TITLE
THE STUDY OF ASTHI-MAJJAKSHAYA (I.E. OSTEOPOROSIS) ACCORDING TO
DIFFERENT DEHAPRAKRITI W.S.R. BMD (BONE MINERAL DENSITY)
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INTRODUCTION

Ayurveda is one of the most ancient medical sciences of world. All the basic concept of health, diseases, patient & treatment are carefully elaborated in
compendia. Prakriti assessment is one of criteria applied for examination of patient. Prakriti is expression of healthy individuals in perspective of body functions, behavior, morphology & physiology. Individual variations, in their bone mass are due to their respective qualities of Prakriti.

Osteoporosis is an increasing problem now a day. Osteoporosis means the decrease in bone tissue. It is described in Ayurveda as Asthi-Majjakshaya. Asthi-Kshaya is “decrease in the bone tissue” & Asthisaushirya means “Porous bones”. Hemadri has commented on the word “Saushirya” as “Sarandhratvam” which means “with pores”. This condition is explained in context of Majjakshaya. Majja is the next Dhatu of Asthi. Hence in the process of Kshaya, Majjakshaya also occurs².

The defining feature of osteoporosis is reduced bone mineral density which causes a micro-architectural deterioration of bone tissue and leads to an increased risk of fracture. The prevalence of osteoporosis increase with age, reflecting the fact that bone density declines with age, especially in women³.

Osteoporosis has been operationally defined on the basis of bone mineral density (BMD) assessment. According to the WHO Criteria, Osteoporosis is defined as BMD that lies-2.5 standard deviation or more below the average value for young healthy women (T Score f < -2.5). Measurements of BMD are necessary to make or executed the diagnosis of osteoporosis⁴.

The present study was done to evaluate Asthimajja Kshaya i.e. osteoporosis according to different Dehaprakriti w.s.r. BMD test.

AIMS & OBJECTIVES

The present study was aimed to evaluate the osteoporosis according to different Dehaprakriti & to create awareness in the society about the selection of Aahar-vihar according to their respective Dehaprakriti preventing them from the troubles of osteoporosis.

MATERIALS & METHODS

The patients were selected randomly irrespective of their sex, caste, religion, occupation & socio-economic condition with the classical signs and symptoms of body ache, joint pain and general debility from Shalya O.P.D. of B.M.A.M. & hospital, Nagpur, Maharashtra, India.

Prakriti assessment was done by Prakriti assessment proforma firstly and then assessed 90 patients were divided in 3 groups. Vataja, Pittaja and Kaphaja as per the dominance of Dosha, each of 30.
Then BMD was done of each individual. Obtained data was analyzed & compare statistically by the test ANOVA.

**INCLUSION CRITERIA**

- Individuals of age group 31-70 years were selected from either sex.
- Patients with presenting complaint of body ache, joint pain and general debility.

**EXCLUSION CRITERIA**

**OBJECTIVE PARAMETER**

Bone mineral density (t-score) means $t$-Score below $-2.6$ - Osteoporosis

t- Score up to $-1$ Normal

t- Score between $-1.1$ to $-2.5$ - Osteopenia

**OBSERVATIONS & RESULTS**

Table 1: Sex of the patients

<table>
<thead>
<tr>
<th>No. of Patients</th>
<th>No. of Males</th>
<th>No of Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>28</td>
<td>62</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2: Age of the patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>31-40</td>
</tr>
<tr>
<td>41-50</td>
</tr>
<tr>
<td>51-60</td>
</tr>
<tr>
<td>61-70</td>
</tr>
</tbody>
</table>

- Individuals below 31 yrs and above 70 yrs were rejected.
- Patients suffering from any acute, infectious, metabolites chronic diseases like rheumatoid arthritis, SLE, ankylosing- spondilitis, diabetes mellitus, Cushing syndrome, thyrotoxicosis, Addison’s disease, tuberculosis of bone, hepatic & cardiac failure.
Table 3: Showing BMD remark distribution of 90 patients of 3 Prakriti

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>BMD Remark</th>
<th>Group V</th>
<th>Group P</th>
<th>Group K</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Normal</td>
<td>3</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>Osteopenia</td>
<td>10</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>Osteoporosis</td>
<td>17</td>
<td>12</td>
<td>6</td>
</tr>
</tbody>
</table>

Group V – Vata Prakriti

Group P – Pitta Prakriti

Group K – Kapha Prakriti

Table 4: Showing analysis of variance (ANOVA) Table

<table>
<thead>
<tr>
<th>Square of variance</th>
<th>df</th>
<th>sum of square</th>
<th>Mean sum of square</th>
<th>F.ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the classes</td>
<td>3-1=2</td>
<td>10.52</td>
<td>5.26</td>
<td></td>
</tr>
<tr>
<td>Within the classes</td>
<td>89-2=87</td>
<td>60.97</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>90-1=89</td>
<td>71.49</td>
<td></td>
<td>7.51</td>
</tr>
</tbody>
</table>

Since the computed F-ratio is 7.51 that is greater than the table F-ratio (3.07), the osteoporosis according to Dehaprakriti differs significantly.

Graph 1: Showing BMD Remarks distribution of 90 patients of 3 Prakriti

Graph: N – Normal

OPE – Osteopenia

OPO – Osteoporosis
DISCUSSION

In the present study 31.11% were males & 68.88% were females. 21.11% patients belongs to 31-40 yr. age group. 23.33% patients belong to 41-50 yr. age group. 25.55% patients belong to 51-60 yr. age group while 61-70 yr. age group had 25.55% patients.

In group V i.e. Vata or Vata dominant Prakriti, 10% patients were normal, 33.33% patients were Osteopenic and 56.66% patients were Osteoporotic. Group P i.e. Pitta or Pitta-dominant Prakriti shows 13.33% belongs to normal BMD, 46.66% patients were found in Osteopenic group, 40% patients were found in Osteoporotic group. In group K i.e. Kapha or Kapha dominant Prakriti 43.33% patients belongs to normal BMD, 36.66% patients having Osteopenia and 20% patients belong to Osteoporosis.

Vataprakriti person shows crackling joints. His joints & bones are observed unsteady. Pittaprakriti person shows loosened & lean joints. In Kaphaprakriti, firmness, compactness & stability of the body must be maintained. This variation of bones & joints are due to the qualities of that dominant dosha.

Vata & Asthi both are having the Ashraya-ashrayi bhava. In Vata Prakriti person, the Vatal Aahar-vihar easily provoked the Vata which in further stage may degenerate the Ashthi-dhatu due to its qualities. Osteoporosis is characterized by a reduction of bone mass per unit volume with normal ratio of bone matrix & minerals i.e. their occurs loss of both bone matrix & mineral component.

Osteoporosis of immobilization occurs if bones are not subjected to the stress of walking. Weight bearing is essential for maintenance of bone mass.

The present study shows that the osteoporotic problem is most in Vataprakriti, more in Pittaprakriti & less in Kaphaprakriti. From table 4 since the computed F-ratio is 7.51 that were greater than the table F-ratio (3.07), the Asthi-majjakshaya (ie. Osteoporosis) according to Dehaprakriti differs significantly.

CONCLUSION

The problem of Asthi-Majjakshaya (i.e. Osteoporosis) differs significantly according to Dehaprakriti i.e. most of Vataprakriti, more in Pittaprakriti & less in Kaphaprakriti.
REFERENCES

1) Ashtanghridayam of Srimadvagbhatta, edited with ‘Nirmala’ Hindi commentary along with special deliberation by Dr. Bramhanand Tripathi, Sutrasthan-11, Delhi Choukhamba Sanskrit Pratishthan; 2011. p.104.


