REVIEW OF OSTEOPOROSIS & ITS AYURVEDIC MANAGEMENT
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ABSTRACT
Osteoporosis is characterized by reduced bone mass and osteoporotic fracture constitutes a major public health problem. Today the Osteoporosis is major problem which is the most remarkably common in women. In Ayurveda there is no clinical entity which is described in Samhitas like Osteoporosis but this can be discussed under Asthisaushirya & Asthikshaya. Asthisaushirya means porous bones, Hemadri commented on word Saushirya as Samrandhratwa which means with pores. Ayurveda is only the science which gives prime importance to prevention. In Ayurveda there are many upakramas (Procedures) like Basti, Lepa, Sechana etc., which are useful for strengthens the bones. The present study is designed to review the Osteoporosis and its management through Ayurvedic measures.

Keywords: Osteoporosis, Asthivikara, Asthisaushirya, Asthikshya, Basti.

INTRODUCTION
On a simple level Osteoporosis means, become the bones or bone mass thin, since weak bones can lead to frequent fractures and bone deformation. Ayurveda always believes on prevention, as prevention is always better than cure. There is no clinical entity mentioned in Samhitas like Osteoporosis but it can be discussed under Asthikshaya & Asthisaushirya. Asthisaushirya means “porous bones”, Hemadri commented on word Saushirya as Samrandhratwa which means with pores. There are many upakramas (Procedures) like Basti, Sechana, Lepa etc. has a major roles in Asthivikara. The present study is designed to review the Osteoporosis & its management through Ayurveda.

AIMS & OBJECTIVES
1. To review Osteoporosis according to modern science.
2. To review Asthivikara according to Ayurveda.
3. To study Ayurvedic measures in Osteoporosis.

MATERIAL & METHODS
The study is based on review of Ayurvedic & Modern text and also with researches related to the subject. In this study the following topics is going to be discussed.
1. A collective study on Osteoporosis from modern text.

Modern Review: The term Osteoporosis was coined by Pommerin in 1985 which literally means “porous bones”. Greek word osteon means the bone tissue & porosis is derived from latin word “porous” which means “full of pores”. Thus combined meaning of the word Osteoporosis is porous bones. The most important risk factor for osteoporotic fractures is reduced bone mass. During growth, bone mass in-
creases between the ages of 25 & 35 and falls thereafter in both sexes. It is most common in women than men due to oestrogen deficiency at the age of menopause. Genetic factor are important in the pathogenesis of Osteoporosis. Family studies suggest that genetic influences are accounted for 70-85% of individual variance in bone mass³.

**Pathogenesis:** The underlying mechanism in all cases of Osteoporosis is an imbalance between bone resorption & bone formation. In normal bone there is constant matrix remodeling of bone, up to 10% of all bone mass may be undergoing remodeling at any point in time.

Hormonal factors strongly determine the rate of bone resorption, lack of oestrogen, increases bone resorption as well as decreasing the deposition of new bone that normally takes place in weight-bearing bones.

Calcium intake is also important in determining the rate of post-menopausal bone loss. Osteoporosis may also occur as a complication of endocrine, inflammatory and neoplastic conditions, and as a complication of certain drug treatment and substance abuse.⁴

- **Causes of Osteoporosis**⁵

### Table 1:

<table>
<thead>
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<th>Genetic</th>
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<td>Low body weight; Family history</td>
<td>Hypogonadism; Early menopause; Hyperparathyroidism</td>
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<table>
<thead>
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<table>
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<th>Inflammatory disease</th>
<th>Ankylosing spondylitis; Rheumatoid arthritis</th>
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<th>Drugs</th>
<th>Corticosteroids</th>
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<th>Diet/calcium intake; Exercise; Highly trained athletes</th>
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<table>
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<tr>
<th>Substance abuse</th>
<th>Alcohol; Smoking</th>
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<table>
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<tr>
<th>Inherited</th>
<th>Osteogenesis imperfect; Gaucher’s disease</th>
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<table>
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<tr>
<th>Other</th>
<th>Myeloma; Neoplasia; Pregnancy associated Juvenile</th>
</tr>
</thead>
</table>

- **Diagnosis**

  **A. Bone Mineral Density**

  Plain radiographs are often normal in patients with Osteoporosis who do not have fractures & BMD measurements should be reserved for patients where there is reason to suspect the diagnosis on clinical level⁶. **Indication** –

  - Early menopause
  - Hypogonadism
  - Family history of Osteoporosis
  - Previous fractures after minimal trauma
  - Smoking /alcohol abuse
  - Poor diet

  - Steroid therapy.

  The World Health Organization has established the following diagnostic guidelines-

  - T-score: -1.0 or greater is normal
  - T-score between: -1.0 & -2.5 is low bone mass (Osteopenia)
  - T-score: -2.5 or below is Osteoporosis

- **B. Radiographs**-

  Osteoporotic spinal fractures can be confirmed by typical wedge shaped appearances of affected vertebra. Biochemical measurements are not usually helpful in diagnosis of Osteoporosis, serum alkaline phosphatase may be transiently raised following a fracture but as sustained eleva-
tion suggests an alternative diagnosis is such as Osteomalacia. Bone biopsy is not routinely required except to exclude other pathology.

**Management**

1. **Lifestyle Changes**-
   Patients with mild to moderate reduction in BMD should be give general advice on life style factors such as limitation in smoking, alcohol, dietary calcium intake.

2. **Hormone Replacement Therapy**-
   HRT with estrogen is the treatment of choice for prevention of Osteoporosis. HRT is generally contra indicated in patients with history of breast cancer and endometrial cancer.

3. **Bisphosphonates**-
   It provides an alternative to HRT for the prevention and treatment of Osteoporosis. But it should be avoided in patients with dyspepsia, hiatus hernia and peptic ulceration.

4. **Calcium Supplementary**-
   Calcium supplement are widely used as an adjunctive to other treatments in the prevention and treatment of Osteoporosis.

**Ayurvedic Review:** First we will review about Asthidhatu & then Asthivikara.

**Asthidhatu:** Asthi is derived from the root “As+kthin” meaning to stay or in the sense of stability. Asthidhatu is the fifth dhatu among seven dhatus. Nails & hairs are mala of Asthidhatu. It is pitrajaghataka\(^7\). It’s properties are guru, kathina, sthula, & sthira murtimanta. According to Charakacharya in dhatuutapattinyaya, Asthidhatu formed from medodhatu & from Asthidhatu the nutrious part becomes majjadhatu\(^8\). Its functionis dehadharana, majjapusthi & ashraya of vatadosha. The increase & decrease of Asthi & vata are inversely proportional to each other i.e. when vata increases Asthidhatu decreases & vice versa\(^9\). Hence the hetu which increases of vata will cause decrease of Asthidhatu. In sthulasthi, internally there is majjadhatu present\(^10\)

**Asthivikara:** In Ayurveda there is no exact clinical entity mentioned in samhitas like Osteoporosis but it can be correlated to Asthikshaya, Asthisaushirya

**Asthikshaya:** In Asthikshaya there is pains, deformity in Kesha, Nakha, & in Majjakshaya there is Asthisaushirya, timiradarshana (Giddiness)\(^11\)

**Asthisaushirya:** Asthisaushirya means porous bones. Hemadri commented on word “Saushirya” as Sarandhratwam which means with pores. This condition explained in context of Majjakshaya\(^12\).

From these above references we can discuss the Osteoporosis under Asthisaushirya & Asthikshaya.

- **Ayurvedic management**-

  **NidanParivarjana:** Avoidance of factors that aggravating Asthikshaya i.e. vatakara ahavich & ativyayam. According to modern science, factors aggravating Osteoporosis should be avoided eg. Smoking, alcohol, sedentary lifestyle, exercise, poor diet etc.

**Abhyantarchikitsa:** The following herbs are useful in strengthen the bones & also useful in fractures.

**Asthishrikhanla (Cissus quadrangularis)**\(^13\)

One of the synonyms of Asthishrinkhala is “Asthiyuka” which means it helps in maintaining the conjugation of Asthidhatu. It contains calcium oxalate as chemical constituent. Vatadosha contributes largely for occurrence of Asthivikara because of ashaybhava of Asthi & vayu. Asthishrinkhala has vatashamaka property so useful in Asthivikara & inhibits further degeneration. It is useful in fractures by its Sandhanyaguna.

**Ashwagandha** (Withania Somnifera)\(^14\)
Ashwagandha is useful in kshhayavastha by its Balya and Rasayana property. Thus it is beneficial in Asthiyaksha.

Arjuna (Terminalia Arjuna) is useful in fractures by its 'Sandhaniya' property.

Gandhatailam is kalpa described by Vagabhatacharya in the treatment of Asthidhara. It is used in the form of abhyantarapana, nasya. It is useful in strengthens the bones. Thus it will be beneficial in prevention of Osteoporosis.

1. Panchakarma-Upakramas - Basti Chikitsa - Basti is one of the best shodhanachikitsa of Vatadosha. Basti acts on Asthiyaksha & Majavahasrotas. Acharya Dalhana described that Purishadharakala is resembles to Asthidhara so Basti is the way to reach up to Asthidhatu as it is induced through Purishadhara kala.

The function of Asthidhatu is dehadharana , Majapusthi kashraya of Vayu. The increase & decrease of Asthi & Vata are inversely proportional to each other i.e. when Vata increases Asthi decreases & vice versa. Basti is best treatment for Vatadosha.

Tikta rasapraddhana Ksheerabasti is very useful in Asthivikaraas tikta rasa is Vayu & Akasha Mahabhuta pradhana & Ashidhara have same constituents of these Mahabhuta. Thus, Basti plays an important role in strengthen the bones and act as preventive measures for Osteoporosis.

Matra Basti - Charakacharya described in Siddhisthana, Matrabasti is the most useful in Vataja Vikara& Bhagna Vikara.

Other Upakrama - In Asthidhara Bandhana, Sechana, Lepana, Nasya, Abhyanga, are also useful. In acute pain of Asthivikara , Sechana (Tailadhara), Bandhana , Vedhana karma, Raktmokshana plays important role to reduce the pains.

Sechana is done by vataghnasiddhatailam, Nyagrodhadi kshhayam. Lakshya-sidhha dugdha is taken internally for strengthen the bones.

Pathyapathy - The most important factor for preventing osteoporosis is Diet. The food that you eat can affect your bones. The sedentary lifestyle effects on your bones. Eating foods with a lot of salt causes to lose calcium can lead to bone mass loss. So avoid the junk foods, salty diet for healthy bones.

DISCUSSION

Vitiation of Vata & dhatukshaya is natural phenomenon occur in old age. Vata contributes one of the important factors in Asthi related diseases as unique relationship of Vata&Asthi. So in old age to prevent osteoporotic fractures Ayurvedic measures are useful.

There are many upakramas (procedures) like Basti, Lepa, Tailadhara are useful for strengthening the bones. From these upakramas the Basti plays important role in strengthen the bones. Acharya Dalhana described that Purishadharakala is resembles to Asthidhara. So Basti is the way to reach up to Asthidhatu as it is induced through Purishadharakala.

According to modern science there are some contraindications, for Hormonal Replacement Therapy, Bisphosphonates. So in these conditions we can treat Osteoporosis through Ayurvedic treatment. The major risk of fracture in Osteoporosis can be avoided through Ayurvedic treatment modalities as prevention.

CONCLUSION

After review, the key to treatment of Osteoporosis is the prevention or slowing porosity of bones. For prevention Nidan-Parivarjan (avoidance of causes) is the best treatment. By Ayurvedic treatment modalities i.e. Basti, Sechana, Abhyanga, abhyantarachikitsa & pathyapathy, we can
maintain conjugation of Asthidhathu & avoid the occurrence of fractures.

In breast cancer, endometrial cancer, hiatus hernia with Osteoporosis where the Hormonal Replacement Therapy is contraindicated, in this condition we can manage the Osteoporosis by Ayurvedic treatment.

REFERENCES
5. Principal and practice of Medicine-Davidson (18th Edition) pg.869.

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