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. Dhatu -these (rasa, rakta, mamsa, medas, asthi, majja and sukra) are called dhatus because they sustain and maintain the body. kapha, pitta and kha mala(excrements 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 dhatus. Asthi is 5th among seven dhatu. Asthi sustains by giving erect posture and position to the body, and nourishment to maja. According to acharya vagbhut, main function of asthi is supporting of body 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. Abnormality is disequilibrium of dhatus and their equilibrium is normalcy (health). Health is known as happiness while disorder is unhappiness.
Table 1: Different major principles of Ayurved.

<table>
<thead>
<tr>
<th>Panchmahabuta</th>
<th>Dhatu</th>
<th>Sharirik Dosha</th>
<th>Mansik Dosha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aakash</td>
<td>Rasa</td>
<td>Vata</td>
<td>raja</td>
</tr>
<tr>
<td>Vayu</td>
<td>Rakta</td>
<td>Pitta</td>
<td>kama</td>
</tr>
<tr>
<td>Agni</td>
<td>Mamsa</td>
<td>Kapha</td>
<td></td>
</tr>
<tr>
<td>Jala</td>
<td>Meda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prihvi</td>
<td>Asthi</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Majja</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sakra</td>
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</tr>
</tbody>
</table>

**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 mahabhutas.**

**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.

<table>
<thead>
<tr>
<th>Acharya Charak</th>
<th>Acharya Sushruta</th>
<th>Acharya Vagbhata</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dhatu kshaya in diminution of asthi, there is falling of hairs, nails, beard and moustaches, teeth, fatigue and laxity of joints. [9]</td>
<td>Adhyasthi, adhidanta, dantabheda, asthisula, discolouration, abnormality of hairs of head, body hairs, nails, beard-moustaches-these are disorders due to morbid affliction of asthi. [10]</td>
<td>Decrease of asthi causes pain in joints, falling off of teeth, hairs, nails etc. (prematurely). [11]</td>
</tr>
</tbody>
</table>

Table 3: Stages of life in a female.

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

**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 to 5 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 Vridhavastha commences. Pitta Dosha is predominant in Madhyam Avastha while Vata in Vriddha 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 Doshas 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 stats that after 50 years, because of age the integrity of dhatus 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 osteoelastic 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 inspite of large quantities of the gonadotropins FSH and LH. The period of hormonal transition before menopause, also known as the menopausal transition can be an eventful 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 steroid al estrogens produced by the body. A daily intake of Ca1000 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 aasthapan 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 asthi shrinkhla 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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