

## ***AGEING: AYURVEDA INSIGHT TO ITS PREVENTION W.S.R. KALAJA JARA***

Sharma Subhash<sup>1</sup>, Bharti<sup>2</sup>

<sup>1</sup>MD (Panchkarma), Assistant Professor, <sup>2</sup>MD (Kayachikitsa), Assistant Professor,  
G.N. Ayu. College and Research Institute, Gopalgur, Ludhiana, Punjab, India-141118

**Email:** [sharmasubhash206@gmail.com](mailto:sharmasubhash206@gmail.com)

Published online: July, 2017

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### **ABSTRACT**

Ageing is the process of getting older owing to either genetic determination or environmental modulation. A persistent rise in older population as a result of prolonged life span has increased need for separate medicine branch like geriatrics. In spite of better care and better health facilities, older people tend to suffer debilitating changes resulting in physical and psychosocial dependency on family members and relatives. Conventional system of medicine provides no satisfactory approach to counter the magnitude of this problem. *Ayurveda*, a traditional holistic system of medicine, can be an effective mode of finding a solution to this ever increasing problem. *Panchkarma* and *Rasayana Chikitsa* are effective measures to slow down the ageing process and counter the physical as well as psychological aspects of ageing. This paper is an attempt to conceptualize *Kalaja Jara* in traditional as well as modern medicine and effect of *Panchkarma* and *Rasayana* drugs in its management.

**Keywords:** Ageing, *Ayurveda*, Geriatrics, *Panchkarma*, *Rasayana Chikitsa*.

### **INTRODUCTION**

“World is progressively moving towards one dominated by aged population. Ayurveda as a traditional medical science can be of great help to delay the inevitable process and reduce the agony of suffering population through purification and rejuvenation therapies.”

Ageing is a process of gradual degeneration of tissues as a result of failure to adapt to changes in external and internal environment. The phenomenon of ageing is a natural one ultimately leading to senescence and death. The process of ageing leads to physical, social and psychological deterioration

of the individual. Aged population not only requires greater care but also better health facilities and as a result led to evolution of separate medicine branch named Geriatrics. In the last decade an increase in population of aged people has been noticed. Population ageing is result of changes in

fertility and mortality as a result of economic and social development. Increased life expectancy due to better health facilities and decreased birth rate due to improved access to education and family planning has contributed a paradigm shift in population curve. The number of people in world aged 60 years or over is projected to grow by 56 percent from 901 million to 1.4 billion by 2030. The global population of older persons is projected to be double by 2050<sup>(1)</sup>.

In *Ayurveda*, the term *Jara* is used for senescence period and defined as “*Jiryati Iti Jara*” i.e. which has become old by act of wearing out. *Jara* is described as natural and inevitable phenomenon in *Ayurveda* and classified under *Svabhavik Vyadhi* by *Acharya Sushruta*<sup>(2)</sup>. In *Ashtang Ayurveda*, *Jara* is described as one branch of *Ayurveda* dealing with rejuvenation. *Jara* or the degenerative stage of life has been attributed to increase in *Vata Dosha* in *Vriddhavastha*. “*Visransa*” a synonym of *Jara* is derived from “*Sramsus Adahpatne*” meaning degradation of physical and psychological well being. Apart from this the etymology of word *Sharira* pertaining to body is from “*Shiryate Aneniti Shareeram*” which meaning which is bound to de-

stroy. Human body is bound to destroy by means of natural or pathological means.

Present study has been aimed to-

1. Conceptualize *Kalaja Jara* in *Ayurveda* as well as modern science.
2. To seek appropriate measures in order to delay the process of ageing in traditional system of medicine.

## MATERIALS AND METHODS

Conceptual approach is devised from traditional literature of *Ayurveda* as well from books of modern medical science. Apart from this various journals, Published articles and websites were also searched regarding this study.

### Concept of *Kalaja Jara*

*Ayurveda* divides life span in three different categories i.e. *Balyaavastha* (upto 16 years), *Madhyaavastha* (16-70 yrs) and *Vriddhavastha* (above 70 years). *Madhyavastha* exhibits traits of *vridhi* (16 -20 years), *Yauvana* (20-30 years), *Sampoor-nata* (30-40 years) and *Parihani* (40 years and above) respectively. Following this stage, a person lands into *Vriddhavastha* which is progressive decay of strength, vigor, sense organs and body elements. *Acharya Sushruta* has described signs of *Jaraavastha* which are tabulated below.

**Table 1:** Signs of *Jara* as mentioned by *Acharya Sushruta*<sup>(3)</sup>

<i>Dhatu kshaya</i>	Deterioration of body elements
<i>Indriya kshaya</i>	Deterioration of perception of sense organs
<i>Bala kshaya</i>	Loss of power
<i>Virya kshaya</i>	Loss of fertility
<i>Utsaha kshaya</i>	Lack of energy and enthusiasm
<i>Vali</i>	Loss of skin elasticity i.e. wrinkling
<i>Palita, Khalitaya</i>	Premature graying, loss of scalp hair
<i>Kasa, Shwasa</i>	Cough and breathlessness on exertion
<i>Sarva kriyasu Asmartha</i>	Inability to perform gross motor activities
<i>Krishta</i>	Emaciation
<i>Manda Virya-Buddhi-Bala</i>	Loss of seminal secretions, intellect and power
<i>Kampa</i>	Tremors
<i>Aruchi</i>	Loss of appetite
<i>Chhina patra svara</i>	Husky voice like broken pot
<i>Gaurava</i>	Heavyness
<i>Arati</i>	Restlessness
<i>Mandaagni</i>	Inappropriate digestion

Apart for this, Acharya Vagbhatta and Acharya Sarangdhara had described decade wise Kshaya of

specific biological properties with advancing age which is as follows.

**Table 2:** Decade wise *kshaya* of biological properties as mentioned by Acharya Vagbhatta <sup>(4)</sup> and Acharya Sarangdhara <sup>(5)</sup>.

Decades	Biologocal bhava	
	Vagbhatta	Sarangdhara
First(1- 10 yrs)	Balya	Balya
Second(11-20yrs)	Vridhhi	Vridhhi
Third(21-30yrs)	Prabha	Chhavi
Fourth(31-40yrs)	Medha	Medha
Fifth(41-50yrs)	Tvacha	Tvacha
Sixth(51-60yrs)	Sukra	Drishti
Seventh(61-70yrs)	Dristi	Sukra
Eighth(71-80yrs)	Srotrairidriya	Sukra
Ninth(81-90yrs)	Mana	Buddhi
Tenth(91-100yrs)	Sparshindriya	Karmairidriya
Eleventh(101-110yrs)	-	Manah
Twelveth((111-120yrs)	-	Jeevanam

*Jara* is a *Svabhavabalapravritta Vyadhi* and can be divided into *Kalaja and Akalaja* varieties. *Kalaja Jara* is one occurring at a natural pace and not aided by any other pathological processes. *Akalaja Jara* is early senescence as a result of various dietary factors, faulty lifestyle and other physical and mental stress inducing pathologies<sup>(6)</sup>. *Kalaja Jara* is an inevitable phenomenon of degradation of innate components of body gradually leading to a stage of life where many body components are in a state of *Kshaya*. This *Kshaya* of these biological factors leads to vitiation of *Vata Dosha* which on one hand further aggravates the condition by increase in *Raukshya* and *Kharatva* of *Dhatu*s, *Srotas* and ultimately *Sharira*. This *Khavaigunya* of *Srotas* makes the aged person susceptible for disorders of various body systems. *Aamdosha* formed as a result of vitiated *Jatharaagni* leads to formation of *Aamvisha* in body which further deteriorates the quality of *Dhatu*s formed. Both these factors need to be considered in order to delay the process of *Kalaja Jara*.

### Modern Concept of Ageing

Ageing is a universal, inevitable, progressive phenomenon occurring body which makes it susceptible for disease and ultimately death. Various attempts have been made by researchers to define Ageing but till now there is no universally accepted definition. Bernard Strehler (1959), a well-known gerontologist, defined “*biological ageing as the gradual decrease in adaptation of an organism to its normal environment. This reduced adaptation finds expression in a decreased ability of the organism to carry out various specialized functions*”<sup>(7)</sup>. He defined ageing by four postulates i.e. universal, intrinsic, progressive and deleterious. Progressive research work on ageing has made the field an ever evolving one and there were a vast number of theories being postulated on this issue. Broadly the theories of ageing are divided into two categories<sup>(8)</sup>:

1. Programmed ageing theories imply that the process of ageing follows a biological timetable i.e. the mechanisms of defense, mainten-

ance and repair are guided by genetic expressions.

2. Non-programmed ageing or damage and error theories are based on evolutionary concepts i.e. inability of patient to combat natural degenerative processes.

Programmed ageing theories include following theories:

- a) Programmed longevity
- b) Endocrine theory
- c) Immunological theory.

Damage or Error theories include following theories:

- a) Wear and tear theory.
- b) Rate of living theory.
- c) Cross linking theory.
- d) Free radical theory.
- e) Somatic DNA damage theory.

Although there are multiple theories explaining the process and causes of ageing but the exact mechanism of the process is still unknown. Progressive research in this field has made it area of persistent interest for research scholars and scientists. Free Radical theory was postulated by Denham Harman in 1950s and extended the idea to implicate mitochondrial production of reactive oxygen species in 1970s. This is the most widely accepted theory of ageing. Oxygen free radicals are toxic byproducts of normal cellular metabolism which leads to a cascade of events culminating in increased production of free radicals in body and hence greater tissue damage. Homeostatic mechanisms of body tend to neutralize them by production of endogenous antioxidants. Increased production of highly reactive free radicals causes considerable damage to membranes of mitochondria and mitochondrial DNA. This injury initiates a self-perpetuating cycle in which oxidative damage impairs mitochondrial function. Mitochondrial DNA damage can be repaired by endogenous mechanisms but not to an extent of healing of nuclear

DNA damage. With time the damage becomes sufficient enough to derail mitochondrial energy production mechanisms and can cause apoptosis<sup>(9)</sup>.

### **Ayurvedic approach to its prevention**

*Jara* which is a natural process of decline needs to be managed effectively in order to maintain self dependency of older individuals on one part and secondarily to improve the quality of life. Management principles in elderly should be aimed at-

- a) Delaying the process of ageing
- b) Managing the existing disorders.

The first dimension of delaying the ageing can be achieved by following the daily regime (*Dincharya*) and seasonal regime (*Ritucharya*), non suppression of *Adharniya Vegas*, following the guidelines mentioned for proper conduct i.e. *Sadvrita* and use of *Rasayana* drugs and *Panchkarma Chikitsa* in order to remove the vitiated *Doshas* and maintain *Dhatu Samyaavastha* for a longer duration. Secondarily, age related disorders can be effectively managed by *Rasayana* drugs (*Naimaitik Rasayan*) and *Dosha* specific *Shamana* drugs.

### **Panchkarma as preventive measure in prevention of Kalaja Jara**

*Jara* is a degenerative stage of life marked by progressive decline of qualities of *Dhatu*. *Vata Prakopa* occurs as a result of *Dhatu Kshaya* and *Margaavarana*<sup>(10)</sup>. Apart from this, *Mandaagni* also results in improper formation of *Rasa Dhatu* and decline in qualities of successive *Dhatu*s thereby making body more susceptible for degeneration and degradation of defense mechanisms of body. This is a vicious cycle of *Dhatukshaya* which needs to be broken at some point in order to slow down the process of gradual decline and ultimately leading to a longer healthy life. *Panchkarma*, the group of purificative procedures, can be a handful in managing the above condition. The individual role of each *Panchkarma* procedure is summarized below.

**Poorvakarma:** *Langhana/Pachana* helps in stimulating the secretion of digestive juices and digestion of *Aamdosha*. *Snehana* helps in *Doshotklesha* and lubrication of channels so as to facilitate excretion of *Dosha* from *Shakha* to *Koshta* for removal. *Svedana* helps in liquification of the *Doshas* causing obstruction of channels and aided by *Snehana*, it helps in their movement towards *Koshta*.

**Pradhankarma:** *Vamana* helps in removal of vitiated *Doshas* from the *Aamasaya* i.e. from upper part of the alimentary tract. Although, *Vamana* is contraindicated in elderly but in case of extreme need *Mridu Vamana* can be done with appropriate calculation of drug dosage. *Virechana Karma* is used for removal of *Doshas* from lower part of alimentary tract. *Niruha* and *Anuvasana Vasti* both are done to alleviate the vitiation of *Vata Dosha* which occurs as a result of *Dhatu Kshaya* or *Sunyata* of *Srotasas* as result of *Sodhana* therapy. *Nasya Karma* is done to pacify or removal of toxins from the *Urdhavajatrugata* part i.e. disease pertaining to supraclavicular region.

**Paschatkarma:** *Samsarjana Karma* or a prescribed diet schedule is necessary to regain the lost digestive power. According to the type of *Sodhana*, *Peyaadi Samsarjana Karma* or *Tarpanaadi Karma* is chosen. Following the purificative procedures, there is not only pacification of disease symptoms but also maintenance of normal body constitution. Sense organs perception power, complexion of skin, vigor and intellect is improved. The process of ageing is slowed down and person lives a long healthy life<sup>(11)</sup>.

Periodic and seasonal use of *Panchkarma* procedures will not allow the *Agni* to get vitiated by regular eradication of *Sanchit Dosha* from its *San-*

*chaya Sthana* itself. As a result *Doshas* will never enter the stage of *Prakopaavastha* which is responsible for vitiation of *Agni*, *Khavaigunya* and finally production of a disease. Devoid of this process, the degeneration of will occur at a slow pace as the factors responsible for the process will not be available on a regular basis to accelerate the process of damage.

### Role of Rasayana drugs

*Rasayana* therapy is given prime importance in *Ayurveda* from the time immemorial and has been termed as a part of *Ashtang Ayurveda* by the name *Jara*. *Acharya Sarangdhara* has described *Rasayana* as a therapy which destructs the ageing process and disease<sup>(12)</sup>. *Rasayana* therapy is aimed at improving the qualities of basic constituents of body i.e. *Dhatu* which in turn improves the general body constitution and hence a state of prolonged health. *Panchkarma* therapy is a prerequisite of *Rasayana* therapy, following which effects of this therapy are obtained effectively. Effects of *Rasayana* therapy are as follows:

1. They have multi dimensional physiological effects thereby improving physical and mental health.
2. It improves memory and intellect by use of specific *Rasayana* drugs like *Medhya Rasayana*.
3. Specific *Rasayana* has been mentioned according to decades of life.
4. *Naimaitika Rasayana* is aimed at treatment of specific disorders like *Agastya Haritaki* in *Svasa roga*.
5. *Aachara Rasayana* refers to code of conduct, both behavioral and social conduct, in order to stay healthy and devoid of any physical and mental ailment.

**Table 3:** Rasayana drugs advised for particular age group<sup>(13)</sup>

Age group in years	Rasayana Drugs	Desired effect
1-10 yrs	<i>Vacha, Kashmari, Suvarna</i>	<i>Balya</i>
11-20 yrs	<i>Kashmari, Ashvagandha, Bala</i>	<i>Vridhhi</i>
21-30yrs	<i>Lauha, Amlaki</i>	<i>Chhavi</i>
31-40yrs	<i>Sankhpushpi, Brahmi, Jyotishmati</i>	<i>Medha</i>
41-50yrs	<i>Jyotishmati, Priyala, Somraji, Bhringraja</i>	<i>Twaka</i>
51-60yrs	<i>Jyotishmati, Triphla, Lauha-Satavari, Amlaki</i>	<i>Drishhti</i>
61-70yrs	<i>Atmagupta, Vajikarna drugs</i>	<i>Sukras</i>
71-80yrs	Drugs may not be effective	<i>Vikrama</i>
81-90yrs		<i>Buddhi</i>
91-100yrs		<i>Karmendiya</i>

## DISCUSSION

*Ayurveda* aims primarily at prevention of disease and secondarily at its management. *Kalaja Jara* is known to be *Svabhava Bala Pravritta Vyadhi* and hence considered to be *Yapya* (which can only be managed by appropriate measures). The main aim is to delay the process of degeneration, reduce the agony of aged population and maintain their self dependency. *Panchkarma* or periodic purification followed by use of *Rasayana* drugs can be helpful in this aspect. On the one hand *Panchkarma* corrects digestive fire which improves the derailed metabolism and on another front it removes toxins as well as free radicals from the body which are responsible for tissue injury and the process of gradual loss. Stress is considered as a risk factor to enhance the process of ageing. Experimental studies have suggested that *Rasayana* drugs could influence the release of DHEA (dehydroepiandrosterone) and which is released during stress and responsible for coronary artery disease, breast cancer. Osteoporosis, decreased rate of wound healing<sup>(14)</sup>. A significant decrease in chronic inflammation markers like CRP has been noticed following oral consumption of *Rasayana* drugs like *Ashvagandha* which is marker of chronic stress<sup>(15)</sup>.

## CONCLUSION

A continuously ageing body is not only subjected to various physical stresses but also accompanied

by deterioration of mental and psychological components. A critical consideration of the issue demonstrates a need for not only change in essential components of life like diet, sleep etc but also a need for regular purification of body and consumption of drugs which reduces the oxidative stress on body. *Ayurveda*, a traditional system of medicine, is a bright ray of hope in a world devoid of specific therapies to slow down the progression of ageing. *Panchkarma* and *Rasayana Chikitsa* in *Ayurveda* were used from the ancient times to reduce the physical and psychological aspects of ageing body ultimately leading to a health, disease free life. A need for evidence based research in the field of geriatrics aided by physiological effects of *Sodhana* therapy and *Rasayana* drugs is needed. A world moving towards the predominance of aged population is constantly seeking for a solution to relieve the agony and delaying the inevitable process. *Ayurveda* can be the solution of this mystery persistently challenging the ever enthusiastic minds of researchers.

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**Source of Support: Nil**

**Conflict Of Interest: None Declared**

How to cite this URL: Sharma Subhash & Bharti: Ageing: Ayurveda Insight To Its Prevention W.S.R. Kalaja Jara. International Ayurvedic Medical Journal {online} 2017 {cited July, 2017} Available from: [http://www.iamj.in/posts/images/upload/643\\_649.pdf](http://www.iamj.in/posts/images/upload/643_649.pdf)