* is also a manifestation of stress.

A wide range of studies have shown that the stress caused by things like: untreated depression, social isolation, long-term unemployment, anxiety attacks can speed-up the aging process by shortening the length of each DNA strand.

Cell aging is controlled by a part of the DNA, the ends of chromosomes, called telomeres. As we age the telomeres get shorter. When it gets effected by stress the telomere frays away and the cell dies.

Aims & objectives: To explore the role of *Medhya Rasayana* in premature ageing (*Akalaja Jara*).

Material & method - classical text of Ayurveda and allied sciences, research papers and related data on different websites have been critically reviewed. All the compiled materials have been analyzed to frame the present research paper.

Classification of *Jara*:

Sushruta has described that *Jara* is natural phenomenon of human body. It is divided in two types i.e. *Kalaja Jara* and *Akalaja Jara*^{iv}.

Kalaja Jara - The manifestations of age related symptoms are reflected after certain age. The *Kalaja Jara* is *Pariraksana Krita*, which means that it occurs at the proper age even after following the daily and seasonal routine described in *Swasthavritta* and use of *Shodhana* at the proper time.

Akalaja Jara - The symptoms which manifests before certain age due to various etiological factors, the ageing process is rapid. This type of Jara is said to be due to *Apari-RakshanaKrita*, which means that it occurs before the mentioned age due to not taking the proper care of personal hygiene (*Swasthavritta*) and not undergoing *Shodhana* at proper time.

Causative factors of Akalaja Jara^v

Panthah: excessive walking or travelling

Sheetam: excessive cold food or spoiled food

Kadannam: food article devoid of Jivaniya properties,

Vayovridha yositah: aged women

Manasa pratikulta: unfavorable condition of mind.

In today's civilized world and stressful environment *Manasa Pratikulta* is the most important factor for *Akalaja Jara*.

Stress and Premature Ageing

Stress weakens the immune system. Long periods of stress and the release of Cortisol can disrupt blood sugar metabolism, lead to weight gain, diabetes, cardiovascular disease, high blood pressure, heart attacks, fatigue, muscle and joint pain, decreased muscle and bone loss, decrease sexual function, women can develop new facial hair growth, skin disease, headaches, asthma, constipation, anxiety, insomnia, memory problems, trigger emotional

problems, irritability, burnouts, depression, premature aging, and cancer.

There are many theory related to process of ageing and free radicle theory is one of them which is most acceptable.^{vi} It postulates that ageing results from an accumulation of changes caused by reactions in the body initiated by highly reactive molecules known as 'free radicals'. The changes induced by free radicals are believed to be a major cause of ageing, disease development or death. Mental stress is directly linked to over production of free radicals. Intense emotions such as anger, anxiety, tension or stress creates cortisol (Stress hormone) and catecholamine chemicals that reacts with different organs and cells, ultimately creating free radicals in the long run, these become harbinger of diseases even when there is a slight deficiency in the body. Long periods of elevated cortisol levels cause damage to the brain and memory. The hippocampus, a part of the brain, is damaged and this reduces learning abilities.^{vii}

In Ayurveda too *Ama* is also somewhat similar to free radical. Psychic factors like *Chinta*, *Shoka*, *Bhaya*, *Krodha* etc. leads to indigestion of food which further causes *Ama* formation. *Ama* is consider to be root cause for all the diseases. A study done by department of psychiatry in the university of California concluded that Women with the highest levels of perceived stress have telomeres shorter on average by the equivalent of at least one decade

of additional aging compared to low stress women^{viii}

Rasayana:

Acharya *Sushruta* has defined *Rasāyana* as the measure which prolongs longevity, develops positive health and mental faculties and imparts resistance and immunity against diseases^{ix}. *Rasyana Prabava* can be assessed in terms of *Smrit Medhā VarnaDehabala*. *Rasāyana* is the means of obtaining the best qualities of *Dhātus* ‘*Lābhopāya Hi Śāstanam Rasādinam Rasāyanam*’.^x Thus the *Rasāyana* is specialized type of Therapy influencing the fundamental aspect i.e. *Dhātu Agni, Srotas* leading to overall improvement in the humans which offords prevention of ageing, bodily strength and improvement in the mental faculties

Medya Rasayana:

Medhya rasayana is a group of nootropic (cognition-boosting) drugs medicinal benefits.

Deterioration and weakening of memory process can be delayed by the intake of *Medhya Rasayanas*^{xi}

Medhya Rasayanas strengthen the body and maintain normal body function. Among doshas, *Pitta Dosh* maintains the intelligence and *Kapha* sustains the body with intelligence and *Dhriti* (courage) by its *Sthira Guna*.^{xii}

Pranavata performs the intellectual function and it is the main factor involved in grasping

and fast recall, especially because of its *Chala* (mobile) and *Vishada* (fast-spreading) properties. *Sadhaka pitta* responsible for intelligence (*Buddhi*), memory (*Medha*), self-esteem (*Abhimana*), enthusiasm (*Utsaaha*) and performs functions like discrimination between right and wrong by the *Nishchayatmaka Buddhi* and *Medha* (intelligence)^{xiii}

Mode of Action of Medhya Rasayana

Medhya Rasayanas help to maintain *vata, pitta*, and *Kapha Doshas* normal functions. According to *Ayurveda*, *Mandukaparni* is *Medhya* by *Pra bhava* (special effect).

Mandukaparni :Improves learning and memory processes by modulating dopamine, 5-Hydroxytryptamine receptor, and noradrenaline systems, which was also reported in a study on rats^{xiv}

It is also effective in preventing the cognitive deficits as well as oxidative stress^{xv}

Asiaticoside, an active principle present in *C. asiatica*, imparts anxiolytic activity,^{xvi} and thus, it helps in reducing the anxiety.

Yastimadhu:According to *BhavaPrakashMadhura* and *Shita* qualities and *Vatapittashamaka* and *Rasayana* effects of *Yashtimadhu* bring about soothing effect, and probably this helps in bringing

about *Stairya* and *Dhriti* to establish stability of mind and for enhancing memory.

The root of *G. glabra* contains the active principles, glycyrrhizin, glycoside, isoliquiritin, liquiritin, steroid estrogen, hispaglabridin B, isoliquiritigenin, and paratocarpin B.^{xvii}

G. Glabra increases the blood circulation to the central nervous system and balances the sugar levels in the blood.^{xviii}

The isoflavones glabridin and hispalglabridins A and B of *G. glabra* Linn. have significant antioxidant activity. The antioxidants protect susceptible brain cells from the oxidative stress, resulting in reduced brain damage and improved neuronal function, thereby enhancing the memory.^{xix}

Guduchi: having *Katu, Tikta Rasas* which help in keeping the mind alert, so that things can be remembered properly. Having *Tridoshahara* property, it helps to establish a balance and a good coordination of grasping, retention, and recall of memory.

T. cordifolia has active principles such as tinosporone, tinosporic acid, cordifolisides A-E, syringen, berberine, giloin, gilenin, crude giloininand, arabinogalactan polysaccharide, picrotene, gilosterol, tinosporol, tinosporidine, sitosterol, cordifol, and glucan polysaccharide. The root extract of *T. cordifolia* was found to possess normalizing activity against stress-induced changes in norepinephrine, dopamine, 5-hydroxytryptamine, and 5-

hydroxyindoleacetic acid levels. *T. cordifolia* enhances cognition (learning and memory) in normal rats. Cyclosporine-induced memory deficit was successfully overcome with *T. cordifolia*.^{xx}

Sankhapushpi: The most effective among the four *Medhya Rasayana* drugs mentioned by Acharya Charaka^{xxi}, has *Kashaya Rasa* and *Ushna Guna* properties which may enhance the alertness and quick understanding and retention power. *C. pluricaulis* contains many phytonutrients like convolidine, convolvine, convolvidine, convoline, confoline, phyllabine, subhirsine, and scopoline. These compounds help in brain stimulation and increase the ability to concentrate.^{xxii}

C. pluricaulis reduces stress and anxiety by controlling the production of body's stress hormones, adrenaline and cortisol. It is reported to possess anxiolytic and memory-enhancing and mood-elevating effects, and is claimed to retard brain aging.^{xxiii}

Discussion:

Jara or old age is inevitable (Nishpratikriya) it cannot be avoided, it can only be delayed and graceful ageing can be ensured with the help of *Medhya Rasayanas*. By age 50-60 age related changes to begin to reflect like reduced power of muscle, reduced vision, memory, locomotion function, there is gradual decline in homeostasis and immune function predisposes

them to infection, digestive problem and malignancy.

Free radicals cause oxidative damage to various biological molecules e.g. hydroxyl radicals can damage cell membrane and lipoproteins by a process called lipid peroxidation which may contribute to aging process. BhavaPrakash defines *Rasayana* as a measure which may prevent disease and delays Ageing. Longevity and improvement in mental health have been claimed as effect of *Rasayana*. *Rasayana* also have antioxidant property so they help in delaying Aging.

According to Nagarjuna *Medhya* drugs mainly act by *Achintya Veerya* i.e. *Prabhava*. The *Medhya Rasayana* act at different levels of *Rasa*, *Agni*, and *Srota*. At the level of *Agni* these drug stimulates and improve the function of *Agni*. At level of *Srota*, these drugs improve the circulation of *Rasa* by opening and cleaning the micro channel and then ultimately improve the function of *Medha*. *Medhya Rasayana* drugs used are *Mandukparni Svarasa*, *Shankhpushpi Kalka*, *Guduchi Svarasa* and *Mulethi Churna*. Some *Rasayana* drugs act by their *Panchbhautika* composition, Some by *Rasa*, *Guna Veerya*, and *Vipaka*. Pharmacological properties of drugs are depend on their *panchbhautika* composition. *Panchamahabhoot* having characteristic of three *Mahaguna* *Satva*, *Raja*, and *Tama*. *Medha* are attributed to predominance of *Satva Guna*, Hence

Aakashiya, *Taijus*, *Aapya* drugs having *Satva guna* predominance improve *Medha*. Among *Rasas*, *Tikta Rasa* has direct action on the promotion of *Medha*. It performs their function by its *Laghu* property and *Deepana-Paachana* and *Srotoshodhaka* action. *Madhura Rasa* also by promoting the formation of *Ojan* nourishes five sense, mind and *medha*. Hence *Medhya Rasayana* Drugs have predominantly *Tikta-Madhura Rasa*. *Amla*, *Lavana* and *KatuRasa* are having least importance in *Medhya* action. *Ushana Veerya* drugs stimulate *Saadhak Pitta* which promotes *Medha*. *Ushana Veerya* drugs improve *Samriti* (Power of recalling) and *Grahan Shakti* (power of reception)..

Conclusion- In present era everyone is suffering from stress either it's professional or personal. As the mind and body are interrelated to each other that's why mental stress appears as physical changes like early greying of hair, alopecia, hypertension, wrinkles, early menopause and arthritic changes in joints etc. Dalhana clearly mentioned that *Akalaja Jara* can be reverted by *BhojanPana Rasyana*. To avoid this stress and improve mental faculties use of *Medhya Rasayana* is the better way from our classics which gives mental stability to the individual and improve the intellect and *medhashakti*.

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