

Ayurveda Perspective on an Ageing

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Abstract :

Ageing is a process of unfavourable progressive changes associated with decline in vigour and ending in death. The process of ageing involves the coexistence of two opposing factors namely evolution (growth) and involution (atrophy). These processes continue to operate throughout the life but their comparative importance tends to vary in different age groups. With advancing age, the process of involution becomes relatively preponderant and gains the upper hand which has been rightly told by our ancient Acharya i.e., as the age advanced, human beings gradually lose some of their attributes, because of functional and structural alterations in almost all organ systems. Ageing in individuals is affected to a greater extent by genetic factors, diet, social conditions and the occurrence of age related disorders.

Keywords - Ageing, Death, Growth, Age, Human, Hand, Diet etc.

Introduction :

The desire to live, one of the basic instincts has been common to all living creatures ever since the first unicellular organism evolved on this graceful plant, the Earth. This desire itself was the cause elan vital which lead to the successful evolutionary progress into more structurally and functionally developed unicellular and later into multicellular organism. Man, the most developed and sophisticated living being on earth, so considered due to his tremendous intellectual abilities is in no way at par from this. On the contrary, he is a step ahead, in the sense, desires not only to live, but to live a long, happy and disease free life as far as possible. The times have changed since

revered sages had described about the means and methods of leading such a life, emphasis being laid on Swasthavrtta, Sadvrtta and mainly the avoidance of Prajnaparadha, the root cause of all diseases. In the blown up human civilization of present era, in the midst of increased pronicity and various stresses, it is natural to anticipate majority of population as having undesired health problems resulting in short life span. This was envisaged by our ancient revered Acharya and they have found the solution thousands of years ago, after an extensive search to explore the means and methods for Hitayu, Sukhayu and Dirghayu in the concept of Rasayana which not only helped attain longer, healthier life but also helped curtail some of the dreadful diseases.

The failure of adaptation at any age, under any circumstances can result in physical and mental ill health. So that maximum benefits can be yielded. In the opinion of ancient Acharya, Rasayana should be preferably used during the early or middle age.

Aims :

To Study the Ageing as per Ayurveda classical.

Objectives :

- 1) To Study the Ageing as per Ayurveda classical.
- 2) Focus on Ayurveda Review Ageing.

Materials :

Source of Data -

a) Sushruta Samhita	b) Sharangadhara Samhita
c) Charaka Samhita	d) Vaghbhata Samhita
e) Dhallan Commentary	f) E-Journal

Methods :

- 1) To compile available literature on Ageing.
- 2) To compile the importance of Rasayana in appearance of disease. This is literary research study. In this articles all the references from Ayurveda Samhita and respective commentaries regarding - "Ayurveda perspective on an ageing"

Review of Literature :

A constant reactivity and change in the form and probably functioning is one of the important features of living beings in biosphere. Modern scientists say that biosphere is an open system which constantly reacts with the environment. However, the nature of reactivity varies from one organism to another, which is an inherent phenomenon. This is triggered at the time of conception, runs throughout the life span and when it totally ceases, the organism dies. Within the period of life span, the nature has bestowed two important mottoes. One is growth and other is reproduction or multiplication of the species. Growth ensures proper maturity for reproductive phase. After cessation of reproductive phase, the organism declines towards death. Thus ageing, both chronological and qualitative, will be counted, in strict sense, from the time of conception. In other words, ageing occurs as a result of constant biological activities throughout living period. This incessant activity is made possible by continuous process of both consumption and preservation of substances for energy. If Chetana (soul) is considered symbolically as a form of energy in a living entity, then Pravrtti (constant activity) can be observed obviously either at cellular microcosmic level or at systemic macrocosmic level. This was well explained by our revered Acaryas in the very definition of Ayu as an inseparable bond between Sarira, Indriya, Sattva and Atma.

Though ageing is restricted to Sarira or physical body, other are essential factors and give meaningful definition for Ayu. Various activities exhibited by the body indicate the presence of Atma, which is the most important factor in sustaining life and without which the body will be declared dead as no activities could be seen (Ca. Sa. 1/70-74). These narration of the classical books gain more weight in the light of modern explanation.

Anabolism And Catabolism In Ayurveda -

The process of anabolism and catabolism was clearly known to our revered scholars about three thousand years ago. They understood these processes even without the sophisticated equipments or fully developed technology the present day is having.

- 1) While mentioning the very definition of Sarira, it has been told that - This definition of Kaya, the synonym of Sarira, indicates the underlying anabolic activity whereas the next one i.e., Sarira directs towards the catabolic activity.
- 2) Definition of Ayu given in the 1st chapter of Sutrasthana of Caraka Samhita also indicates the same. The synonyms given for Ayu show total body's metabolic activity. One that supports the body and stops from undergoing decomposition is called Dhari. As per this definition, the body has greater resistance to combat the invasion of infective agents which if unchecked causes the formation of Puti, thereby leading to decay. This definitely shows the anabolic activities taking place within the body so as to sustain body growth.

One which keeps body healthy and alive by getting proper nourishment; resulting in steadiness of body functions is called Jivita. One in which normal functions slow down leading to derangement of total body, eventually to death is called Nityaga. This points towards the underlying catabolic process.

- 3) In 7th chapter of Sarirasthana, Caraka quotes The body (organism) is made up of a number of minutest entities (cells).

Their union and disunion are controlled by Vayu. Commenting on this, Cakrapani says that by governing the union (Samyoga) and disunion (Vibhaga), Vayu plays a vital role in Sarirarambha and Sariravinas process. This Sarirarambha and Sariravinas certainly points at the anabolic and catabolic process taking place respectively which are part and parcel of life.

- 4) A reference from Nirukta clearly indicates the knowledge of anabolism and catabolism our Acaryas had thousands of years ago. From the above quotation it is evident that anabolic activity gains the upper hand over the catabolic activity in the earlier phase of life and as the age advances, it becomes viceversa.

In (normal) physiology, for growth and development of a body, anabolic activity should take place from the initial phase of life itself. As the age advances, i.e., moves towards middle age, this anabolic activity is counterpoised by catabolic activity. During this period, the activity of both will be equal indicating the neutral phase which every

individual passes through. With age advancing, anabolic activity becomes overpowered by catabolic activity, triggering off degenerative changes ending in death.

This indicates that anabolic process will be followed by catabolic process in (normal) physiology and not the other way. So in childhood, activity of anabolism will be more; in adolescence, both will be equally active maintaining healthy state and in adulthood, there will be preponderance of catabolic process leading to downfall in body metabolism. These processes are the major factors of ageing process and are natural phenomena. The order given in the classics Dhari, Jivita and Nityaga, and Sarirarambha and Sariravinasa, points at the fact that anabolism will definitely be superceded by cabolism in the later stages of life which was known to our ancient scholars at that time itself.

Ageing Starts In Different Attributes At Different Period -

Thus, the ancient classics give a detailed version on the biological aspects of ageing including growth, puberty and senility. Though the classics have categorised Vayas into Balya (undeveloped), Madhya (developed) and Vrddha (degenerative) Avasthas, they have observed changes occurring during growth and also the initiation of decrement of certain particular faculties of the body. Vaghbata was the first one to record such an observation which was followed later by Sharangadharaacarya. In Sharngadhara Samhita, he followed the same. From the above quotations, it is clear that ageing does not occur simultaneously in all the tissues. Different body tissues are affected with ageing at different time period. Gradual declination of a particular faculty takes place in each decade of life and by the end of decade, that particular faculty is lost.

Vaghbata limits the life span of human beings to hundred years where as Sharngadhara extends it further by twenty years. After the first decade of life, Balyavastha starts declining. In infancy, the growth rate is rapid and this (accelerated growth) is partly because of continuation of the foetal growth period. Second decade witnesses the gradual halting of Vrddhi of an individual. The rapid growth spurt which occur at the time of puberty is due to growth hormone,

androgens and estrogens and subsequent cessation of growth is due in large part to closure of the epiphysis by estrogens. The complete growth of the body is achieved by mid-twenties. Third decade starts showing deterioration of complexion / lustre of the body (Skin). Pigmentation of the skin is due to melanin fed into the basal keratinocyte rather than that stored within the melanocyte. Skin colour is partly due to the amount and activity of the melanocyte and partly a reflection of how melanin is stored and processed in the keratinocytes. Fourth decade onwards, Medha starts declining. Medha is nothing but the grasping capacity of mind. Lansing, in his book 'Cowdry's Problems of Ageing' has noted that in subjects above forty years there is a marked progressive decline in overall test performances as related to increasing age. There is a progressive restriction in forming new interests, reduction in new learning and conceptual thinking becomes progressively simplified.

Fifth decade signals the declination of functioning of *Tvak*. Modern scientists also opine the same. Although the skin is constantly ageing, pronounced effects do not occur until a person reaches the late forties. Around that time, collagen fibres decrease in number, stiffen, break apart and form into a shapeless, matted angle. Elastic fibres lose some of their elasticity, thicken into clumps and fray and the skin forms crevices and furrows known as wrinkles. There is a decrease in the number of functioning melanocytes, resulting in gray hair and atypical skin pigmentation. Sixth decade onwards, the activity of *Sukra* becomes less i.e., reproductive capacity decreases. In male, declining reproductive function is much subtle than in females. At about age of mid-fifties, decline in testosterone synthesis leads to less muscle strength, fewer viable sperm and decreased sexual desire. Healthy men often retain reproductive capacity into their 80s and 90s.

When a person reaches seventh decade, he starts losing his *Drsti*. As an individual grows older, the lens grows larger and thicker and becomes far less elastic, partly because of progressive denaturation of the lens proteins. Therefore, the ability of the lens to change shape progressively decreases with age. The power of accommodation decreases as low as zero diopters at age seventy years from about 14

diopters in the childhood. Thereafter, the lens remain almost totally nonaccomodating, a condition called Presbyopia.

Second most common cause of blindness in the elderly is glaucoma, which is characterized by an abnormally high intraocular pressure due to a buildup of aqueous humour inside the anterior chamber. The fluid compresses the lens into the vitreous body and puts pressure on the neurons of the retina. If the pressure continues, there is a progression from mild visual impairment to irreversible destruction of neurons of the retina, degeneration of the optic disc and blindness. Eighth decade onwards, an individual starts losing his Srutindriya. A gradual hearing loss associated with ageing is evidenced affecting more than a third of those over seventy five years and is probably due to gradual cumulative loss of hair cells (by prolonged exposure to noise) and neurons. This condition is termed as Presbycusis. Ninth decade witnesses the gradual loss of functioning of Manas. Memory loss or Dementia is a common problem wherein the deterioration in cognitive abilities that impairs the previously successful performance of activities of daily living. Memory loss is frequently observed in individuals over eighty five and it is the most common and important cognitive ability that is lost. Other mental faculties may also be affected such as attention, judgement, comprehension, orientation, learning, calculation, problem solving, mood and behaviour. Agitation or withdrawal, hallucinations, delusions, insomnia and loss of inhibitions are also common. Delirium is an acute confusional state associated with a change in level of consciousness (ranging from lethargy to agitation). Memory functions such as registration (encoding or acquisition), retention (storage or consolidation), stabilization and retrieval (decoding or recall) get deteriorated with advancing age.

Last decade shows deterioration of the functions of both sensory and motororgans. i.e. Sarvendriyas. One of the effects of ageing on the nervous system is loss of neurons. This is a consequence of the ageing process. Associated with this decline, there is a decreased capacity for sending nerve impulses to and from the brain so that voluntary motor movements slow down and reflex times increase.

Degenerative changes and disease states involving the sense organs can alter vision, hearing, taste, smell and touch.

Causes Of Ageing Process -

No specific etiology has been described as such in any of the Ayurvedic classics. But, there are some points which can be considered favourable in this regard. Those points are dealt in detail in coming lines.

1) Kala (Time factor) - Kala is the foremost and important factor to be considered from Ayurvedic standpoint for the onset of ageing process. Caraka mentions that the same foetus after the lapse of definite time becomes child, young and old. (Ca. Sa. 3/8).

2) Svabhava Vada (Theory of Natural phenomenon) - Literally, Svabhava means the 'inherent property' or 'innate property' or 'by nature itself' or 'natural constitution'. The birth of an individual occurs by itself. (Ca. Su. 11/6)

3) Vayu - The twelfth chapter of Sutrasthana was totally dedicated to Vayu by Acharya Charaka. It is the numero uno amongst the three Dosas as it controls the other two, Pitta and Kapha. For the sustenance of life, all the Dosas, Dhatus and Malas should be inequilibrium. Still, they alone can never function or be active. For that, Vayu is needed which dominates the formation of total body structure and functions. Vayu acts not only at microscopic cellular level but also at macroscopic organic level.

4) Svabhavoparama Vada (Theory of Natural destruction) - This theory can be applied from the Madhyama Vayas onwards where in the process of catabolism dominates the process of ageing. There is a causative factor for the formation of beings, but no cause is found for their annihilation. i.e., the destruction of any beings is automatic. The same view has been expressed in Caraka Samhita while describing the manner with which life process starts during conception. It has been mentioned that the empirical soul accompanied with instruments of knowledge are responsible for the manifestation of life.

5) Sati Virodhaka Bhava - Cakrapani while commenting on Ca. Su. 1/45, mentioned that absence of an opposing factor leads to Vrddhi of any substance. He tells that a wholesome diet should increase the body

tissue elements of an old man as per Samanya Siddhanta and if it is so, the person never becomes old and die; he should have become Ajaramara. But that is not the case. Even though a wholesome diet is consumed which increase body tissues, an individual reaches different stage of life, like old age because of the presence of a factor called Virodhaka Bhava. Here Virodhaka Bhava supercedes the effect of wholesome diet and thereby the growth of body tissue elements. This is nothing but the inclination in catabolic activity with advancing age.

6) Desa and other allied factors - Though these are not the major etiological factors of ageing process, they do contribute for that. While mentioning the Balavrdhikara Bhavas, Caraka has mentioned i.e., a person will be strong enough if his birth has taken place in an environment which is conducive to increase the strength of any people. The people of such area will have good immunity naturally and thereby ageing process becomes slow.

Ageing Modern View –

What is ageing? When does ageing begin? What cellular components are affected by the ageing process? Is ageing an inevitable feature of life? What are the age changes which bring about the ultimate death of the organism? The questions haunted in ancient remained unanswered even today. We don't have even the beginnings of answers to any of these questions. Yet, to proceed in an orderly manner toward an understanding of ageing (senescence) it is essential to know what one means by the term. Certainly this is an affliction of the adult the sequel to which, sooner or later, is death. In a rough way, senescence may be correlated with the passage of time. For the human, it is reasonable to expect that during the fourth decade of life there will be a trend towards decreased efficiency of some organs and of the individual as a whole. During the fifth decade the reduction in efficiency is apparent. Further passage of time brings a cascade of senile changes which terminate in death during the seventh or eighth decade. Yet, it is seldom if ever that death can be attributed specifically to senility.

An essential property of the living system is its ability to maintain itself, to repair and reconstitute itself. This capacity for self-synthesis sets off the living from the nonliving. If then the living organism can

and does reconstitute itself continuously, how can it wear out? It is necessary to postulate that the wearing out or ageing process involves a decrease in efficiency of the mechanisms for reconstitution.

Result & Discussion :

Kala, Swabhava, Vayu and Virodhaka Bhava play a major role while Desha, Ahara Sausthavam and Avighata contribute to the ageing process which is justified by the research done by scientists in the form of generation of excessive free radicals. Though ageing and senescence are relative terms, they have different meanings. Ageing has both positive component of development and negative component of decline, senescence refers only to the degenerative processes. 'Free radical theory' is the most popular theory of ageing amongst many theories put forth so far. These free radicals being highly reactive and unstable damage the cell membrane and cytosol and if unchecked, hastens the process of ageing. These arise either from exogenous sources like air pollution, radiation, etc. and endogenous sources i.e. within the body.

Conclusion :

- 1) Ageing process starts from the time of conception runs throughout the life span, ultimately ceases with death ensuing.
- 2) Continuously anabolic and catabolic processes take place within the body and responsible for ageing process.

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