



ASSESSMENT OF BONE MINERAL DENSITY AND ITS CO-RELATION WITH AYURVEDIC CONCEPT DHATU SARATA.

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ABSTRACT

Bone Mineral Density, a measure of bone density, reflecting the strength of bones. The BMD test detects osteopenia (mild bone loss, usually without symptoms) and osteoporosis (more severe bone loss, which may cause symptoms). Ayurvedic concept Dhatu Sarata (Tissue excellence) determine the strength of person. According to Ayurved Asthi(bone) sara person possess good quality of Asthi dhatu (BoneTissue) and is assess by Asthidhatu sarata examination,50 healthy male students between the age of 25 to 30 years were selected for this study, BMD (Bone Mineral Density) Bone mineral density was-measured with the help of Bone densitometer . After performing bone densitometry the Dhatu sarata (tissue excellence) examination

was done with the help of standard sarata examination proforma prepared by C-DAC (Centre for Development of Advance Computing) Pune. Statistical analysis shows that co-relation value of Asthi sarata(bone excellence)is very much significant with Asthisarata than other Dhatu (tissue) sarata.

KEYWORDS: Bone Mineral Density(BMD), Dhatu Sarata, Asthi Sarata, Densitometer.

INTRODUCTION

Bone density or bone mineral density (BMD) is the amount of bone mineral in bone tissue. The concept is of mass of mineral per volume of bone (relating to density in the physics sense), although clinically it is measured by proxy according to optical density per square centimeter of bone surface upon imaging.^[1] Bone density measurement is used in clinical medicine as an indirect indicator of osteoporosis and fracture risk. It is measured by a

procedure called densitometry, often performed in the radiology or nuclear medicine departments of hospitals or clinics. The measurement is painless and non-invasive and involves low radiation exposure. Measurements are most commonly made over the lumbar spine and over the upper part of the hip.^[2] The forearm may be scanned if the hip and lumbar spine are not accessible.

There is a statistical association between poor bone density and higher probability of fracture. Fractures of the legs and pelvis due to falls are a significant public health problem, especially in elderly women, leading to much medical cost, inability to live independently, and even risk of death. Bone density measurements are used to screen people for osteoporosis risk and to identify those who might benefit from measures to improve bone strength.

According to Ayurveda Dosha, Dhatu and Mala are root factors of living body, Dosha, Dhatu and Mala are compared to roots because as roots starts life of plant, these three factors starts life of human.^[3] Dosha which is responsible for create diseases in living body, Malas are those constituents of the body which are regularly eliminated from the body and thus keep body clean, and those who give support and strength to living body are called as Dhatus. For prevention from disease good immunity is needed this is achieved by good quality dhatu, as the dhatus give support and strength to living body. There are seven dhatus explained by Ayurved classics: Rasa, Rakta, Mamsa, Meda, Asthi, Majja, Shukra. During formation of foetus all dhatus are form, dhatu which shows maximum characters which are mention in Ayurved classics is called as best dhatu of that individual. Dhatu sarata is described with respect to ashta dhatu sarata i.e. Rasa, Rakta, Mamsa, Medas, Asthi, Majja, Shukra and Sattva i. e. Ashta vidh sarata. Dhatu Sarata or Tissue excellence is a quality assessment of seven dhatu and sattva i.e. mind (psychological). Examination of Dhatu Sarata is done at physical and psychological level.^[4]

For Asthi sarata characteristics has been given by which percentage of sarata is determined. And if we see according to modern aspect, A bone mineral density (BMD) test measures how much calcium and other types of minerals are in an area of your bone. This test helps your health care provider detect osteoporosis and predict your risk of bone fractures. To avoid the subjectivity in ayurvedic examination some quantification is needed so with the help of modern tools it is possible. This will help us to establish a correlation between modern parameter and Ayurvedic parameter.

AIM

Co-relation between 'Bone mineral density' and 'Dhatu Sarata'.

OBJECTIVES

Study of bone mineral density with help of Bone densitometer.

Dhatu Sarata Examination By AYUSOFT C-DAC proforma.

Develop the parameter with modern instrument in Ayurved.

MATERIAL

1. Ayurvedic texts as well as the Modern text regarding the subject.
2. Standard Sarata examination proforma (AYUSOFT C-DAC -Centre for Development of Advance Computing).
3. Portable Densitometer instrument for densitometry(SAHARA HOLOGIC).
4. 50 healthy male students between the age of 25 to30 years.

METHODOLOGY

Bone mineral density was measured with the help of bone densitometer (SAHARA HOLOGIC).

Sarata parikshana(examination) was done with the help of standard sarata parikshana proforma (CDAC).

Dhatu sarata percentage and BMD level put into chart and statistical analysis was done with the help of co relation test.

RESULT AND DISCUSSION

Co-relation test was applied to rule out the co-relation between individual dhatu sarata and BMD.

CO-RELATIONBETWEEN TWOVARIABLES SARATAANDBMD

SR.NO.	SARATA	CO-RELATION VALUES
1	TWAKSARATA	-0.14169
2	RAKTASARATA	-0.07708
3	MAMSASARATA	0.60424
4	MEDASARATA	-0.03827
5	ASTHISARATA	0.97567
6	MAJJASARATA	0.29285
7	SHUKRASARATA	0.26999
8	SATWASARATA	-0.01016

1. Co-relation of Asthi sarata with BMD is significantly large.
2. There is also co-relation of Mamsa sarata but significantly smaller.
3. All remaining co-relation values are insignificant.
4. Except Asthi sarata no other sarata is showing significant impact on BMD.

DISCUSSION

Ayurveda has always emphasised to maintain a health of healthy individual and cure of sick person i.e. Dosha, Dhatu and Mala in healthy state or we can say in balanced state. To check their state Dashavidha Parikshan has been mentioned in our samhitas. Particularly for examination of Dhatus Sarata parikshan was developed, which is one of the most important examinations.^[5]

If we are willing for good health then we must pay attention towards condition of body and its constituents (Dosha, Dhatu and Mala) and to determine them sarata parikshana is one of the most important examination (for Dhatu parikshana) explained by our science.

If we want, Ayurvedic theories like sarata examination should be understood by today's world then we must use modern tools and by this we can also add new tools in Ayurved to improve ayurvedic science.

According to Ayurved Asthisara persons possess good quality of Asthi dhatu and is determine by asthi dhatu sarata parikshana. And modern science explains that persons having high bone density level have good quality of bone and is determine by bone densitometry, percentage of Asthisarata increases the bone density level also increases.

Statistical analysis also shows that co-relation value of Asthisarata is very much significant which means Asthisarata is showing perfect co-relation with BMD.

CONCLUSION

- Bone density is most important quantitative parameter from modern point of view for the quality of bone.
- Comparative study of bone density and sarata shows that in the individuals showing more percentage of Asthisarata shows better bone density
- Statistical analysis shows that there is perfect co-relation between bone density and Asthisarata.

- Dhatu sarata of all remaining dhatus was also studied and compared with bone density level but statistically no co-relation was found between them.

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