

A LITRERY REVIEW ON ASTHIKSHYA W.S.R. TO OSTEOPOROSIS

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ABSTRACT

Osteoporosis is a widespread skeletal illness characterised by low bone mass and structural degradation, which increases the risk of fracture. The development of disease is influenced by numerous etiological factors, including physical, hormonal, dietary, and lifestyle factors. It typically occurs together with postmenopausal and senile changes in the body. Osteoporotic fracture-related morbidity is on the rise. Due to modern lifestyles, the disease is currently spreading to much older generations. Preventive measures should be taken much earlier because leading a healthy lifestyle can help prevent fractures later in life. Despite advancements in disease prevention and treatment over the past 20 years, osteoporosis awareness among the general people is still low, especially in rural regions. Conventional drugs frequently just work to relieve symptoms. The emphasis of Ayurveda is on It can be considered as a disease characterized by localization of vitiated Vata in

Asthi Dhatu i.e.; 'Asthigata Vata' resulting in Asthi Kshaya. Vata Kopa and Asthikshaya can result in osteoporosis. Condition can be managed in Ayurveda adopting Asthigata Vata Chikitsa, Asthikshaya chikitsa, Bhagna chikitsa and usage of drugs with Brimhana, Rasayana and Vata Hara property.

KEYWORDS: Osteoporosis, Asthikshaya, Asthisousharya.

INTRODUCTION

iz;kstua pkL; LoLFkL; LokLFkL;j{k.kekrqjL; fodkjiz'keua pAA ¼p- lw- 30@26½

Ayurveda has two goals: one is preventive, which is to protect the health of a healthy person, and the other is curative, which is to treat sickness.^[1]

IRoekRek “kjhja p =;esrfR=n.Mor~A yksdfLr'Bfr la;ksxkÜk= loZ izfrf"Be~AA
¼p- lw- 1 @46½

Mana (mind), *Atma* (soul), and *Sareera* (body) are the three pillars of existence, and *Ayurveda* views complete health as resulting from their perfect balance.^[2]

vH;UrxrS% lkjS;ZFkk fr"BfUr Hkw#gk%A vLFkIkjSLrFkk nsgk f/kz;Urs nsfguk
/kzqoe~AA rLekfPpjfou"Vs"kq Ro³~ekals"kq 'kjhfh.kke~A vLFkfu u fou';fUr
lkjk.;srkfu nsfguke ~AA ¼lq- lw- 5 @23&24½

Just as the tree remains firm on the ground by their pit inside them, similarly the body remains erect by the support of the bones inside it. Though the skin and muscle get destroyed after death but bones do not get destroyed after the disintegration of *Shareera*.^[3]

vLFU;fLFkrksn% “knua nUrys”ku[kfn'kqA vLFuka eTtfu lkSf"K;Za
HkzefLrfejn'kZuaAA v-g- lw- 11 @19

The clinical feature of *Asthikshaya* are *Asthitoda*, *Keshaya*, *Loma*, *Nakha*, *Danta vikar*. *Asthikshaya* is a condition where there is decrease in the bone issue and *Asthi Soushirya* means Porosity of bone.^[4]

Definition

Bone Mineral Density (W.H.O. criteria for Osteoporosis): Bone density measurements of healthy young adults in a population are taken as the reference measurement (called a T-score). Osteoporosis is diagnosed when a person's BMD is equal to or more than 2.5 standard deviation below this reference measurement. Osteopenia is diagnosed when the measurement is between 1 and 2.5 standard deviation below the young adult reference measurement. As per this criteria, T- score value determines the bone health.

It is graded as follows.

T-score.

Normal = -1 & Above.

Osteopenia = Between-1 to-2.5.

Osteoporosis = less than or equal to-2.5.

Severe osteoporosis = less than-2.5 with fracture.

Osteoporosis is characterized by low bone mass with micro architectural deterioration of bone tissue leading to fracture. Often called 'silent disease' as bone loss occur without

symptoms. According to WHO Osteoporosis is second to cardiovascular disease as a global health problem. Much in the manner that asymptomatic conditions such as hypertension and dyslipidemia predispose to stroke and myocardial infarction respectively, a low bone density predisposes to osteoporotic fractures. The annual incidence rate of osteoporotic fractures in woman is greater than the combined incidence rate of heart attack, stroke and breast cancer. Since Osteoporosis affects elderly population which is growing, it will put a great burden to healthcare system as treatment is expensive.

Types of Osteoporosis

Primary Osteoporosis

Primary osteoporosis occurs without a known cause and includes both Juvenile and Idiopathic osteoporosis. Idiopathic osteoporosis can be further subdivided into postmenopausal (type 1) and age associated or Senile (type 2) osteoporosis which is due to oestrogen deficiency and ageing respectively.

Secondary Osteoporosis

Can occur due to underlying diseases, deficiency or as drug induced. Etiological Factors Leading To Osteoporosis Bone formation and resorption are in equilibrium in adults up to the age of 50 years and so up to this age the bone mass is fairly constant. The bone mass declines steadily but slightly after age of 50. Excessive resorption than formation is the main cause. The precise mechanism leading to osteoporosis is not clear. Genetic factors play a role and studies have suggested that a major genetic component responsible for bone mass may be linked to polymorphism in the gene for vitamin D receptor. Nutritional factors like low calcium intake and low vitamin D level also identified as major contributing factors to poor bone health and osteoporosis. Clinical Features as this condition is asymptomatic in initial stages, diagnosis is often too late and usually by radiography. In many cases first symptom is a broken bone. Patients with Osteoporosis may not know that they have the disease until their bones become so weak, that a sudden strain, hump or fall causes a hip fracture or a vertebra to collapse. This is recognized by clinical features like severe back pain in middle or low thoracic, lumbar region which is aggravated by sudden movement, cough, sneezing etc.

NIDANA (Etiological factor)

The etiological Factors of *Asthikshaya* are not explained separately in the classical texts. On the basis of *Ayurvedic* principle of *Ashraya-ashrayee bhava*, The increase or decrease of *Asthi* and *Vata* are inversely proportional to each other.

**O;k;keknfrla{kksHkknLFukefrfo?kêukr~A vfLFkokghfu nq";fUr okrykuka p
Isoukr~AA p- fo- 5@17**

The factors provoking Vata are excessive exercise, intake of dry vegetables, irregular dietary habits which includes excessive fasting, dieting and limited foods, excess of food also, excess of worry, grief, fear, hunger, waking at night, letting out excess of blood, Dosha, Dhatu Mala and time factor.^[5]

**mRis"kknR;fHk";UnknfHk?kkrkr~ izihMukr~A eTtkokfguh nq";fUr fo#)kuka p
Isoukr~A p- fo- 5@18**

Majjadhatu is the next to *Asthidhatu*, which is present inside the *Asthidhatu* and closely related to each other. Hence the factors responsible for the vitiation of *Asthivaha* and *Majjavaha srotasa* are also responsible for *Asthikshaya*. The vitiating factors of *Majjavaha Srotas* such as *uttpeskha*, *Abhishyandi*, *Virudhha ahara*.^[6]

Vitiates *vata* due to *Margavrodha*. Vitiation of *Asthivaha Srotas* directly leads to aggravation of *Vata*, resulting in *Asthikshaya*. It includes suppression of urge for stool, consumption of large quantity of food, eating during indigestion, eating before digestion of previous meal, person having weak *Agni* and emaciation.

SIGNS AND SYMPTOMS

Vyaktha avastha is the fifth among the six *kriya kalas* responsible for the manifestation of the symptoms. According to *Charaka samhita* *Asthikshaya lakshana* are *Asthibheda*, *Asthishula*, *kesha-loma-nakha-samshru-danta vikara* and *patana*, *shrama*, *sandhi shaithilya* and *Majjakshaya*. *Susruta samhita* have mentioned *Asthikshaya lakshana* as *Asthitoda*, *Asthishula*, *Nakha-dhanta vikara* and *patana*, *Ruksha*, *bala kshaya*. *Astanga Sangraha* also have quoted that *Asthikshaya lakshana* are *Asthibheda*, *Asthishula*, *kasha-loma-nakhadantavikara* and *patana*, *sandhishaitilya*, *Ruksha*, *parushya*, *Asthibheda*, *mamsakshya* and *Balakshaya*. According to *Astanga Hridaya* *Asthibheda*, *Astibheda*, falling of *Danta-Kesh-Nakha* etc, are the *Asthikshaya lakshana*. *Harita Samhita* have mentioned *Asthikshaya lakshana* as *Mand cheshta*, *manda virya*, *medha kshaya*, *visamjna*, *krushata*, *kampana*, *Angamarda*, *vamana parusha*, *shosha*, *dosha sadana*, *shotana*.

Symptoms of Asthikshaya according to different Samhitas14-19.

Symptoms	Charaka	Sushruta	Ashtang Sangraha	Ashtang Hrudaya	Bhavaprakash	Harita Samhita
Kesha vikara	+	-	+	+	-	-
Loma vikara	+	-	+	+	-	-
Nakhavikara	+	+	+	+	+	-
Smashruvikara	+	-	-	+	-	-
Dantavikara	+	+	+	+	+	-
Shrama	+	-	-	-	-	-
Asthi Toda	-	-	+	+	-	-
Ruja	-	-	-	-	-	+
Asthi Shula	-	+	-	-	+	-
Ruja	-	-	-	-	-	+
Sandhishaitilya	+	-	+	-	-	-
Rukshata	-	+	+	-	+	-
Parushya	-	-	+	-	-	-
AsthiBaddha Mamsabhilasha	-	-	+	-	-	-
Angabhanga	-	-	-	-	-	+
Atimandacheshta	-	-	-	-	-	+
Medakshaya	+	-	-	-	-	+
Viryasyamandya	-	-	-	-	-	+
Vikampana	-	-	-	-	-	+
Vamana	-	-	-	-	-	+
Visangnata	-	-	-	-	-	+
Shosha	-	-	-	-	-	+
Kathorata	-	-	-	-	-	+
Shopha	-	-	-	-	-	+

Diagnostic Tests

Assessment of Bone Mineral Density: Bone mineral density is expressed in grams per unit area and is recorded in comparison to the sex and age specific distribution of these values in the general population. BMD measures bone density in lumbar spine, femoral neck, distal radius etc. These tests are painless, non invasive and safe. It can detect a bone density before a fracture occurs. Tests X –rays Decreased skeletal radio density is a late and unreliable sign of bone loss and becomes apparent only after a 30 percent reduction in mineral or skeletal mass. Radiographic changes seen in spine are.

- Loss of vertebral height.
- Biconcave central compression (cod fish spine).
- due to the pressure of bulging disc into the bodies.
- Anterior wedge compression Bone density of vertebrae is reduced.
- Ground glass appearance due to generalized rarefaction.

Laboratory Investigations

For early detection of osteoporosis reliable, rapid, cost effective and good sensitive biomarker is required. Bone mineral density, total blood calcium, vitamin D, alkaline phosphatase, P1NP (Pro collagen type 1 N propeptide), trabecular bone score, osteocalcin, DEXA (dual energy X- ray absorptiometry) are the most common biomarkers which indicates bone health.

BMD (bone mineral density): - bone density is with in 1SD (+ 1 or - 1) of the young adult is normal. -2.5 SD or more below bone density suggests osteoporosis.

Vitamin D: - normal range recommended by experts between 20-40 ng/ml. 1.350 is considered normal.

Treatment

1. Management of osteoporotic fracture.
2. Management of underlying disease.
3. Pharmacologic therapies.
4. Non-pharmacologic approaches Management of Osteoporotic Fracture.

- Risk Factor Reduction Reduce the impact of modifiable risk factors Pharmacologic Therapies Currently no treatment can completely reverse established osteoporosis. Early intervention can prevent osteoporosis in most people. Non-pharmacologic Approaches Protective pads worn around the outer thigh which cover the trochanteric region of hip can prevent hip fractures in elderly residents in nursing homes. Kyphoplasty and vertebroplasty are also useful non pharmacological approaches for treatment of painful vertebral fractures.

Ayurvedic Understanding of Osteoporosis, disease causing increased porosity of bone can directly be considered as *Asthisousharya*, but this is not mentioned as a separate disease entity but only as a symptom of *Majja Kshaya*. So it can well be considered as a disease characterized by localization of vitiated *Vata* in *Asthi dhatu* i.e.; '*Asthigata Vata*' resulting in *Asthi Kshaya*. It is to be remembered that all stages of *Asthigata Vata* need not end in osteoporosis. But a chronic pathology with definite phases of *Asthisaraheenata* can lead to *Asthisushirata*- Osteoporosis. *Asthigata Vata* is one among the *Dhatugata Vata Vyadhis* described in all *Ayurvedic* classics.

CHIKITSA OF ASTHIKSHAYA

Prevention and Management

Old age, sedentary life style and unwholesome diet and behavior and stress are the causative factors of this disease. Old age is inevitable, so by avoiding later factors and following *Ayurvedic* principles and medications the disease can be managed.

Nidanparivarjana

It is the first and foremost method of managing the disease. The factors responsible for aggravation of Vata i.e. *Vataprakopaka Ahara*, *Vihara*, stress should be avoided. Aggravating factors for Osteoporosis should be avoided e.g. Smoking, alcohol, inactivity, poordiet. Stopping the indulgence of factors will increase the chances of getting disease or progression of disease.

Shamana

Vitiation of *Vata* takes place due to both *Santharpana* and *Apatharpana*. *Apatharpana* directly causes *Vatavridhi*, while *Santharpana* leads to *Margavarodha* which in turn causes *Vatavridhi*. Most of the metabolic diseases occur due to disturbance of *Agni*. When *Agni* is diminished, it leads to *Ajeerna* and further formation of *Ama* takes place. *Ama* further deteriorates the *Agni* leading to blockage of channels. Therefore, management of disease should start from the level of *Jatharagni* and *Dhatwagni*. It should be corrected by administration of *Deepana* and *Pachana Dravyas* in the form of *Churna* or *Ghrita* processed with these *dravyas* such as *Trikatu Churna*, *Panchkola Churna*, *Pippalyadi Ghrita*, *Ardra Ghrita*.

Sudha Varga

For the treatment of diminished *Dhatus*, use of drugs which are similar to diminished *Dhatus* are indicated. These drugs bring about increase in that *Dhatu* these include *Pravalbhasma*, *Pravalpishti*, *Mukta shuktibhasma*, *Shankhabhasma*, *Kapardika bhasma*, *Kukkutandatwak bhasma*.

Guggulukalpa

Lakshadi Guggulu, *Abhadi Guggulu*, *Trayodashang Guggulu*, *Yograj Guggulu*. *Shodhana-Basti Chikitsa* is the major treatment modality for *Vatadosha*. *Pakvashaya* is the place of *Purishdhara Kala* which resembles *Asthidhara Kala* where *Basti Dravya* reaches & it is also the main seat of *Vata Dosha*. Hence it acts on *Asthi Dhatu*. Thus, *Basti* plays an important

role in strengthening the *Asthi Dhatu* and act as preventive measures for *Asthikshaya*. *Vagbhata* had mentioned *Tiktaksheera Basti* in the treatment of *Asthikshaya*. For *Asthipradoshaja Vikara*, *Charakacharya* has given the similar line of treatment which includes *Panchakarma*, especially *Basti* which contains *Kshira*, *Ghrita* and *Tikta Dravya*.

YOGA FOR OSTEOPOROSIS

Exercise could seem like a difficult solution when it comes to issues like osteoporosis. Most people believe that bones can shatter with any kind of stress or movement. *Ayurvedic* medicine, however, promotes activities like gentle yoga. Yoga is regarded as a beneficial kind of exercise for those with osteoporosis. Osteoporosis patients must maintain particular postures that are gentle on their skeletal systems. Yoga must be frequently practised for at least 30 minutes each day in order to get the desired outcomes, which include plentiful development of bone mass.

CONCLUSION

While osteoporosis is a risk that is affecting a lot of people, it is crucial for people to understand the issue at hand. There are many treatments that can offer relief to patients suffering from this bone-destroying problem. In order to reduce the likelihood of osteoporosis or any other bone problems, it is very important to follow a healthy *Ayurvedic* diet and lifestyle over time.

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