



A CRITICAL REVIEW ON ASTHI DHATU KSHAYA IN POST-MENOPAUSAL WOMEN

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ABSTRACT

Women are measuring every limit and height in every field on their potential without any age limit now days. But post menopause is time which hampers their both physical and mental health as well as activity. It is important to manage all the characteristics in post- menopausal women due to aging and other physiological changes to provide them a life full of prosperity of health and a sound physical and mental health during this life changing period. There are many measurable health problems including bone problems, a women face due to aging process. Bone relating problem plays most significant role in disturbing their day to day life. Sometimes it results in osteoporosis. Major determinants of osteoporosis in a post-menopausal women is estrogen deficiency and aging process. Clinically significant osteoporosis most often results from a combination of age related bone loss and additional bone loss from another cause; by further most common such cause is post-menopausal estrogen withdrawal. More importantly, there is an accelerated phase of bone loss of up to 1-3% per year in females in the 5-10 years following the menopause. So in *ayurved* context; consideration of various aspects i.e. asthi dhatu etc. and their management in daily routine helps in overcome of such infirmities. Proper and balanced diet, regular exercise, yoga and asana are the tools to go through and make them physically and mentally fit and fine. **Aim:** To define the role of asthi dhatu kshaya in postmenopausal women through *Ayurved* approach on *Ayurved* measures to improve way of living in the post-menopausal women. **Material and methods:** Ayurveda as well as modern texts are approached for proper understanding of the subject.

KEYWORDS: Post-menopause, *asthi dhatu*, *asthi kshaya*, *panchkarma*, *basti*, *yoga*.**INTRODUCTION**

Ayurveda is science of life. *Tridosha*, *Panch mahabhut* and *sapta dhatu* are basic principle of it. Body is made up of *dosas*, *dhatu* and *malas*. *Vayu*, *pitta* and *kapha* are bodily *dosas* and *rajas*, *tamas* are the mental ones.^[1] *Dhatu* -these (*rasa*, *rakta*, *mamsa*, *medas*, *asthi*, *majja* and *sukra*) are called *dhatu*s because they sustain and maintain the body.^[2] *kapha*, *pitta* and *kha mala*(excretions of body orifices, such as eyes, ears, nose mouth tissues etc.) *sweda*, *nakha* and *roma*(nails and hairs), *sneha*(fatty material) of eyes, faeces and skin-these are the mala (waste products) of *dhatu*s.^[3] *Asthi* is 5th among seven *dhatu*s. *Asthi* sustains by giving erect posture and position to the body, and nourishment to *majja*.^[4] According to *acharya vagbhat*, main function of *asthi* is supporting of body^[5] just as the trees remain firm on the ground by their pith inside them, similarly the body remains erect by the support of the bones inside it.

Though the skin and muscles get destroyed after sometime, bones do not get destroyed since these are the essence of the body. Since muscles and ligaments are supported by the bones, they do not either get broken or fall off places.^[6] Abnormality is disequilibrium of *dhatu*s and their equilibrium is normalcy (health). Health is known as happiness while disorder is unhappiness.^[7]

Table 1: Different major principles of Ayurved.

Panchmahabuta	Dhatu	Sharirik Dosha	Mansik Dosha
<i>Aakash</i>	<i>Rasa</i>	<i>Vata</i>	<i>raja</i>
<i>Vayu</i>	<i>Rakta</i>	<i>Pitta</i>	<i>tama</i>
<i>Agni</i>	<i>Mamsa</i>	<i>Kapha</i>	
<i>Jala</i>	<i>Meda</i>		
<i>Prithvi</i>	<i>Asthi</i>		
	<i>Majja</i>		
	<i>Sukra</i>		

Etymology of Asthi

It is composed of two words Asthi and Kshaya. The word asthi is derived from the root 'As'+ 'kthin' meaning 'to stay' or in the sense of 'stability'.^[8]

'*Asyate kshipyate iti asthi*' which is mean to be thrown that is *asthi*. Because after death remaining part of asthi is made to flow with water so it is called *asthi*.

Panch bhautik Composition of *asthi dhatu*- Predominant *prithvi* and *Vayu* mahabhut.

Formation of Asthi Dhatu

The *asthi dhatu* (bone tissue) is produced by the transformation of *medas* (fat tissue) into a compact form. This compactness is brought by the action of *usman* (enzymes) present in the *medas* itself upon the *mahabhutas*, viz, *prithvi*, *jala*, *Vayu* etc. of this tissue element. This enzymatic action gives rise to *kharatva* (hardness and roughness), with the result that *asthi* (bone) is manifested in the human beings. *Vayu* causes porosity in the interior of bones, and this porous space gets filled up with *medas* (fat). This unctuous substance is thereafter, called *majjan* (bone marrow).

Table 2: Characteristics of Asthi dhatu kshaya.

<i>Acharya Charak</i>	<i>Acharya Sushruta</i>	<i>Acharya Vagbhat</i>
Dhatu kshaya in diminution of <i>asthi</i> , there is falling of hairs, nails, beard and moustaches, teeth, fatigue and laxity of joints. ^[9]	adhyasthi, adhidanta, dantabhedha, asthisula, discolouration, abnormality of hairs of head, body hairs, nails, beard-moustaches-these are disorders due to morbid affliction of asthi. ^[10]	Decrease of asthi causes pain in joints, falling off of teeth, hairs, nails etc.(prematurely). ^[11]

Table 3: Stages of life in a female.

Classification of age	Sub classification	Age limit	Changes in the body	Status of dosas
childhood	1. bala(gauri, rohini, kanya etc.)	10yrs	General development	Kapha+++ Pitta and vata+
		10 to 12		
	2. kumari(premenarche or mugdha)		Development of secondary sex characteristics	Kapha+++ Pitta++ Vata+
	3. rajomati(menarche established, maturity stage or mugdha-awastha)	12 to 16	Menstruation starts and cycle is fully established, she is capable to conceive.	Kapha+++ Pitta++ Vata+
Middle age	1. yuvti(yuva, taruni or praudha)	16 to 40 yrs.	Maximum Reproductive capacity, full maturity.	Pitta+++ Kapha++ Vayu+
	2. praudhawastha(adhirudha, pragalbha)	40 to 50yrs	Premenopausal symptoms evident	Pitta+++ Vata++ Kapha+
	3. vriddha	50 onwards	Menopause	Vata+++ Pitta++ Kapha+
Old age	Vriddha	After 55	General decline	Vata+++ Pitta+ kapha+

Rajonivritti

Acharya Sushruta said that menarche occurs at the age of 12 years and due to the effect of various physiological changes *rajonivritti* (menopause) occur at the age of 50

years.^[12] As per *acharya sushruta* menstruation starts at the age of twelve and continuing in appropriate period (3 to5 days of every month) stops at the age of fifty when the body is fully in grip of senility. Later on *Acharya*

Sushruta said,^[13] *rasa dhatu* produces the blood called as *rajas* (menstrual blood) in women. It commences to flow (from the vagina in women) after the age of twelve and diminishes by the age of fifty.^[14] *Vagbhata*^[15] and *Bhavamishra*^[16] mentioned the same age for Menarche and Menopause. *Sushruta* has described three stages of life. *Madyama Avastha* of life is described after 16 years up to the 70 years. This *Avastha* is again divided into 4 stages. Third stage of *Madhyam Avastha* is of *Sampurnata* (full maturity) and last up to *Vridhhavastha* commences. *Pitta Dosha* is predominant in *Madhyam Avastha* while *Vata* in *Vridhha Avastha*.^[17] It means that Menopause occurs during *Hani* stage of *Madhyam Avastha* of life. This phase can be considered as transitory phase from *Pitta* dominance to *Vata* dominance.^[18] during this phase, *Sapta dhatu* starts to decline and *Vata Dosha* start to aggravate. Both *Sharirika* and *Mansika Bala* are affected. Most of the menopausal symptoms are due to aggravated *Vata-Pitta Dosha* and *Sapta dhatu kshaya*. In modern science also post-menopausal women face all these symptoms and sign. So they are at risk of many physical, physiological and psychological infirmities, which are mainly affected by the decreased estrogen hormone level in post-menopausal women. Estrogen plays an important role in calcium metabolism also. In women, the loss of ovarian function at menopause (typically about age 50) precipitates rapid bone loss such that most women meet the diagnostic criterion for osteoporosis by age 70/80.^[19] Acharya Arundatt also states that after 50 years, because of age the integrity of *dhatu*s are lost leading to slow deterioration of *raja*.

Physiology of Menopause

It means permanent cessation of menstruation at the end of reproductive life due to loss of ovarian follicular activity while climacteric is physiological period in Woman's life during which there is regression of ovarian function. Pre and post menopause period around menopause is 40-55 years. Effective folliculo-genesis is impaired and there is significant fall in estrogen production. Ultimately, due to physiological changes GnRH, FSH, LH decline along with decline of estrogen. This decline in hormone leads to various organ changes and leads to various symptoms. So post-menopausal female is at risk of osteoporosis, fractures, cardiovascular diseases and Heart diseases. Post-menopausal osteoporosis is usually recognizable within 10 years after onset of the menopause, whereas senile osteoporosis becomes symptomatic after age of 70 years. It is a disease characterized by diffuse skeletal lesion in which normally mineralized bone is decreased in mass to the point that it no longer provides adequate mechanical support.

After menopause almost no estrogens are secreted by the ovaries. This estrogen deficiency leads to-(1.) increased osteoclastic activity in the bones. (2.) Decreased bone matrix (3.) decreased deposition of bone calcium and phosphate.^[20] at the age of about 45 years only a few

primordial follicles remain to be stimulated by FSH and LH. The production of estrogens by the ovaries decreases as the number of primordial follicles approaches zero. When estrogen production falls below a critical value, the estrogens by the ovaries falls virtually to zero in spite of large quantities of the gonadotropins FSH and LH. The period of hormonal transition before menopause, also known as the menopausal transition can be uneventful or can be a time of significant symptoms. The symptoms that begin with the menopause transition usually continue into the postmenopausal period.

Menopausal transition

- Somatic, psychological manifestation
- Menstrual irregularity
- Increase in FSH and LH level and its effects.

Post-menopausal period

- Relative ovarian quiescence
- Estrogen deficiency
- Impact on CVD
- Lack of integrity
- Osteoporosis.

Asthi dhatu kshaya management- Balanced diet

Proper intake of all food supplements is necessary to maintain the body. The daily requirement of protein, minerals and vitamins should be met. Salt intake should be reduced. Food hygiene should be maintained to avoid infection and contamination by microorganisms. Maintaining proper food habits and body weight keeps the person relatively free of symptoms and prevent further complications. Use of phytoestrogens is of importance. *Shatavari* is a good source of phytoestrogen. Phytoestrogens are derived from the plants and are structurally, and functionally similar to steroidal estrogens produced by the body. A daily intake of Ca^{++} 1000 mg. is necessary to reduce bone loss.

Role of Panchkarma

Diseases due to vitiation of *asthi dhatu* (bone tissues) can be treated by the *panchkarma* (five elimination therapies). specially milk and ghee medicated with bitter drugs.^[21] Intake of bone marrow enhances strength, *sukra, rasa dhatu, kapha, medo dhatu* and *majja*. It adds to the physical strength, specially to the bone, sand is useful in oleation. Evacuation of the flatus, good digestive power, unctuous and soft stool, tenderness and smoothness of the body-these are the signs of proper oleation. *Basti* is best procedure to eliminating the *vata*. *Basti* (both *aasthanan* and *anuvasan*) prevents aging process of the body; It Promote happiness, longevity, strength (power of digestion and metabolism), *medha* (intellect), voice and complexion; it helps in curing the diseases. It promotes sturdiness of the body; it enriches semen and promotes strength and while eliminating accumulated *dosas* from the entire body, it alleviates all the diseases.^[22] *yapan basti* helps in rejuvenation of the body, healing the *phthisis* lesion, curing *udavarta*

(upward movement of wind in abdomen and retention of urine, stool etc.) caused by the aggravation of *vayu*.^[23]

Use of *rasayan*

The means by which one gets the excellence of *rasa* (the nourishing fluid which is produced by immediately after digestion etc.) is known as *rasayan* or rejuvenation therapy. by use of *rasayanas*, a person undergoing rejuvenation therapy attains longevity, memory, intellect, freedom from diseases, youth, excellence of lusture, complexion and voice, excellent potentiality of the body and sense organs and brilliance.

Yoga helps in controlling mental problems mainly to stress and strain. *Asthang Yoga* includes *Yama*, *Niyam*, *Asan*, *Pranayam*, *Pratyahar*, *Dharana*, *Dhyan* and *Samadhi*. Out of these *Asana*, *Pranayam* and *Dhyan* can be effectively used in post-menopausal female.^[24] Same as *asthishrinkhla* and *laksha* are sources to support bone health.

Exercises

Physical activity is necessary to maintain bone mass. By contrast, immobilization of a bone leads to accelerated bone loss.

CONCLUSION

Post menopause is age when a female is most affected by different aging characteristics at mental, physical and physiological level. Osteoporosis is an asymptomatic disorder unless complications occur, loss of bone mass leads to loss of strength so that a trivial trauma is sufficient to cause a fracture. But maintenance of proper lifestyle and diet helps in improving their health in every aspect. Exercise and regular health checkup are helpful tools in maintain their health and to make them ready to avoid any kind of disease and infirmity.

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