Research Article

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STUDY OF ASTHI DUSHTI LAKSHANAS IN RELATION WITH BONE MINERAL DENSITY

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ABSTRACT

Ayurveda provides healthy and disease free life. Asthidhatu (Bone) is responsible for appropriate posture of the body. During the age of 20 to 30 body build more bone than lose. It reaches to peak density between 25 and 30. There after bone mass begins declining at the age of 30, it is essential to build bone strength as much as possible at this age. Now a days, this declination gets accelerated due to changing food habits, eating disorders, unhealthy diet, increasing stress factors, excessive smoking & alcohol & lack of exercises. In practice, no one is going to investigate for bone mineral density so this is helpful to estimate BMD score clinically. This may be useful for Ayurvedic Physician as a diagnostic tool in future. In statistical analysis Correlation coefficient (r) = -0.7898, considered as moderately Negative. This study correlate the Asthivaha Strotodushti lakshana i.e. Asthipradoshaja vicar, Asthi kshaya lakshana and Asthi vriddhi lakshana with the bone density value.

Keywords: Asthipradoshaja vicar, Asthi kshaya lakshana, Asthi vriddhi lakshana & BMD.

INTRODUCTION

Ayurveda is one of the ancient and most reliable systems of medicine in the world; its antiquity goes back to the ancient Vedas. Concept of Sharira (Anatomy) is distinctive and has been described with its applied aspects.¹ Description of Strotas (channel) has been dealt in depth in Shareera Sthana of Sushruta, which is difficult to understand. Strotas (channel) is the structures originates from vacant spaces, spread throughout the body and purvey materials and apart from the Sira (vein) & Dhamani (artery).² With the study of single Shastra, a physician can never catch the true import, therefore a one should study as many allied branches as possible.³ This study concentrated to understand Strotas (channel) in detail regarding Asthivaha strotas with special reference to Asthivaha strotodushti lakshanani with its applied aspect.⁴ Further these applied aspects correlate the symptoms clinically with the objective finding of bone density score.⁵ Topic was decided to correlate the Asthivaha strotodushti lakshanani (asthi pradoshja vicar,⁶ asthikshaya lakshana⁷ and asthi vriddhi lakshana⁸) with bone mineral density score.

Aim and objective

To establish a relationship between Asthi dushti lakshan and bone mineral density

- 1) To assess the symptoms of Asthi pradoshja vicar
- 2) To assess the symptoms of Asthikshaya
- 3) To assess the symptoms of Asthi vriddhi

MATERIAL AND METHOD

Study design- Observational study

Research protocol approved by IEC- Ref. CARC/IEC 10/22/2010-11

Sample technique- convenient sampling

No. of patients 100

All patients with classical signs of Asthivridhi, Asthikshaya & Asthipradoshaja vyadhi as described in the text were selected for the study.

The patients of Dantavicar, Keshavicar and Nakhavikruti were included as Dant are said to be the updhātu whereas Kesha and Nakha are the Mala of Asthidhatu.

Inclusion Criteria (Table 1)

1. Age between 30 to 50 years
2. Either Sex irrespective of socioeconomic status
3. Classical signs of Asthi Dhatu Dushti

Patients presenting with at least two symptoms from any one of the group were included in the study.

Informed consent was taken from all the participants of the study.

CRF was filled after obtaining the information from the participants.

Bone mass density of all these participants was performed.

Exclusion Criteria

1. Congenital anomalies
2. Any major illness
3. Ages below 30 and above 50 yrs
4. Crushed vertebrae¹⁰
5. Fatty patients¹¹

The subject undergoing this study was informed about the nature of study and written consent from each subject was taken. Method used for this project is mostly based on the Trividha Pariksha- Darshan (Inspection), Sparshan (Palpation) and Prashna (Interrogation).¹² Past history of any pre-existing diseases were noted. Then BMD had done with the help of CM-200 Ultrasound Bone Densitometer.

Table 1: Symptomts of Asthi dusthti lakshanas classified in three groups

Dhatu	Asthi Updhatu	Mala	
Asthi	Danta	Kesha	Nakha
Adhyashti (Extra growth of bone, bone growing over another)	Adhidant Extra teeth (redundant teeth)	Kesh vicar (Disease of hairs)	Nakh vicar (Disease of nails)
Ashtishul (Being pierced with a Shakhu (spear) in the inside of body)	Dantshul (Being pierced with a Shakhu (spear) in the inside of tooth)	Lom vicar (Disease of hairs on body)	Kunakh (By injury, nail becomes rough, black & rugged, known as Kunakha)
Ashtitod (Pain like Pricking with needle in bone)	Dantabhanga (Brittleness of teeth)	Smashru vicar (Disease of Mustache hair)	Nakha bhanga (Brittleness of nails)
Asthibhed (Fracturing or wounding a bone)	Dantbhed (wounding a teeth)		Nakaha Rukshata (Dryness of nails)
Sandhishaitihilya (Looseness in joint)	Dantvivarnata (Discoloration of teeth)		
	Dvijprapatan (Loss of permanent teeth)		
	Dantarukshata (Dryness of nails)		

Procedure of measuring BMD

During measurement apply the gel to heel and give the position to foot, align cylinder then press start key. Within 10 seconds, result was on the screen & BMD score was noted on the CRF prepared for this study.

The World Health Organization has established the following diagnostic guidelines¹³

T-score -1.0 or greater is "normal"

T-score between -1.0 and -2.5 is "low bone mass" (or "Osteopenia")

T-score -2.5 or below is "osteoporosis".¹⁴

RESULTS

Enrolled patients were assessed with the help of assessment criteria and recorded in the CRF. Observations recorded were analyzed for correlation of Asthi dhatu lakshanas and BMD by calculating correlation coefficient. The observations are as follows.

1. B.M.D. score according to symptoms

Asthipradoshaja Vyadhi

Figure 1: BMD score according to symptoms of Asthipradoshaja Vyadhi (X-axis represents symptoms and Y-axis represents number of patients)

Asthikshyaja Lakshana

Figure 2: BMD score according to symptoms of Asthikshyaja Lakshana (X-axis represents symptoms and Y-axis represents number of patients)

Asthivridhi Lakshana

Figure 3: BMD score according to symptoms of Asthivridhi Lakshana (X-axis represents symptoms and Y-axis represents number of patients)

Statistical Analysis

Statistical analysis shows Negative Correlation between Asthivahastrodushti lakshanani and Bone mineral Density Score. Correlation coefficient (r) = -0.7898, considered as moderately Negative.¹⁵

Figure 4: Negative correlation (X-axis represents number of patients and Y-axis represents Bone mineral density score)

The above correlation shows that, as the symptoms increased the BMD score gets decreased. It means there is negative correlation between them. But this negative correlation is seen only in Asthipradoshaja Vyadhi and Asthikshayaja Lakshana not in Asthivridhhi lakshana.

DISCUSSION

Acharya Sushrut quoted that, Dhatu is that entity which acts as a stabilizing pillar of the body. Asthi (Bone) gives support to the body and maintain upright position of the body. The study was carried out to establish relationship between Asthidushti lakshana and bone mineral density score. The motive behind this clinical observation is to establish a new diagnostic tool and estimate the bone density score with symptoms present of Asthidushti.

In today's perspective bone related diseases are very common and seen in early ages, because of fast life style changes, lack of exercise, unhealthy diet, disordered eating & increase stress all these factors affect the micro architecture of bone slowly. For this study patient of Asthidushti lakshanas were selected. Most of the lakshanas observed in this study were related to Updhatu and Mala of Asthi Dhatu.¹⁶

More Lakshanas of Asthipradoshaja vyadhi were observed in those with BMD score -2.5 or below i.e "osteoporosis as compared to the Normal and Osteopenic BMD score. In Normal score 2 to 3 symptoms were observed, in patients having

Osteopenia 3 to 4 symptoms were observed whereas in Osteoporosis 6 to 7 symptoms were observed.

Symptoms of Asthikshayaja were observed more in Osteoporotic BMD score than that of Normal and Osteopenic BMD score. Observation also shows the increasing pattern of the symptoms in Asthikshayaja lakshana i.e. In Normal score of BMD 0 to 1 symptoms was observed, In Osteopenia score of BMD 4 to 5 symptoms were observed and In Osteoporosis 6 to 7 symptoms were observed. As the lakshanas were increased the BMD score decreased.

Asthipradoshaja Vicar and Akshayaja lakshana can be estimated with the help of Bone Density Score. But in case of Asthi vridhhi lakshana this can't calculate with BMD Score. Symptoms of the Asthivridhhi were observed more in Normal BMD score than that of the Osteopenic and Osteoporotic BMD score. Observation didn't show any correlation in symptoms. In Normal 1 to 2 symptoms was seen, In Osteopenia 0 to 1 symptom In Osteoporosis 0 to 1 symptom was found.

CONCLUSION

Asthiava Strotodushti Lakshana can be correlated with Bone Mineral Density Score. BMD score can be estimated with the help of assessment of Asthipradoshaja vyadhi and Asthikshayaja Lakshana. But Asthivridhhi lakshana can't assess with the Bone Mineral Density Score. Occurrence of the Asthipradoshaja lakshana and Asthikshayaja lakshana according to BMD are as follows;

Table 2: Symptoms of Asthipradoshaja vyadhi present with range of BMD score

BMD score	Asthipradoshaja vyadhi
Normal (-0.1 to 0)	Asthishula, Adhyasthi, Asthitoda
Osteopenia (-1.1 to -2.5)	Asthishula, Keshavicar, Asthitoda, Asthibheda
Osteoporosis (≤ -2.5)	Asthishula, Keshavicar, Nakhavicar, Asthitoda, Asthibheda, Dantavivarnata, Adhidanta

Table 3: Symptoms of Asthikshayaja present with range of BMD score

BMD score	Asthikshayaja Lakshana
Normal (-0.1 to 0)	Asthishula
Osteopenia (-1.1 to -2.5)	Asthishula, Keshapatan, Deharukshata, Dantarukshata, Nakharukshata
Osteoporosis (≤ -2.5)	Asthishula, Keshapatan, Nakharukshata, Shrama, Dantarukshata, Deharukshata, Sandhishaitilya.

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