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Review Article

CONCEPTUAL STUDY OF JARA (AGEING) AND IT'S MANAGEMENT IN AYURVEDA w.s.r. to TRIPHALA RASAYANA

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ABSTRACT

The increasing number of the aged (above 60 years) in the present state indicates a new outlook for our reflection. Populations worldwide are ageing. Improvements in environmental (e.g., clean water and improved sanitation), behavioral (nutrition, reduced risk exposures) factors, the treatment and prevention of infectious diseases are largely responsible for the 30-year increase in life expectancy since 1900. Geriatrics is emerging as a main challenging specialty, because of ever growing population of aged people all over the world including India. In present era, medical science deals exclusively with the problems of ageing and the diseases of the elderly. Ayurveda is basically the science of life and longevity. It presents a good concept of ageing, process of delaying the ageing and its management. According to the Ayurveda, ageing is outcome of *kalaor parinama* and described under 'Svabhavabalapravrittavyadhi', those diseases which produced by the strength of nature such as *kshudha, pipasa, jara, mrityu, nidra* etc. *Vatadosha* is the most important factor in the pathophysiology of ageing obviously because of its natural predominance at that stage of life. Ayurveda advocates an excellent approach for promotion of health and prevention of diseases with number of measures like wholesome diet in proper quantity, *Dincharya, Ratricharya, Ritucharya, Sadvrittapanan, AcharaRasayana, Dharaniya & Adharaniyavegas*, practices of *yoga, Rasayana* therapy, time to time *Panchkarma* and some herbal drugs. Administration of *TriphalaRasayanawill* be also very beneficial in achieving the above goal. The proper practice of these all measures can slow down the process of ageing and cure the diseases of ageing.

Keywords: *TriphalaRasayan, Jara, Svabhavabalapravrittavyadhi, Rasayana, Ageing* etc.

INTRODUCTION

Ayurveda, the science of life is *Anadi* and *Jara-chikitsa* being an essential part of *Ashtanga-Ayurveda* is also *Anadi* in nature. On historical point of view it has been considered that old age and diseases related to it seems to be as old as recorded Ayurveda itself. In aged *vatadosha* is physiologically in a dominant state and *rasadidhatu* are in a deficient state¹. This potent combination is responsible for the various degenerative changes and process of decay in the body. In present scenario due to improper dietary habits, defective life style, excessive stress and lack of exercise, the process of ageing starts very earlier. These factors produce various degenerative changes as well as metabolic disorders in our body. Some diseases and conditions that are common in old age are osteoarthritis, hypertension, urinary incontinence, diabetes mellitus, arteritis, atherosclerosis, cardiovascular disease, cerebrovascular accidents, respiratory disease, senile dementia, delirium,

confusion etc. Modern system of medicine has nothing much to recommend in geriatric care except the medical management of some diseases of the old age with limited success. On the other hand, the Ayurveda incorporates various techniques for promotion of health and prevention of diseases in old age. So there is a need to generate awareness among the mass about the end result of population ageing (the increase in the number and proportion of older people in society) and about the potentials of Ayurveda in geriatric health care.

Concept of Ageing: *Vaya* or age can be defined as the duration of time since birth to the present for a living individual. According to Acharya Charaka, age has been divided in three part i.e. *balyavastha* (young age), *madhyamavastha* (middle age) and *jirnnavastha* (old age). After sixty years of age one is called 'old'. In old age there is progressive diminution of *dhatu*, strength of sense organs, vigour, masculinity, bravery, power of understanding,

retaining and memorizing, speech and analyzing facts. There is gradual diminution in the qualities of *dhatu* also².

Acharya Sushruta has described that after seventy years of age one is called as old in whom the dhatus, sensory and motor organs, strength, vigour and enthusiasm decline gradually, he gets wrinkles in the skin, grey hairs and baldness and other complaints, is incapable of doing anything, and is like a worn out house in the rain³.

Vagbhata again mentioned the gradual decline in the dhatu and the function of the sense and motor organs in old age. There is description of additional features such as aged persons suffers from *kasa*, *shvasa*, *valita*, *khalitiya*, *agnisada*, *slathasaramansasandhyasthita* (looseness of muscles, joints and bone), *twakapaurushya* (skin becomes rough), *avanama* (body bends forward), *vepathu* (tremors), etc⁴.

So the *vridhdhavastha* or *jirnavastha* is the last phase of life and is represented by the decay or degeneration of the body. Acharya Sushruta has mentioned 'Jara' (ageing) under 'Svabhavabalapravrittavyadhi' which is of two type. Viz *Kalaja* (*parirakshanakrita*), appearing at proper time even after proper protection and *Akalaja* (*aparirakshanakrita*),

appearing before proper time due to improper care and prevention.⁵ The ageing is the progressive, universal decline first in functional reserve and then in function that occurs in organisms over time. Ageing is heterogeneous. It varies widely in different individuals and in different organs within a particular individual. ageing is not a disease; however, the risk of developing disease is increased, often dramatically, as a function of age. The biochemical composition of tissues changes with age; physiologic capacity decreases, the ability to maintain homeostasis in adapting to stressors decline, and vulnerability to disease processes increases with age. After maturation, mortality rate increases exponentially with age. The process of ageing is cellular in nature.

Sequential loss in ageing: From birth to death the moment of conception, right into the extreme old age, the human body undergoes considerable changes in shape, size and composition. The *Sharangadhara Samhita* and *Ashtanga sangraha*, describes the sequential bio-loss occurring during different decades of life due to process of ageing. Declining of these bio-losses at various decades of life is as follow:

Decade of life	Loss mentioned	
	<i>Sharangadhara Samhita</i> ⁶	<i>Ashtanga Samgraha</i> ⁷
1 st	<i>Balyam</i> (Childhood)	<i>Balyam</i> (Childhood)
2 nd	<i>Vridhhi</i> (Growth)	<i>Vridhhi</i> (Growth)
3 rd	<i>Chavi</i> (Complexion)	<i>Prabha</i> (lusture)
4 th	<i>Medha</i> (intellect)	<i>Medha</i> (intellect)
5 th	<i>Twaka</i> (Skin)	<i>Twaka</i> (Skin)
6 th	<i>Drishti</i> (Vision)	<i>Shukra</i> (Virility)
7 th	<i>Shukra</i> (Virility)	<i>Drishti</i> (Vision)
8 th	<i>Vikram</i> (Strength)	<i>Shrotendriya</i> (Hearing)
9 th	<i>Buddhi</i> (intellect)	<i>Mana</i> (Sprituality)
10 th	<i>Karmendriya</i> (Function of all the Indriyas)	<i>Sarvendriya</i> (all the indriyas)

These descriptions are applicable even in present time if the chronology is corrected with life-span of man. The effect of ageing is more obvious in the 5th decades of life when the properties of the skin elude. The ageing process enhances in relation to age and affects one by one the function of vital tissues and organ like *drishti*, *shukra*, *buddhi*, motor organ, mind and other sense organs.

Etiology of Jara: *Jara*, the old age is an unavoidable phase of life which ultimately ends into death. The etiology of *jara* is not clearly mentioned in Ayurveda however some point can be considered in its regard which are as follow:

(A) Swabhavoparamavada (Theory of natural destruction): Charaka has explained in his theory of *Swabhavoparamavada* that "there is a causative factor for the manifestation of beings but no causative factor as such exists for their deterioration⁸. That means the process of deterioration occurs naturally. Thus *Swabhava* can be considered as a responsible factor in the causation of *Jara* (ageing) which is deteriorating, invisible and nature's unique process.

(B) Kala (Time factor): Modification is the characteristic features of time. All the things in the universe undergoes various changes before it is destroyed completely. In Ayurveda, this sequence of change is known as "*Parinama*"

which take place under the influence of '*Kala*'. Thus it can be concluded that *parinama* brings the *jara*, is the sequential events of *balyavastha*, *yuvavastha*, *jaravastha* etc. are all the consequences of *kala*. *Jara* is a phase of life that occurs by the effect of time "*Kalasyaparinamena Jaramrityunimittajaha*"⁹.

(C) Shareera Vridhikarabhava – abhava (Depletion of growth factor): Charaka has also given some other factors, which may be considered as promotive of growth. These factors are *Kala yoga* (time bounded phenomenon), *Swabhavasamsiddhi* (Natural phenomenon as result of invisible process which is responsible for growth), *Aharasaushthava* (dietary factor which is according to *ashta-aharavidhivisheshayatan*, *aharavidhividhana*, *dwadashanapravicharana*) and *Avighata* (absence of devastating causes¹⁰). The lack of above mentioned factors may decrease the growth of an individual. So absence of these favourable condition for growth, may lead to ageing process.

(D) Role of Tridosha in Ageing: In Ayurveda, the phenomenon of ageing is also related to principle of *Tridosha*. The *tridosha* (*vata*, *pitta* and *kapha*) is the most important factor in maintainance of good health and production of disease. These *doshas* exists in the body all the time but it varies as per age, day or night period and after taking meals.

During childhood *kaphadosha* predominates, in the middle age *pitta dosha* and in the older age *vataadosha* is said to be dominant. The properties of *vataadosha* are described as *ruksha, laghu, sheeta, khara* and *vishada*. So *Vataadosha* by nature, decreases luster of skin, lessens body strength, dries and decays the body and hastens ageing process. Thus the process of ageing can be evaluated in terms of the *tridoshika* physiology.

(E) Role of Agni in Ageing: Apart from *doshas*, *Agni* also plays an important part in ageing process. Body tissues are regularly nourished by dietary substances and *agni* is said to be responsible for the conversion of dietary substances into tissue elements. In old age, more vitiation of *vataadosha* occurs which is responsible for *vishamagni* which affects the digestion and creating under nourishment of the tissues. This under nourishment of the tissues may have an impact on low status of *dhatwagni* which creates diseases in elder people. Thus ageing effects are more closely related to *agnihaving vishamagni*.

(F) Role of Dhatus in Ageing: Though the classical text do not explain the exact role of *dhatu* in ageing process but it is clearly mentioned in classics that during old age quantity as well as quality of *dhatu* is decreased. *Oja*, the essence of all the *dhatu* which is also termed as *Bala* is responsible for resistance against diseases or *vyadhikshamatva* (immunity) is also decreased. So the *dhatukshaya* and *ojakshaya* are also responsible for process of ageing and diseases in old age.

(G) Role of Srotas in Ageing: Charaka has described that various pathological conditions arise in the body due to *srotodusti* of different *srotasa*. The main function of *srotasa* (channels of body) is to transfer the body fluids. In *Srotodushti* there is four pathological conditions that takes place i.e. *Atipravritti, sanga, siragranthi* and *vimargagama*. The main cause for *srotodushti* is vitiation of *vayu* and *mandagni* which are prominent in aged.

Causes of Akalaj-jara (Premature Ageing): *Jara* is of two types viz. *Kalaja-jara* (natural ageing) and *Akalaja-jara* (premature ageing). The etiological factors for initiating the early ageing process according to Ayurveda is clearly described by Charaka and Vagbhata. All the etiological factors for ageing can be differentiated in three categories:^{11&12}

Aharatmaka Hetu:

- *Amla, katu, lavana rasa, kshara, guru, ruksha, klinna, abhishyandi, puti, paryushita* food articles accelerates the process of ageing.
- *Navashukadhanya, navashamidhanya, shuskamansa, tila, palal, pishtanna* etc. Produces *ama* by decreasing *agni* and leads to ageing process.
- Different type of *viruddhaahara* i.e. *rasa viruddha, gunaviruddha, viryaviruddha* etc. are also responsible for initiation of ageing process.
- *Asatmyaahara* (unwholesome diet), *Vishamashana, Adhyasana* etc. leads to *agnidushti* and senility.

Viharatmaka Hetu: *Viharatmakahetu* of *jara* comprise *divaswapna, ativyavaya, ayasa* and *vishamaatim atravyayama* etc.

Mansika Hetu: *Bhaya, krodha, shoka, lobha, moha* etc. are the factor responsible for the senility.

*MadhavaNidana*¹³ and *RasRatnaSammuchhaya*¹⁴ has mentioned that excessive walking, intake of very cold substance and *kadanna* (food articles which are devoid of *Jeevaniya* properties), sexual indulgence and mental worries are the cause of *jara*.

Ageing Theories:

Ageing is defined as a progressive breakdown of homeostatic adaptive responses of the body. However, ageing is distinct from mortality and disease, although aged individual are more vulnerable to disease¹⁴. The consequences of ageing appear after reproductive age. With age various structural and functional changes occur in different organs and systems of the human body i.e. *atherosclerosis, arteriosclerosis with calcification, loss of elastic tissue from aorta and major arterial trunks, atrophy of gyri and sulci, Alzheimer's disease, Parkinson's disease, degenerative bone diseases, deterioration of vision, disability in hearing, incontinence of urine, laxity of skin, cancer* etc¹⁵. The number of theories and observations have been projected to identify probable cause of ageing, but no definitive biologic basis of ageing is established. The following are some most acceptable hypothesis of ageing based on experimental ageing study:

Cellular senescence: By studies of tissue culture *in vitro*, it has been observed that fibroblast in culture can only undergo a limited number of cell division and then the culture dies out. It means that there is reduced functional capacity to proliferate with age. It has been observed that with every cell division there is progressive shortening of telomere present at the tips of chromosomes which in normal cell is repaired by the presence of RNA enzyme, telomerase. Due to ageing and inadequate presence of telomerase enzyme, lost telomere is not repaired and cells stop dividing. Patients with the premature ageing, Werner's syndrome' represents damaged DNA and particularly shortened telomere.

Oxidative stress: This occurs when the production of reactive oxygen species (free radicals) exceeds available antioxidant in body. Interaction of these free radicals with DNA in mitochondria and nucleus leads to mutation and deletion. A common deletion in mitochondrial DNA with age compromises function and alters cell metabolic processes and adaptability to environmental change. This process continues until oxidative phosphorylation is compromised, adenosine triphosphate (ATP) production declines and cells begins to die. The role of antioxidant in retarding the oxidative damage has been reported in some studies.

Protein modification by glycation: Advanced glycosylation end-products (AGE) are produced by spontaneous reaction between protein and sugar molecules. This process is increased by oxidative stress. These advanced glycosylation end-products (AGE) are responsible for damage of the structure and function of the affected protein. This is the cause of thickening of vascular basement membrane, yellowing of nails and cornea in aged¹⁶.

Defective host defences: The failure of the immune system to respond to infectious agents and the overactivity of natural immunity create vulnerability to environmental stresses.

Hormonal changes: The decline and loss of circadian rhythm in secretion of some hormones produces a functional hormone deficiency state.

Genetic control theory: Ageing is a genetic program activated in post-reproductive life when an individual's evolutionary mission is accomplished.

Ayurvedic management of elderly people: Ayurveda advocates wonderful approach to delay *Kala-jara* (natural ageing) and to avoid *Akala-jara* (premature ageing). Ayurveda gives primary importance to preventive and promotive health care and the maintenance of positive health. The major preventive approaches for maintaining and improving the quality of life include individualized specific day regimen (*Dinacharya*), night regimen (*Ratricharya*), seasonal regimen (*Ritucharya*), wholesome diet (*Hitakara and Matravataahara*), behavioral and ethical considerations (*Sadvritta*), rejuvenative healthy life-style (*Achararasayana*) etc. These measures can retard the process of ageing.

Rasayana therapy, practices of yoga, time to time panchakarma and various herbal drugs are very effective methods for geriatric health care in present time.

Rasayana Therapy: Rasayanaword is made up of two words 'Rasa' means 'nutrition' and 'Ayana' means circulation or promotion. Ayurvedic system of medicine, specially incorporates *Rasayana Tantra* as one of the eight disciplines of *Astanga Ayurveda*, which is exclusively devoted to geriatric health care. Essentially *Rasayanatherapy*, has a very broad scope and it does not mean only rejuvenation or method for delayed ageing. Rasayana is specialized procedure practiced in the form of rejuvenative measures, dietary regimen and health promoting methods. Rasayana therapy aims ultimately at the attainment of most excellent *rasadidhatu*. The classical texts of Ayurveda describes that a person undergoing Rasayanatherapy attains longevity, improved memory, intelligence, freedom from diseases, youth, excellence of luster, complexion and voice, optimum strength of physique and senses, command over language, respectability and brilliance. *Rasayana* drugs act primarily at the level of *Rasa dhatu* (promoting nutrient value of plasma), *Agni* (improved digestion and metabolism) and *Srotas* (cleaning up the micro channels leading to better perfusion of tissue).

Classification of Rasayana

(1) On the basis of the utility:

- A. **Kamy Rasayana:** which is used in healthy persons for further promotion of health. It is again of three subtypes: (i) Pranakamy to promote longevity. (ii) Srikamy to promote body lusture. (iii) Medhakamy to promote mental competence
- B. **Naimittika Rasayana:** which is used specifically in the treatment of specific diseases viz Silajatu in prameha, Tuvarak in kushtha, shalaparni and arjuna in hridrog, medhyarasayana in manasroga etc.
- C. **Ajasrika Rasayana:** which is used as a part of diet as milk, ghrita, madhu etc.

(2) Based on method of use :

- A. *Vatatapika Rasayana* i.e. outdoor regimen.
- B. *Kutipravesika Rasayana* i.e. intensive indoor regimen.

(3) Special Rasayana drugs:

- A. *Medhya Rasayana*- in Psychiatric disorders. *Medhyarasayanas* viz., Juice of *Mandukaparni* and *Guduchi*, powder of *Yastimadhu* with milk and paste of *Sankhapushpi* are intellect promoters. These drugs have

quality of enhancing memory, intelligence and strength of body, mind and sense organs.

- B. *Achara Rasayana* -Rejuvenative conduct and life style.

Triphala Rasayan-

The following are the four rejuvenating types of *Triphala Rasayanas*:

1. Along with honey and ghee, a person should take one *Abhaya* after the previous meal is digested (i.e. early in the morning), two *Vibhitaki's* before food, and four *Amalaka* after food. By the use of this recipe for one year, a person lives for one hundred years free from old age and diseases.
2. A new iron vessel should be smeared with the kalka of *triphala* and kept for the day and night (24 hours). This powder should be taken with honey and water. After its digestion, one should take a lot of fat. By using this recipe continuously for one year, one can live for one hundred years, free from ageing and diseases.
3. *Triphala* mixed with *madhuka*, *tugaksiri*, *pippali*, honey, ghee and sugar is a very effective recipe for rejuvenation.
4. *Triphala*, along with sarvalauha, suvarna (gold), *vaca*, honey, ghee, *vidanga*, *pippali* and *lavana* if taken for one year, is conducive to the advancement of *medha* (intellect), *smriti* (memory), *bala* (strength), *ayus* (longevity) and *dhana* (wealth). It prevents ageing and diseases.¹⁷

Sushruta has not mentioned *Triphalarasayana*. *Vagbhat* in *AstangaSangraha* has described all the four types of *Triphalarasayana* as in *CharakSamhita* while in *AstangaHridaya* only one type of *Triphala Rasayana* mentioned.

Herbal Remedies for Diseases of Old Age: Some of the most common diseases of old age include arthritis, cataract, diabetes, dementia, depression, asthma, hypertension, cardiovascular disease, cerebrovascular disease, liver & kidney diseases, cancer etc. Moreover impaired body functions, delayed woundhealing and susceptibility to infection are frequently observed in old age. Common medicinal plants used for these ailments are as hereunder—

- *Arjuna*, *Guggulu* and *Karveer* as cardioprotective in cases of Ischaemic heart disease,
- *Arjun*, *Sarp Gandha*, *Shankhpushpi*, *Ashwagandha* and *Punarnava* in hypertension.
- *Vijaysar*, *Gudmar*, *Jambu*, *Methika*, *Sadabahar*, *Haridra*, *Karvellaka* and *Mammajak* in diabetes.
- *Ashwagandha*, *Guduchi*, *Shunthi*, *Shallaki*, *Rasna*, *Lashun*, *Erand*, *Nirgundi* and *Kuchala* (Shuddha) in arthritis.
- *Brahmi*, *Shankhpushpi*, *Mandukaparni*, *Guduchi* and *Madhuyasti* in treatment of senile dementias.
- *Varuna*, *Gokshura* and *Shigru* in treatment of senile enlargement of Prostate.
- *Triphala*, *Jyotishmati* in senile visual disorders.
- *Kapikacchu* in treatment of Parkinsons disease.
- *Amrita* and *Amalaki* in immunodeficiency.
- *Shirodhara* and *Shirobasti* in headache, insomnia, anxiety etc.

CONCLUSION

Old age is an undesirable and inevitable phase of human life. The life science of Ayurveda explains that, process of senescence begins naturally (*swabhavoparamavada*) under the influence of time (*kala*). Though the disturbance in the equilibrium in all the three doshas occurs during old age, there is dominance of *vata* dosha in this age. Ancient Ayurvedic scholars has clearly mentioned that during old age quantity and quality of all the *dhatu* decreases. The combination of dominant state of *vata* dosha and deterioration of *rasadidhatu*, *srotas* and *agni* are responsible for the various degenerative changes and process of decay in the body. Hence geriatric care warrants management of *Agni*, *Ama* and *Oja* (the essence of all *Dhatu*) at biological level. *Rasayan* drugs which compensates the age related bio-losses in the body and provide rejuvenating effect, act primarily at the level of *Rasa dhatu*, *Agni* and *Srotas*. *Triphala Rasayana* is one such formulation mentioned in *Charaka Samhita* which acts at the level of *dhatu*, *agni* and *srotas*. In nutshell we can say that by combining *rasayan* therapy (especially *Triphala rasayana*), wholesome diet, *dinacharya*, *ritucharya*, *sadvritta*, *yoga* and time to time *panchkarma* are likely to develop an effective package for geriatric care today.

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