

ROLE OF MEDHYA RASAYAN IN GERIATRIC HEALTH CARE W.S.R. TO MENTAL HEALTH

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ABSTRACT

Geriatric health care is the process of planning and coordinating care of the elderly with physical and mental impairments to meet their long-term needs, improve their quality of life and maintain their independence for as long as possible. India has, acquired the label of “an aging nation with 8.3% of its population being more than 60 years old. Due to increased elderly population, the prevalence of Geriatric specific disease condition is also increase number of psychiatric complications like Dementia, Delusional disorders, Hallucinations, Depression, Anxiety, Personality alterations, Alzheimer’s disease and age related neurological problems. Geriatrics or *JaraCikitsa* or *Rasayana* in *Ayurveda* is a method to control or slow down or arrest the aging process in the human being during the degenerative phase of life and act as micronutrients. Some of these *Rasayans* are organ and tissue specific. Those specific to brain tissue are called *MedhyaRasayan*. In *Ayurveda* ‘*MedhyaRasayanas*’ e.g. *MandukparniSwaras*, *YashtimadhuChurna* with *Ksheer* (Milk), *GuduchiSwaras*, and *Shankhapushpi Kalka* are known to be beneficial to improve the intellectual. *MedhyaRasayana* drugs are used for prevention and treatment of Geriatric disorder. These drugs promote the *Dhi, Dhriti, Smriti*. This helps the mental patient to get relieve from stress, anxiety and depression.

Keywords: *Jara, MedhyaRasayanas, Mandukparni, Yashtimadhu, Guduchi, Shankhapushpi*

INTRODUCTION

The elderly process is considered to be an end product of demographic transition or demographic achievement with a decline in both birth and mortality rates and consequent

increase in life expectancy at birth and older ages. Increased life expectancy, rapid urbanization and lifestyle changes have led to an emergence of varied problems for the elderly

in India. Elderly people are highly prone to mental morbidities due to ageing of the brain, problems associated with physical health, cerebral pathology, socio-economic factors such as breakdown of the family support systems, and decrease in economic independence. It is mandatory that geriatric health care services be made a part of the primary health care services. Complete health care to the elderly is possible only by comprehensive and multidisciplinary approach.

CONCEPT OF AGEING IN AYURVEDA

The Acharyas were well aware about the fact of ageing and related disorders. They have given the term 'Jara' (Old age) as a synonym to the disease process. A unique description of ageing process is given by Acharya Sharangdhara.

**Balyamvrid-
dhiscchavirmedhaTwakdrstisukravikra-
mauBuddihKarmendriyamchetojivitamda-
satohrseta.**^[1] (Sa.S.Pu. 6/19)

Table 1: Division of life span according to Acharya Sharangdhara

Decades of life	Specific Loss from the Body	Suitable Rasayana Drugs
0-10	Balya (childhood)	Vacha(Acoruscalamus)Kasmari (Gmelinaarborea)
11-20	Vridhhi (growth)	Bala(Sidacordifoila)Aswagandha (Withaniasomnifera)
21-30	Chavi (luster)	Amalaki (Emblca officinalis)
31-40	Medha (intellect)	Shankhapushp(convalvuluspluricalis)Jyotishmati (Celestrus paniculata)
41-50	Twak (luster of skin)	Bhringaraja(Ecliptaalba)Somaraji (Centratherumanthelminthicum)
51-60	Drusti (Vision)	Saptamrutaloha
61-70	Sukra (sexual ability)	Atmagupta (Mucunaprurita) Munjataka (Orchislongifolia)
71-80	Vikrama(physical ability)	
81-90	Buddhi (thinking ability)	
91-100	Karmendriya (locomotion)	

➤ LIFE SPAN: -

Ayurveda, like any other Indian tradition, considered the total life span of an individual to be over one hundred years.

1) **Rig Veda**, first of the four Vedas, wishes every individual to lead a healthy life of a hundred years

“jeevemshárdahshtam”.

In the earlier phase of Ayurveda, the total life span was divided into the following categories:

2) Charak:^[2]

- a) Balya (childhood) : 0-30years;
- b) Madhya (young) : 30-60 years
- c) Jirna (old age) : 60-100years

3) Sushruta:^[3]

- a) Balyavaya (childhood): 0–16 years.
- b) madhyavaya (middle age): 16 to 70 years
- c) vridhavaya (old age): 71 to 100 year

➤ MECHANISM OF BRAIN AGING ACCORDING TO MODERN: -

A number of changes take place in the brain during ageing at molecular, cellular, structural, and functional level. Neural cells may succumb to neuro-degeneration [4]. Here is considerable loss of neurons, reduced synthesis of neurotransmitters like glutamate, acetylcholine, dopamine which leads to formation of plaques and tangles, accumulation of lipofuscin (yellow-brown pigment granules which are residues of lysosomal digestion) in nerve tissue, resulting in the breakdown of nerves. Associated conditions accelerating the process of brain ageing include, vitamin B group deficiencies (B vitamin protect brain function by regulating energy metabolism), high levels of inflammatory cytokines, high C-reactive proteins, deficiency of dietary antioxidants like acetyl-L carnitine which delay the onset of age-related cognitive decline and improve overall cognitive function in the elderly subjects. Hyperglycemia has shown an adverse effect on hippocampus and thus increases the risk of Alzheimer's disease [5].

➤ NEUROLOGICAL DISORDERS IN AYURVEDA:

Ayurveda has described various kinds of mental Disorders [6]:

1. *Unmada* (Insanity)
2. *Apasmara* (Epilepsy)
3. *Atattvaabhinivesha* (Obsessive Disorders)
4. *Bhaya* (Fear)
5. *Harsha* (Excitation)
6. *Shoka*(Grief)
7. *Udvega* (Anxiety)
8. *Avasada* (Depression)

PSYCHO NEUROLOGICAL AILMENTS IN ELDERLY-

- The honour, respect and status conscious elderly people especially feel gradually secluded from the family as well as society, Generation gap had also been noted to be a factor of stress in elderly. This particular condition may precipitate the state of **anxiety and depression**. Variation of mood is widely associated with long lasting crippling diseases. Pain in such conditions may lead to demoralization and depression.
- Most important disease occurring in elderly is **dementia**, Alzheimer's type dementia is a major health problem in countries with increased longevity of its people, Sooner or later it is going to be a problem in India as well, Dementia is characterized by a gradual decline in cognitive abilities, such as memory, language, orientation alertness, reasoning and judgement.
- Number of psychiatric complications like **delusional disorders, hallucinations, depression, anxiety, personality alterations and agitation** may be found in dementia of Alzheimer's type. Ultimately the disease may have proved to be fatal. The outstanding pathological feature is death and disappearance of nerve cells in the cerebral cortex. This leads ultimately to extensive convolution atrophy, especially in frontal and medial temporal regions.

➤ INTRODUCTION OF MEDHYA RASAYAN-

'*medhyarasayanas*' derived from the Sanskrit words '*medhya*', meaning intellect or cognition, and '*rasayana*', meaning 'rejuvenation'. The medicinal plants in the Ayurvedic system are classed as brain tonics or rejuvenators. Earlier reports indicate that these plants are used both in herbal and conventional medicine

and offer benefits that pharmaceutical drugs lack. Neurological and psychiatric disorders are generally associated with loss of memory, cognitive deficits, impaired mental function etc. The 'medhyarasayanas' are known to be beneficial to improve the intellectual e.g., *mandukparniswaras*, *yashtimadhuchurna* with *ksheer*, *guduchiswaras*, and *shankhapushpikalka*.^[7]

Due to the scientific advancements, the *Medhya Rasayanas* have proven beneficial in delaying the deteriorating cognitive changes in old age. Thus, a systematic evaluation of these drugs gives us a clear picture to prevent and tackle the age-related cognitive impairments in the elderly.

➤ RASAYANA CHIKITSA

According to Acharya Charak, equilibrium of *Agni* of *Dhatu*, *Vayu*, and *Srotas* are essential factors for maintaining normal strength and longevity of the body. In Ayurveda, *Medhya* is described in broad way. *Medhya* comprises of all the three mental faculties- *Dhi*, *Dhriti* and *Smriti* and these are interrelated with each other.

- *Medhya* can also be subdivided into the following faculties:

1. *Grahanashakti* (Power of Grasping)
2. *Dharana shakti* (Power of Retention)
3. *Vivekshakti* (Power of Discrimination)
4. *Smriti* (Power of recollection)

The aim of Rasayana Chikitsa is to nourish blood, lymph, flesh, adipose tissue and semen. This prevents the individual from chronic degenerative diseases. The therapy influences the fundamental aspect of body viz., Dhatus, Agni, Srotansi and Ojus.

- In *Rasayana* therapy, the *Bheshja* (medicine) is divided into two types:^[8]

1. *Swasthasyaaurjaskara*- toning up the health of a healthy person
2. *Kinchit Artasya Rognut*- treating the ailments of the patients

➤ TYPES OF RASAYANA (REJUVENATION) THERAPY:^[9]

1) *Naimittikarasayana* (*nimitt*-Sanskrit for "cause"): Also known as *Rogapaharan* or Curative type of *Rasayan*. It is used to combat a specific cause responsible for the disease in the body. Few examples include *Dhatrirasayana*, *Mandookaparnirasayana*, *Brahmi rasayana*, and *Triphalarasayana*.

2) *Ajasrikarasayana*: used to maintain good health and improve the quality of life through a healthy lifestyle, diet, or exercise. It is also called as *Vayasthapan Rasayan*.

3) *Kamyarasayana*- This is described as to fulfill a wish or desire or to serve a special purpose (*kama* - desire).

It is of four types:

- a) *Prana Kamyas*- best quality of *prana* (life energy) in the body.
- b) *Medhya Kamyas*- enhancing the memory and intellect. e.g., *Shankhapushpi Rasayan*.
- c) *Ayush Kamyas*- increasing longevity.
- d) *Chakshu Kamyas*- maintaining healthy eyes.
- e)

➤ RASAYANA DRUGS ACT AS:

a. Immunomodulator- By augmenting or reducing the ability of the immune system.

b. Adaptogen- Increases the ability of an organism to adapt to environmental factors e.g., *Ashwagandha*, *Tulsi*, *haridra*, *Pippali*, *Amlaki*, *Guduchi*, *shatavari*.

c. Antioxidant- Circumvent the damage caused by oxygen free radical.

d. Nootropic- Promote intelligence and functions of brain e.g., *Medhya Rasayana* drugs

(namely-*Mandookparni, Guduchi, Yash-timadhu and Shankhpushpi*).

As per Acharya Charak, *Rasayanais* defined as the means of achieving the finest quality of *rasadidhatus* (body tissues) where it increases life span, improves *medha* (intelligence), cures disease, stabilizes youthfulness, improves luster, complexion, voice and makes body and senses strong and healthy etc.

➤ **MEDHYA RASAYANAS IN NEURO-PROTECTION:**

Medhyarasayana drugs play an essential role in the treatment of psychiatric and psychosomatic diseases. The mode of this therapy involves the individual to attain sedation, calmness, tranquility or a stimulation of activities of brain.

MedhyaRasayana drugs are used for prevention and treatment of mental disorders of all the age groups. These drugs promote the Intellect (*Dhi*) Retention power (*Dhriti*), memory (*Smriti*). In fact, they produce Neuronutrient effect by improving cerebral metabolism. *MedhyaRasayana* drugs are known to have specific effect on mental performance by promoting the functions of “*Buddhi*” and “*Manas*” by correcting the disturbances of “*Rajas*” and “*Tamas*”. This helps the mental patient to get relieve from stress, anxiety and depression. Regeneration of tissues after the disease, tissue regeneration and cell renewal and specific *rasayana* is known to stimulate and nourish respective *dhatu*s or tissues.

The formulation of MedhyaRasayana drugs are of two types:

1. *ShitaVirya* and *Madhura Vipaka*- it promotes *kapha* and enhances “*Dharana Karma*” (i.e., retention of cognition) e.g., *Yastimadhu, Bramhi, Sankhpushpi* etc.

2. *UshnaVirya* and *Tikta Rasa*- it promotes *pitta* and enhances *Grahana and Smarana* (i.e., grasping power and Memory) e.g., *Guduchi, Vacha, Jyotishmati* etc.

Medhya drugs act at different levels-

- a) at level of *Rasa*
- b) act by stimulating and improving the function of *Agni*
- c) improves circulation of *Rasa* by opening and cleaning the micro channel and thus improving *Medhya*function.

MEDHYA RASAYAN IN AYURVED TEXT:

The following are regarded as *medhyarasayan*as:^[10]

1. *Yashtimadhuchurna*
2. *Mandukaparniswarasa*
3. *Shankhapushpikalka*
4. *Guduchiswarasa*

1)Yashtimadhu(Glycyrrhiza glabra):

- *Yastimadhu (Glycirrhizaglabra*Linn.)-it increases the circulation into the CNS system, improves learning and memory on scopolamine induced dementia.
- The active principles are Glycyrrhizin and 18beta-glycyrrhetic acid, Liquiritin (flavanones), IsoliquiritininandIsoliquiritin (chalcones), Genistien, Glisoflavone, (Isoflavones).^[11]
- The antiradical activity, protective effect against lipid peroxidation (LPO) inhibitory effect against the reactive oxygen species (ROS), facilitation of cholinergic transmission in brain,restored the decreased levels of glutamate, dopamine and decreased acetylcholinesterase (AChE) activity. ^[12]

2) Guduch i(Tinosporacordifolia):

- It possesses the learning and memory enhancing, antioxidant, and anti-stress action, it is useful for treatment of *bhrama* (Vertigo), in improving behaviour disorders, mental deficit and IQ levels. [13]
- The aqueous extract of the root contains Alkaloids (berberine, palmatine, magnoflorine, tinosporin, isocolumbin), glycosides steroids, Phenolic compounds, Polysaccharides.
- It has been found to possess strong free radical scavenging properties against reactive oxygen and nitrogen species diminishing the expression of iNOS gene (their high levels create an opportunity to react with superoxide leading to cell toxicity).
- Significant reduction in thiobarbituric acid reactive substances and an increase in reduced glutathione catalase and superoxide dismutase (anti-oxidant) activity were also observed.

3) *Shankhapushpi* (*Convolvulus pluricaulis*):

- Fresh whole plant juice is used for therapeutic purposes as *Medhya* (cognitive enhancer). effective in anxiety disorders, reverses the social isolation stress -induced prolongation of onset and decrease in pentobarbitone-induced sleep, increased total motor activity. The active constituents include Glycosides coumarins, flavonoids, and alkaloids. It has been found to possess anxiolytic, mood elevating effect, retard brain aging. [14]
- *Shankhapushpi* has shown to help in regeneration of brain cells and in Dendritic arborization which is the neuronal basis for improved learning and memory. Cell loss in these areas has been implied with age related nervous disorders including

memory loss. Increase in the cell number after administration of *Shankhapushpi* provides considerable evidence of the efficacy of this drug in learning and enhancement of memory.

- It may also help in preventing changes in the neuron cell bodies in specific brain areas. [15]

4) *Mandukaparni*(*Centellaasiatica*):

- Fresh whole plant juice contains Glycosides, tannin, flavonoids (Kaempferol and quercetin), vitamins B & C, Ca, Mg, and Na all of which are congenial to brain health.
- It showed a neuronal dendritic growth stimulating property, effective in reducing brain regional lipid peroxidation (LPO) and protein carbonyl (PCO) levels and in increasing anti-oxidant status. [16]
- *Centellaasiatica*, enhanced the catecholamine and Ach in the whole brain. It has been shown to improve the altered levels of neurotransmitters such as 5HT, acetylcholine, epinephrine, nor-epinephrine, GABA (gamma-aminobutyric acid) and glutamate. It has been shown to improve the mental ability and fatigability of subjects under stress.
- It has shown to inhibit the formation of beta amyloid plaques owing to the oxidative stress and activation of glial cells and thereby delay neuronal apoptosis. [17]

Medhyadravyas which have proved beneficial in old age include the following:

- a) *Brahmi* (*Bacopa monnieri*): A study demonstrated that the bacosides produced changes in the hippocampus, cerebral cortex (areas critical to memory function) and hypothalamus regions of the brain and caused en-

hanced levels of protein kinase activity and increased protein levels in these regions. This indicated positive implications for improved neurotransmission and repair of damaged neurons via enhanced regeneration of nerve synapses. [18]

b) **Ashwagandha** (*WithaniaSomnifera*): *Ashwagandha* produce GABA-like activity, owing to its anxiolytic effect. *Ashwagandha* produced an increase in the levels of three natural antioxidants superoxide dismutase, catalase and glutathione peroxidase. [19]

c) **Jyotishmati** (*Celastruspaniculata*) and **Tagara** (*Valerianawallichii*) have also shown promising results in brain and memory disorders in the elderly.

CONCLUSION

Ageing is a biological phenomenon associated with an imbalance between the oxidative stress, pro-oxidants production and anti-oxidant protection system. There are no consistent results with anti-oxidant therapy and increased longevity although search is still on. With increasing longevity, the age-related disorders are likely to be increased in 21st century. Keeping this in mind Rasayana drugs may be advised as food supplement as well as medicine to minimize the ageing and related disorders. Specially *Medhyarasayana* may be useful in the degenerative disorders of brain, like dementia of senile and Alzheimer's types with the aim to correct the cognitive dysfunction and preventing the disease progression. *Rasayanacan* be used in both curative and promotive aspects in *Vardhakya*. Young can be advocated to use *MedhyaRasayana* regularly as the period for the administration of *Rasayanasis* effectively in young and middle age groups. However, *MedhyaRasayana* can be

effectively used in delaying the deteriorating aspects of *Jara*.

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