

Prevalence of Osteoporosis Among Different Age-group in Men Attending Orthopaedic OPD: A Hospital-Based Study

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ABSTRACT

Background: Osteoporosis is more common in women than men. Most of the previous studies on Osteoporosis was done on women only. Therefore, this study was conducted to assess the status of Osteoporosis in Men. Quantitative ultrasound (QUS) of bone is a technique for assessing bone microarchitecture in addition to bone mass.

Methods: This Retrospective study was done in 320 male patients in the Department of Orthopaedics, F. H. Medical College, Etmadpur, Agra, UP, India presenting with back pain, history of fracture after minor trauma, alcoholics, patient on drugs like steroids and chronic smokers.

Results: 320 patients were included in the study on the basis of inclusion and exclusion criteria. As far as age groups considered, 35% (n=112) were between 25-40yrs, 40% (n=128) between 41-60yrs and 25% (n=80) between 61-75 yrs. Commonest presenting symptom in the study population was Backache which was 55% (n=176). 25% (80) presented with generalized bone pain and 20% (64) patients had a history of fracture after trivial trauma. Majority of the osteoporotic patients fell in the age group of 41-60 yrs.

Conclusion: Our study revealed that the osteoporosis and osteopenia found to be more common in males in the age group of 40-60 yrs and Quantitative ultrasonography is one of the most effective tools for early detection of osteopenia and osteoporosis.

Keywords: Bone Mineral Density, Osteoporosis.

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INTRODUCTION

Osteoporosis is a progressive bone disease that is characterized by a decrease in bone mass and density and that leads to an increased risk of fractures. Osteoporosis as World Health Organization (WHO) defined as a bone mineral density that lies 2.5 standard deviations or more below the a T-score of $< -2.5SD$ (average of young, healthy adults) as measured by dual-energy X-ray absorptiometry; Osteoporosis is characterized by a reduction in bone density, associated with skeletal fragility and an increased risk of fracture after minimal trauma The disease may be classified as primary type 1, primary type 2, or secondary.¹ The form of osteoporosis most common in women after menopause is referred to as primary type 1 or postmenopausal osteoporosis. Primary type 2 osteoporosis or senile osteoporosis occurs after age 75 and is seen in both females and males in a ratio of 2:1. Secondary osteoporosis may arise at any age and affect men and women equally. The major secondary causes of osteoporosis in men found to be vertebral fractures are hypogonadism, smoking, anti-convulsant therapy, oral steroid therapy and alcohol abuse. The introduction of dual energy X-ray absorptiometry for the measurement of bone density has stimulated interest in the diagnosis of osteoporosis before fractures occur.²

A bone mineral density (BMD) test measures how much calcium and other types of minerals are present in a section of bone.^{3,4} Quantitative ultrasound (QUS) of bone is a technique for assessing bone microarchitecture in addition to bone mass. This phase of bone development is called peak bone mass. The level of bone mass achieved at the peak is determined largely by genetics, but also by nutrition, exercise and menstrual function.^{5,6}

MATERIALS AND METHODS

This Retrospective study was conducted in the Department of Orthopaedics, F .H. Medical College, Etmadpur, Agra on 320 patient. An informed consent was obtained from all subjects. For assessing Bone mineral density, calcaneal measurement was done in 320 patients. Inclusion criteria include all male patients presenting to OPD with complaints of back ache, fracture after trivial trauma and steroid induced osteoporosis. Exclusion criteria include patients on anticancer chemotherapy and pathological fractures associated with primary or secondary bone tumors. Bone mineral density was estimated with quantitative ultrasonography and expressed as T-score .The patients after assessment of BMD were classified according to WHO criteria [Table 1].

Table 1: BMD Density

Diagnostic classification	T- Score
Normal	>-1.0
Osteopenia	-1.0 to -2.5
osteoporosis	< -2.5
Severe osteoporosis	< -2.5 with fracture

Table 2: Patient's distribution according to age group.

Age Group (YRS)	Number of patients(n)	Percentage (%)
25-40	112	35%
41-60	128	40%
61-75	80	25%

Table 3: Distribution according to presenting symptoms.

Symptom	Number of patients(n)	Percentage
Backache	176	55%
Generalized bone pain	80	25%
History of fracture with trivial trauma	64	20%

Table 4: Patient distribution according diagnosis.

Diagnosis	Number of patient(n)	Percentage (%)
Normal	52	16
Osteopenia	92	29
Osteoporosis	144	45
Severe osteoporosis	32	10

RESULTS

320 patients were included in the study. Patients enrolled were in the age group of 25-75 yrs. Among these 35% (n=112) were between 25-40yrs, 40% (n=128) between 41-60yrs and 25% (n=80) between 61-75 yrs. [Table 2]. Commonest presenting symptom in the study population was Backache which was 55% (n=176). 25% (80) presented with generalized bone pain and 20% (64) patients had a history of fracture after trivial trauma [Table 3]. Of the 320 patients included in the study 45% (n=144) were osteoporotic, 29% (n=92) were Majority of the osteoporotic patients fell in the age group of 41-60 yrs.

DISCUSSION

In our present study, bone mass density in 320 patients was estimated. Range of bone mass was measured by bone mineral density assessment through calcaneal bone. It was observed that 45% Patients had osteoporosis and 29% patients had osteopenia as detected by quantitative ultrasonography. Majority of the osteoporotic and osteopenic patients fell in the age group of 41-60 yrs. Our study is comparable to study conducted by J-D LIN, et al.⁷ They showed that peak incidence of osteopenia was 41.25% in the 51–60-year old age group. In Gandhi AB et al study they observed that 34 percent of the patients in their study were affected by osteopenia.⁸ The influence of obesity on BMD is

believed to be mediated by mechanical loading of BMI on bone formation. Nonetheless, lean body mass has been considered as an independent predictor of femoral neck and lumbar spine BMD, whereas the fat component of obesity did not exert any protective effect on bone mass. The percentage of normal BMD measurements decreased rapidly from 21– 30 year old age group to the 71–80 year old age group. Published studies show that low body weight (less than 58 kg) is associated with an increased risk of osteoporosis and fractures.⁹⁻¹³ JPS Walia, A Singh et al¹⁴ in their study show that in osteoporotic patients with age 45 years or over there was age related decline in T- Scores. This was higher in women compared to men. They conclude that all patients with fractures due to osteoporosis had poor bone quality. Thus quantitative ultrasound densitometry may be mandatory for a person with osteoporotic fractures. From this study we recommend that quantitative ultrasonography is a good alternative tool to DEXA scan for screening and diagnosis of osteoporosis. The advantages over DEXA scan are that this is cost effective, there is no radiation exposure, and it is a simple procedure and portable.

CONCLUSION

Our study shows that the osteoporosis and osteopenia is more common in males in the age group of 40-60 yrs. Early detection and prompt treatment is required to prevent pathological fractures. Quantitative ultrasonography is one of the most effective tools for early detection of osteopenia and osteoporosis as this is cost effective, lacks radiation exposure and yields good results, comparable to other diagnostic tools like DEXA scan. Hence From the above results, we conclude that significant correlation exists while comparing the age group of the patients with the diagnosis for BMD. However, future studies are recommended.

REFERENCES

1. Faulkner KG, McClung MR, Coleman LJ, Kingston-Sandahl E. Quantitative ultrasound of the heel: correlation with densitometric measurements at different skeletal sites. *Osteoporos Int* 1994; 4:42–7.
2. Glu" er CC, Cummings SR, Bauer DC, Stone K, Pressman A, Mathur A, et al. Osteoporosis: association of recent fractures with quantitative US findings. *Radiology* 1996; 199:725–32
3. WHO Study Group. Assessment of fracture risk and its application to screening for Postmenopausal osteoporosis. WHO Technical Report Series, World Health Organization, 1994; Geneva.
4. Genant HK, Engelke K, Fuerst T, Gluer CC, Grampp S, Harris ST, Jergas M, Lang T, Lu Y, Majumdar S, Mathur A, Takada M. Noninvasive assessment of bone mineral and structure: State of the art. *J Bone Miner Res.* 1996; 11:707- 730.
5. Kanis JA, McCloskey EV, D de Takats, Pande K. Clinical assessment of Bone Mass, Quality and Architecture. *Osteoporos Int.* 1999; Suppl.2:S24-S28.
6. Pande KC. Prevalence of low bone mass in healthy Indian population. *J Ind Med Assoc.* 2002; 1000:598-600. Genant HK. Radiology of Osteoporosis and other Metabolic Bone Diseases. In Favus MJ, editor. *Osteoporosis and Metabolic Bone Diseases.* Philadelphia: Lippincot-Raven, Publishers, 1996; 152-163.
7. J-D Lin, MD, J-F Chen, MD, H-Y Chang, MD and C Ho, MD - Evaluation of bone mineral density by quantitative ultrasound of

bone in 16 862 subjects during routine health examination -The British Journal of Radiology, 74 (2001), 602–606 E 2001

8. Gandhi A, Shukla A. Evaluation of BMD of women above 40 years of age. J Obstet Gynaecol India 2005; 55:265-7.

9. Schneider M, Weller A, Vaisman N, Kreitler S. The relationship of depression, anxiety and stress with low bone mineral density in post-menopausal women. Arch Osteoporos. 2002; 7:247–55.

10. Iketani T, Kiriike N, Nakanishi S, Nakasuji T. Effects of weight gain and resumption of menses on reduced bone density in patients with anorexia nervosa. Biol Psychiatry. 1995 Apr 15; 37(8):521-7.

11. Pearce G, Bradney M, Hendrich E, Delmas P.D, Harding A, Seeman E, et al. (1996) Exercise before puberty may confer residual benefits in bone density in adulthood: studies in active prepubertal and retired gymnasts. Journal of Bone Mineral Research 13, 500-507.

12. Michelson D, Stratakis C et al. Bone mineral density in women with depression. N Engl J Med. 1996 Oct 17; 335(16):1176-81.

13. Duan Y, Turner CH, Kim BT, Seeman E. Sexual dimorphism in vertebral fragility is more the result of gender differences in age related bone gain than bone loss. J Bone Miner Res. 1997; 16:2267–2275.

14. JPS Walia, A Singh, AC Gupta, B Singh, AK Walia, D Kumar. Assessment Of Quantitative Ultrasound Densitometry In 100 Persons With Fractures Due To Osteoporosis-Ind J Radiolmag 2006 16:4:597-601.

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