HEALTHY AGING THROUGH AYURVEDA: A REVIEW

Sadhana Misar (Wajpeyi) *
Associate Professor, Kayachikitsa Department, Mahatma Gandhi Ayurved College, Hospital & Research Centre, Salod (Hirapur), Wardha, Maharashtra, India

ABSTRACT

Old age is an undesirable and inevitable phase of human life. Acharya Sushrut considered Jara (Aging) as natural phenomena like hunger, thirst and sleep, while describing the Swabhavabalavapravritta Vyadhi (naturally occurring diseases). The combination of dominant state of vata dosha and deterioration of Rasadhidhatu, srotas and agni are responsible for the various degenerative changes and the process of decay in the body. Aging is all the changes that occur regularly in a living organism with the passage of time and lead to decreased ability to survive stress, increasing functional impairment and the growing probability of death. Advancements in medical science and technology have increased human life expectancy. Worldwide the population of older individuals is growing; hence it is necessary to develop a strategy of delaying the Aging and its management.

Ayurveda is a science which helps in promotion of health, prevention of diseases and delaying the process of Aging. There are various measures mentioned in svastha chatuhska and Rasayanadhyaaya of Charaka Samhita like Dincharya, Ritucharya, timely Panchakarma and use of various Vayasthapana herbal drugs. Jarachikitsa or Rasayana is one of the Ashtanga Ayurveda which helps to delay the process of Ageing and degeneration.

Keywords: Aging, Jara, Geriatric, Rasayana, Vayasthapana.

INTRODUCTION

According to Acharya Charak, age has been divided in three parts, i.e. balyavastha (young age), madhyamavastha (middle age) and jirnavastha (old age). In old age vatadosh is physiologically in a dominant state and Rasadhidhatus (bodily tissues) are in a deficient state. This is responsible for the various degenerative changes and the process of decay in the body. Due to today’s changing and faulty dietary habits, defective lifestyle, excessive stress and lack of exercise, the process of Aging starts at early age. These factors cause various degenerative changes in the body. Aging is defined as a progressive breakdown of homeostatic adaptive responses of the body.

The consequences of Aging appear after reproductive age. With age various structural and functional changes occur in different organs and systems of the human body. Modern science deals exclusively with the problems of Aging and the diseases of the elderly. Ayurveda is a science of life and longevity. According to Acharya Sushruta, Ayurveda is Swasthasya swastharakshanam hence it incorporates various techniques for the promotion of the health and prevention of diseases in old age. It presents a good concept of Aging, process of delaying it and its management.

Geriatrics is emerging as a main challenging specialty, because of the ever growing population of old people all over the world including India. Population Aging is transforming the world in dramatic and fundamental ways. Life expectancy is increased, resulting from a series of social, economic, public health and medical victories over disease. By 2050, one-fifth of the world will be older than 65 years. The worldwide population of older individuals is growing at a rate of 2.6% per year, as against the population as a whole (1.1% annually). There is a need to generate awareness among the mass about the end result of population Aging (the increase in the number and proportion of older people in society) and about the potentials of Ayurveda in Geriatric health care. The Government of India has launched a national campaign to popularize the strength of Ayurveda and Yoga in Geriatric Care.

Concept of Aging

There are many degenerative changes takes place in Vriddhavastha, which is the last part of the life span. Aging is the multidimensional process of physical, psychological, and social changes. Person is referred as old after the age of sixty years. There is progressive diminution of dhatu (body tissues), strength of sense organs, vigor, masculinity and bravery, understanding power, memory, speech and analyzing facts in old age.

According to Acharya Sushruta after seventy years of age one is called as old in whom the dhatus (body tissues), sensory and motor organs, strength, vigor and enthusiasm decline gradually. In old age, a person develops wrinkles on the skin, graying of hair, baldness with other complaints and decrease in working capacity. According to Acharya Vagbhata aged persons may suffer from Kasa (Cough), Shwas (Breathlessness), Khatiya (Baldness), Agnisada (Diminished digestive power), Sliatha Saramansandinasyasthita (looseness of muscles, joints and bone), Twakapaurushya (skin becomes rough), Avanama (body bends forward), Vepathu (tremors) etc. According to Acharya Sushruta ‘Jara’ (Aging) is ‘Swabhavabalavapravrittvaydhi’ which is of two types. Viz Kalaja (Parirakshanakrita), which appear in proper time, even after proper protection and Akalaja (Aparirakshanakrita), which, appear before proper time due to improper care and prevention.

Modern Gerontologists usually define Aging in terms of the gradual, insidious and progressive decline in the structure and function (involving molecules, cells, tissues, organs and...
organisms) that begin to unfold after the achievement of sexual maturity. Biological Aging is a major risk factor for essentially all of the major Geriatric disorders, including dementias of the Alzheimer type, Parkinson’s disease, age related Macular degeneration, Ocular cataracts, Presbycusis, all forms of Atherosclerosis, type 2 Diabetes Mellitus, Congestive heart failure, Sarcopenia, Osteoporosis, Degenerative inter Vertebral disc disease, Immune-senescence, Benign prostatic hyperplasia and most forms of cancer4. The biochemical composition of tissue changes with age, physiologic capacity decreases, the ability to maintain homeostasis in adapting to stress declines and vulnerability to various diseases increases with age.

Aging is known as “Jara” which is defined as to become old by the act of wearing out “jirayi iti jara”. It is also called as “Vardhakya” meaning increasing age. According to Chakrapani onset of natural Aging process differs from person to person13. The onset and progress of Aging depends on factors like Prakriti (individual’s constitution) and Sarva dhatussarata (compactness of body tissue) which are genetically predetermined according to Ayurveda. The Sharangadhara Samhita11 and Ashtanga Sangraha12 describe the sequential bio-loss occurring during different decades of life due to process of Aging. According to Ayurveda, “Swabhava”13 and “Parinama” “Kalasyaparinama Jaramrityunnittajaha”14 are considered as the responsible factors in the causation of Jara (Aging).

The Tridoshas (vata, pitta and kapha) are the most important factors in the maintenance of good health and production of disease. During childhood kaphadosha, in the middle age pitta dosha and in the old age vatadosha is said to be predominant. The properties of vatadosha are described as ruksha, laghu, sheeta, khar and vishada. So Vatadosha by nature, decreases luster of skin and body strength, causes dryness as well as hastens Aging process. Apart from doshas, agni also plays an important part in Aging process. Agni is responsible for the conversion of dietary substances into tissue elements. In old age, dominance of vatadosha leads to vishamagni which affects the digestion and cause undernourishment of the tissues. This leads dhatwagnimandya in the elder people15.

Due to dhatwagnimandya poshak dhatu formation gets affected and causes a diminution of dhatu in old age. As a result of which, the essence of all dhatus, Oja is decreased, which is responsible for Sharira Shthairy i.e. compactness of body elements. Ojakshaya leads to the molecular & cellular injury which exceeds their repair capacity and further accelerating the Aging process ultimately ending in death16.

Geriatric care in Ayurveda

Geriatric care is important for prevention and management of health problems in old age. It helps the elderly to improve quality of life and made them independent for performing their daily activities. Ayurveda has a broad spectrum of preventive measures for combating the Aging process. Ayurveda advocates wonderful approach to delay Kala-jara (natural Aging) and to avoid Akala-jara (Premature Aging). Ayurveda gives primary importance to preventative health care.

For healthy life Ayurveda advocated day regimen (Dnacharya), night regimen (Ratricharya), seasonal regimen (Ritucharya), wholesome diet (Hitakara and Matravata ahara), behavioral and ethical considerations (Sadvritta), rejuvenate healthy lifestyle (Achara Rasayana) etc. All these measures delay the process of Aging.

Acharya Charak described vaayasthapana gana which, is having power of rejuvenation. This gana contains drugs which have Rasayana properties that help to inhibit tissue degeneration and stop progress of disease17. The drug, which sustains the youth stage and prevents the Aging process, is called as vayasthapan. According to Susruta Rasayana is vayasthapan (maintaining youth), provide long life, intellect, strength and also eliminates the disease. According to Chakrapani, the drug that stabilizes the effective youth of the body is known as vayasthapana 18.

Rasayana Therapy

Rasayana word is made up of two words ‘Rasa’ means ‘nutrition’ and Ayana means circulation or promotion. The word Rasa in this context means the first liquid tissue, which nourishes all the tissues in the body. This means that if Rasa dhatu is produced in optimum quality and quantity, then naturally all the tissues in the body will be nourished properly. Rasayana drugs acts 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). Charak has briefly defined Rasayana as the measure by which one gets Rasa, Raktadhatu in its best condition. Susruta has defined Rasayana as a therapy, which establishes the age (Vayasthapana), increases the life span (Ayuskar), intelligence (Medha) and strength (Bala) as well as it enables the person to rid of the diseases.

Classification of Rasayana

(1) On the basis of the utility:
A. Kamya Rasayana: This is used in healthy persons for further promotion of health. It is again of three subtypes (i) Pranakamya to promote longevity. (ii) Srikamya to promote body luster. (iii) Medhakamya to promote mental competence
B. Naimittika Rasayana: This is used specifically in the treatment of specific diseases. Eg.Shilajit (Asphaltum) in Prameha, Tuvarak (Hydnocarpus wightianus) in Kushtha, Shalaparni (Desmodium gangeticum DC.) and Arjuna (Terminalia Arjuna) in Hridrog, Medhya Rasayana in Manasroga etc.
C. Ajasrika Rasayana: This is used as a part of diet as milk, ghir, madhu (honey) etc.

(2) Based on the method of use:
A. Vatapatika Rasayana i.e. outdoor regimen.
B. Kutipravesika Rasayana i.e. intensive indoor regimen.

(3) Special Rasayana drugs:
A. Medhya Rasayana- These drugs have a quality of enhancing memory, intelligence and strength of body, mind and sense organs. They are used in Psychiatric disorders. Eg. Juice of Mandukaparni (Centella asiatica) and Guduchi (Tinospora Cardifolia), powder of Yastimadhu (Glycyrrhiza glabra) and Shilajit (Asphaltum) with milk and paste of Shankhpushpi (Convolvulus plaricaulis) are intellect promoters.
B. Achara Rasayana -Rejuvenative conduct and lifestyle. Achara Rasayana acts as a psycho immune modulator reduces stress and thus prevents the release of free radicals19.

Panchakarma therapy

Panchakarma therapy (Therapeutic detoxification) is effective in cleansing of body toxins, plays a pivotal role in Aging. The detoxification process is necessary for eliminating the toxic waste from the organic system and thereby assuring smooth and natural organic function. It purifies and balances the complete organic system that can ensure natural wellbeing as well as health20.
In Geriatric practice selective rehabilitative Panchkarma therapy is used and drastic evacuatory practices like Vamana (Therapeutic emesis) and strong Virechana (Therapeutic purgation) procedures are avoided. The schedule in the elderly should consist of Abhyanga (medicated massage), Kayasana (fomentation), Pindasveda, Shirodhara (pouring medicated oil on forehead) and Brimhan Basti (medicated enema) can be planned according to condition. This selective Panchkarma can be referred as Geriatric Panchakarma.

Ajayita Chana conducted clinical study and showed the effectiveness of Shirodhara and Nasyam Panchkarma therapies for the Aging. He showed that detoxification and rejuvenation allow achieving Anti-Aging in a very gentle and natural manner.

Exercise

Exercise helps to control weight, improves blood circulation and emotional well-being of an individual. It relieves stress and helps achieving flexibility. Regular yogic exercise from youth limits the effects of old age.

Rasayana drugs

Charaka identified ten drugs and listed them under Vayasthapana Gana. Vayasthapana is specialized Rasayana drugs that reverse degenerative changes, increase life span with quality health.

Common medicinal plants used in Geriatric disorders include Arjun (Terminalia Arjuna), Guggulu (Commiphor mukuli) and Karveer (Nerium indicum) as cardioprotective in cases of Ischaemic heart disease, Arjun (Terminalia Arjuna), Sarpagandha (Rauwolfia serpentina), Shankushpui (Convolvulus pluricaulis), Ashwagandha (Withania somnifera) and Punarnava (Boerhaavia diffusa) in hypertension, Gymdar (Gynnema sylvestris), Jambu (Syzygium cumini), Methi (Trigonella foenum greacum Linn.), Haridra (Curcuma longa), Karvellaka (Momordia charantia) and Mammajak (Enicostemalitt lancesa) in diabetes, Ashwagandha (Withania sominifera), Guduchi (Tinospora cardifolia), Shunti (Ziziber officinale), Shallaki (Boswellia serrata Roxb.), Rasna (Plueca lanceolata), Lahsun (Allium sativum), Erand (Ricinus communis), Nirgundi (Vitex arifolia) and Shuddha Kuchala (Strychnos nux-vomica Linn.) in arthritis. Similarly Brahmi (Bacopa monniera), Shankushpui (Convolvulus pluricaulis), Mandukpurni (Centell asiatica), Guduchi (Tinospora cordifolia) and Yashtimadhu (Glycyrrhiza glabra) in treatment of senile dementias, Varuna (Crataeva nurvula), Gokshura (Trubals terrestres) and Shigru (Moringa oleifera) in treatment of senile enlargement of Prostate, Triphala (combination of Amalaki, Bibhitaki, Haritaki), Jyotishmati (Celastras paniculatus Wild.) in senile visual disorders, Kapikacchu (Mucuna prurita Hook.) in the treatment of Parkinson disease, Amrita (Tinospora cordifolia) and Amalaki (Emblica officinalis) is in immunodeficiency disorders.

Drugs like Ashwagandha (Withania sominifera) and Shiljatu (Asphaltum) nullify the effects of stress and drugs like Gambhari (Gmelina arborea) improve nitrogen balance and promote tissue building. Guggulu (Commiphora mukuli) clears the channels and enhances the nutrition to all tissues and cells. Amalaki (Emblica officinalis) and Bala (Sida cordifolia) contain antioxidants which help in the scavenging of free radicals release.

DISCUSSION

Some Research studies conducted on Rasayana drugs are summarized below. It was remarkable to note that the drugs such as Shatavari (Asperagus recemosus), Panarnava (Boerhavia diffusa), Mandukaparni (Centella asiatica), Amalaki (Emblica officinalis), Hrida (Terminalia chebula), Gaduchi (Tinospora cordifolia) possessed significant free radical quenching and other antioxidant attributes in consonance with the traditional view of Vayasthapana when they were subjected to measure of modern scientific scrutiny.

Mukherjee et al. in their study “Evaluation of free-radical quenching properties of standard Ayurvedic formulation Vayasthapana Rasayana” reported that Cellular damage induced by free-radicals like Reactive Oxygen and Nitrogen Species (ROS and RNS) has been implicated in several disorders and diseases, including Aging. Hence naturally occurring antioxidant rich-herbs like Amalaki (Emblica officinalis), Punarnava (Boerhavia diffusa), Mature stem of Gulvel (Tinospora cordifolia), unripe fruits of Hrida (Terminalia chebula), entire plant of Gokarna (Clitoria ternatea), leaves of Mandookpurni (Centella asiatica) and mature roots of Shatavari (Asparagus racemosus) play a vital role in combating these conditions.

A new class of metabolic regulators called Adoptogen increases the ability of an organism to become accustomed to environmental factors. Certain experimental studies have reported adaptogenic activity of the few drugs like Shatavari (Asparagus recemosus), Brahmi (Bacopa monniera), Saffron (Crocus sativus), Amalaki (Emblica officinalis), Tulsi (Ocimum sanctum), Gaduchi (Tinospora Cardifolia) and Ashwagandha (Withania sominifera) are to be referred as Geriatric Panchakarma. This selective Panchkarma can be referred as GeriatricPanchkarma.

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daily with milk for one year showed statistically significant increase in hemoglobin, RBC count with a decrease in serum cholesterol and ESR.\(^{33}\)

Samarakoon S.M.S.et.al. in vitro assays indicated that Amalaki (combination of plants) is a source of natural antioxidant, which might be helpful in preventing the progress of numerous oxidative stresses which trigger at various age related diseases and in retarding Aging as well as preventing pre-mature Aging\(^{34}\).

Clinical and Experimental trial of Guggulu (Commiphora mukul) in Medoroga (lipid Disorders) showed that, Cardinal clinical manifestations of disease like precordial pain and dyspnoea were relieved in most of the cases. The substantial fall in lipid values indicated the possibility of regression of atherosclerosis. The reversal of ECG changes substantiated the anti-ischemic effect of the drug in the treatment of ischemic heart diseases\(^{35}\).

The concept of Medhya Rasayana (drugs act on higher mental functions) can be considered as cognitive enhancers and Nootropics. Cognitive enhancers are that, which help to enhance attention, control and memory\(^{36,37}\). Nootropics are cognitive enhancers. These are supposed to work by changing the accessibility of neurochemicals (neurotransmitters, enzymes and hormones) to the brain, either by improving the brain's oxygen supply, or by stimulating nerve growth. Ficordides I and II constituents of P. kurroa, have shown to potentiate nerve growing factor in cultured PC12D cells\(^9\).

Kuppurajan K et.al. conducted study of Anti-oxidant effect of Mandukaparni (Centella asiatica), Yastimadhu (Glycyrrhiza glabra) and Jatamansi (Nordostachys jatamansi). This double blind sequential crossover clinical trial with an Ayurvedic compound containing Mandukaparni (Centella asiatica), Yastimadhu (Glycyrrhiza glabra) and Jatamansi (Nordostachys jatamansi) as trial drug, diazepam as control and placebo was carried out on 120 patients of anxiety neurosis. The study showed that the compound formulation is more effective in enhancing the perceptual discrimination and psychomotor performance over placebo and control drug.\(^{39}\)

Sharma Y. K. et. al. in their study ‘Anabolic Potential of Brahma Rasayana’ found highly significant results in body weight, muscle strength, foot thrust, grip power, Visual analogue scale, mental and physical derive, and working capacity. Appetite, sleep, bowel habits and Hb gm% also showed significant improvement. So they concluded that Brahma Rasayana-1 is effective in most of the subjective and objective criteria and has anabolic potential so can be used in geriatric patients\(^{40}\).

Stem cell research has led to formulate a new branch of medicine named as regenerative medicine, which plays a similar role that of Rasayana therapy\(^{41}\).

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

**CONCLUSION**

Aging is a continuous, progressive and inevitable phase of human life. According to Ayurveda swabhava and kala are responsible for the Aging. In old age vatadosha is physiologically in a dominant state and rasadidhatus are in a deficient state. Ayurveda advocates a wonderful approach to delay Kala-jara (natural Aging) and to avoid Akalajara (premature Aging). Rasayana specially deals with the science of nutrition, geriatric care and rejuvenation. Rasayana therapy includes wholesome diet, healthy lifestyle, practices of yoga, time to time Panchakarma and use of various herbal vyayasthapana drugs. Rasayana is the measure by which one gets Kasa, Rakta diathus in its best condition, which establishes the age (Vayasthapana), increases the life span (Ayuskar), intelligence (Medha) and strength (Bala) as well as it enables the person to get rid of the diseases. Certain research studies on Amalaki (Phyllanthus emblica), Ashwagandha (Withania somnifera), Guduchi (Tinospora cordifolia), Brahihi (Bacopa monnieri), Guggul (Commiphora mukul), Mandukaparni (Centella asiatica) and classical compound Rasayana have shown evidence to suggest their efficacy as anti-aging remedies. Thus, it can be said that Ayurveda is helpful in delaying Aging process and minimizing the intensity of problems occurring in old age with its management.

It is recommended that, there is a wide scope of research on Ayurvedic Vyayasthapana drugs to prove their efficacy in Geriatrics.

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