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A clinical study to examine the growth of osteoporosis and osteopenia at tertiary care teaching hospital, Durg, district, Chhattisgarh

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Abstract
Background: Osteoporosis is a well-recognized problem in older women. However, there has been inadequate awareness among the public and healthcare providers that osteopenia and osteoporosis are also a common problem in older men.
Objectives: : To examine the growth of osteoporosis and osteopenia in local population especially in urban people at tertiary care teaching hospital, Durg, District, Chhattisgarh.
Methodology: This study was conducted on 200 cases. After the institutional ethical committee clearance, this exploratory study was done in the Department of Orthopedics, Shri Shankaracharya Institute of Medical Sciences, Junwani, Bhilai, Distt. Durg, Chhattisgarh,. Patients attended the free BMD camp were subjected to do.
Result and Conclusion : In hypertension cases Out of 200, 88 normal, 94 Osteopenic, 18 Osteoporosis. In Diabetic cases Out of 200, 72 normal, 104 Osteopenic, 24 Osteoporosis More than 68 present were affected due to Osteoporosis and Osteopenia. In Menopausal women, 67 percent are Osteopenic and 20 percent are Osteoporosis.In Hypertensive patients, 47 percent are Osteopenic and 9 percent are Osteoporosis. In Diabetic patients 52 percent are Osteopenic and 12 percent are Osteoporotic. In Smokers, 69% were osteopenic and 26% were osteoporotic. Therefore we found that Osteoporosis and Osteopenia are more prevalent in rural population of the subjected area, hence D3 and Calcium combined prescription were given to affected people and sun exposure advised too along with physical exercise.

Keywords: quantitative ultrasound, osteopenia, osteoporosis, older women, bone density

Introduction
Osteoporosis is a well-recognized problem in older women. However, there has been inadequate awareness among the public and healthcare providers that osteopenia and osteoporosis are also a common problem in older men [1]**.** The National Osteoporosis Foundation (NOF) reported in 2010 that more than 52 million women and men had osteoporosis. Osteoporosis is one of the major health problems with the progressive prevalence in developing countries. According to WHO criteria, Osteoporosis is reduction in Bone Mineral density of 2.5 standard deviation or more below that of the Mean Peak BMD of young adults when measured by Dexa Scan. The condition is influenced by different risk factors in terms of sex and age. By 2050. worldwide insurance of Hip fracture is expected to rise by 240% in women and 310% in men. his number is expected to increase by more than 50% by 2025 with an estimated cumulative cost reaching $228 billion [2, 6]. As reported a higher incidence of morbidity and mortality, greater functional decline, and higher healthcare costs for men with osteoporosis as compared with women [3, 7]**.** An estimated 1-2 million men in the United States have osteoporosis, and an additional 8-13 million have low bone mineral density (BMD) [4, 8]. One in four men over the age of 60 years will have an osteoporotic fracture in their lifetime [5, 9]. The U.S. Preventive Service Task Force is charged with developing recommendations for preventive services. The task force has established screening guidelines for osteoporosis in women but has had difficulty outlining screening guidelines for men due to insufficient evidence. Without screening guidelines, men with osteopenia or osteoporosis are unaware of the associated risks. In 2012, the Endocrine Society published clinical practice guidelines for screening and management of osteoporosis in men [10].

Evidence of the associated modifiable and nonmodifiable risk factors contributing to osteoporosis is gradually reaching the public and healthcare providers [11]. The cost of Osteoporosis treatment is greater than pre fracture cost. It is easy to measure BMD but in clinical setting bone quality is not measurable yet. Bone Mineral Density is measured by MEANS OF DUAL X-RAY Absorptiometry (DEXA). It is the actual expression of bone in absolute terms of mineral per square centimeters of the scanned bone. BMD measurements of Hip and Spine are used to establish or confirm the diagnosis of Osteoporosis to predict the future fracture risk and monitor the patient. The Difference between the patient's BMD and mean BMD young females aged in the large of 20 – 29 years (divided by the standard division (SD) of the reference population) yield to T-Score. Comparing the BMD of particular age, sex and ethnicity matched adult reference population is called Z-Score. There are several limitations of DEXA which prevent it from being used in screening of Osteoporosis. C Calcaneal Quantitative Ultrasound (QUS) is a bone health assessment technique which has gained popularity in recent year. Compared to DEXA, QUS offers wide accessibility to the public because it is portable, easier to handle, lower in cost and does not emit ionizing radiation.

Methods and Materials

After the institutional ethical committee clearance, this exploratory Study was done at the Department of Orthopedics, Shri Shankaracharya Institute of Medical Sciences, Junwani, Bhilai, Distt. Durg, Chhattisgarh,. Patients attended the free BMD camp were subjected to do.

1. Bone mineral density measurement by quantitative ultra sound
2. Body mass index measurement
3. BP measurement
4. Abdominal circumference measurement

Inclusion Criteria

1. Male and female from 30 years to 70 years age
2. Diabetic patients
3. Hypertensive patients
4. Cardiac patients
5. Obese and non obese
6. Smoking

Exclusion Criteria

1. Pregnant ladies
2. R.A. on steroids
3. Fracture calcaneum
4. Osteomyelitis

DEXA is the gold standard for bone mineral density evaluation. But Calcaneal QUS is reliable and cost effective alternative which was used in the study. QUS was used to calculate BMD of right heal. Machine converted the BMD value into 'T' Score. All good clinical practice (GCP) guidelines were followed. Details regarding work up of patients including demographic and clinical details and history of smoking, diabetes status and nutritional history menopausal status were recorded. The results were tabulated and analysed statistically. Test of significance (chi square test and Z test) to be applied wher ever necessary.

Results

In hypertension cases Out of 200, 88 normal, 94 Osteopenic, 18 Osteoporosis.

In Diabetic cases Out of 200, 72 normal, 104 Osteopenic, 24 Osteoporosis

More than 68 present were affected due to Osteoporosis and Osteopenia. In Menopausal women, 67 percent are Osteopenic and 20 percent are Osteoporosis. In Hypertensive patients, 47 percent are Osteopenic and 9 percent are Osteoporosis. In Diabetic patients 52 percent are Osteopenic and 12 percent are Osteoporotic. In Smokers, 69% were osteopenic and 26% were osteoporotic as in Table 1, 2, Figure 1,2,3.

Table 1: Sex distribution of the subjects taken in the study

Age(in years)	Male	Female
30-39	5	28
40-49	28	42
50-59	17	40
60-69	15	19
70-79	5	1
Total	70	130

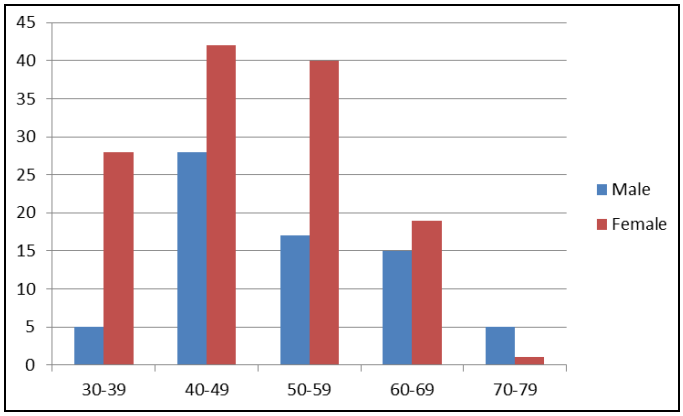

Fig 1: Age wise sex distribution

Table 2: Prevalance of Osteoporosis along with other diseases

Major symptoms	Normal(n=200)	Osteopenic	Osteoporosis	Total
Hypertension	88 (44%)	94 (47%)	18(9%)	200 (100%)
Diabetes	72 (36%)	104 (52%)	24(12%)	200 (100%)
Menopausal(Women)	8 (13%)	40 (67%)	12(20%)	60 (100%)

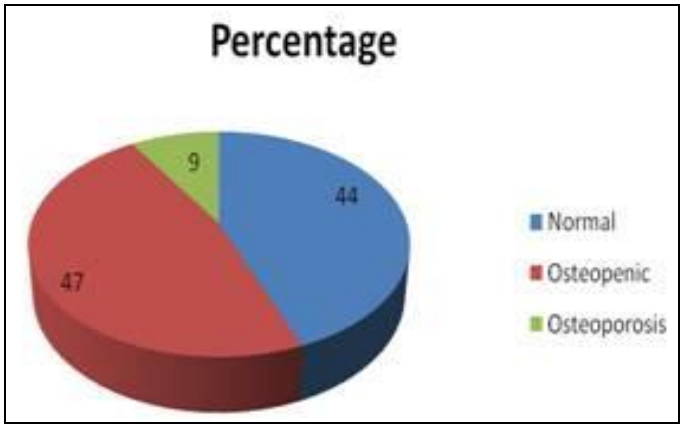

Fig 2: Patients with Hypertension

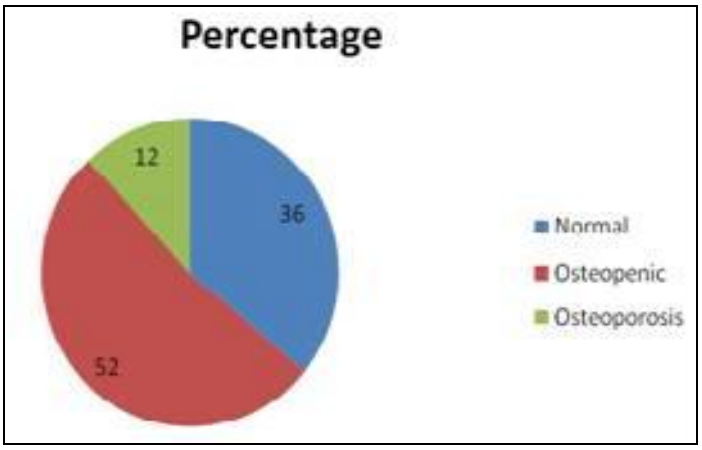

Fig 3: Patients with Diabetes

Discussion

Primary prevention of osteopenia and osteoporosis entails finding those men at risk and developing a treatment plan to reduce poor outcomes. The American College of Physicians [12]. Worldwide Osteoporosis causes more than 8.9 million fractures annually. Osteoporosis is estimated to affect 200 million women worldwide. Disability due to Osteoporosis complications is greater than disability caused by any other diseases. Osteoporosis complications are major health problem in India also. Osteoporosis affects both urban and rural population. The International Society for Clinical Densitometry [13], and the American College of Preventive Medicine [14] support screening men at or after the age of 70 years by DXA of the spine and hip. For males younger than 70, the presence of risk factors would highlight the need for a DXA evaluation. As previously mentioned, the U.S. Preventive Services Task Force (2011) does not advocate for regularly DXA screening due to insufficient evidence of benefit versus potential harm.

Disability due to osteoporosis is preventable. It is easy to measure bone mineral density by Quantitative Ultrasound. We found that from our study Osteoporosis and Osteopenic are more prevalent in rural people also. Patients with systemic diseases are Osteopenic and Osteoporosis. This is the time to treat these high-risk cases. Thereby we will prevent major disability due to Osteoporosis and to prevent economic burden to these families.

The relationship of the BMI to osteopenia and osteoporosis has been inconclusive with conflicting findings. Our study found statistical significance for BMI and the presence of osteopenia and osteoporosis; those with a lower BMI were in the ostepenia and osteoporosis group. However, it must be noted that the mean BMIs for all groups was in the overweight category. The BMI of participants with osteopenia and osteoporosis varied from that of the normal bone density group. The osteopenia group had higher BMI than the osteoporosis or normal BMD groups

Conclusion

Osteoporosis in men is an inadequately appreciated health issue and is a growing problem with direct impact on morbidity and mortality. Earlier disproportionate emphasis on osteoporosis in women has led to insufficient data in men. Healthcare providers and members of the public need to maintain a heightened awareness of male osteoporosis and implement strategies to abate the development and progression of the disease. One modifiable risk factor supported by this study was BMI. Additionally, research is warranted to identify other modifiable risk factors that may contribute to osteopenia and osteoporosis. Additional research is needed on clinical guidelines for screening, diagnosing, and treating osteopenia and osteoporosis in men. We found that Osteoporosis and Osteopenia are more prevalent in rural population Prevalence is present in Post Menopausal Women, Old age and Patients with systemic Diseases. Calcium and D3 prescription were given to the affected people with the advice of Physical Exercises, Dietary habits and importance of SUN EXPOSURE.

References

1. Grisso JA, Baum CR, Turner BJ. what do physician in practice do to prevent Osteoporosis? J Bone Miner Res 1990;5:213-9.
2. Anonymous consensus development conference: Prophylaxis and Treatment of Osteoporosis BMJ 1989;295:914-17.
3. Law MR, Wald NJ, Meade TW. strategies for prevention of Osteoporosis BMJ 1991;303:453-9.
4. Freemantle N. Screening for Osteoporosis to prevent Fracture. In Effective health care No. 1 School of Public Health 1992.
5. Melton LJ, Chrcichiller EA, Cooper C, Lane AW, Rigg's BL. How many women have Osteoporosis? J Bone Miner Res 1992;7:1005-10.
6. Burge R, Dawson-Hughes B, Solomon D, Wong J, King A, Tosteson A. Incidence and economic burden of osteoporosis-related fractures in the United States. Journal of Bone & Mineral Researc 2007;22:465-475.
7. Sutton R., Dian L, Guy P. Osteoporosis in men: An underrecognized and undertreated problem. BC Medical Journal 2011;10:535-540.
8. Gennar L, Bilezikian JP. Osteoporosis in men. Endocrinology Metabolism Clinics of North America. 2007;36:399-419.
9. Gruntmanis U. Male osteoporosis: Deadly, but ignored. American Journal of the Medical Sciences 2007;333:85-92.
10. Watts N, Adler R, Bilezikian J, Drake M, Eastell R, Orwoll ES *et al*. Osteoporosis in men: An endocrine society clinical practice guidelines. Journal of Clinical Endocrinology & Metabolism 2012;97:1802-1822.
11. Haentjens PI, Johnetl O, Kanis JA, Bouillon R, Cooper C, Lamraski G *et al*. Network on Male Osteoporosis in Europe (NEMO). Evidence from data searches and life-table analyses for gender-related differences in absolute risk of hip fracture after Colles' or spine fracture: Colles' fracture as an early and sensitive marker of skeletal fragility in white men. Journal of Bone & Mineral Research 2004;19(12):1933-1944.
12. Qaseem A, Snow V, Shekelle P. Screening for osteoporosis

in men: A clinical practice guideline from the American College of Physicians. Annual of Internal Medicine 2008; 148:680-684.
13. Baim S, Binkley N, Bilezikian JP, Kendler DL, Hans DB, Lewiecki EM *et al*. Official positions of the International Society for Clinical Densitometry and executive summary of the 2007 ISCD position development conference. Journal of Clinical Densitometry 2008;11:75-91.
14. Lim LS, Hoeksema LJ, Sherin K. Screening for osteoporosis in the adult U.S. population: ACPM Prevention Practice Committee. American Journal of Preventive Medicine, 2009;36366-375.