

Assessment of Prevalence of Osteoporotic Fractures among Females of Known Population: A Observational Study

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Abstract

Background: Osteoporosis is the most common bone disease in humans, representing a major public health problem. Hence; we planned the present study to assess prevalence of osteoporotic fractures among females of known population. **Subjects and Methods:** A total of 50 females were included in the present study. Complete demographic of all the subjects was obtained. Detailed history of presence or absence of osteoporotic fractures was obtained. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. **Results:** The overall incidence of osteoporotic fractures in the present study was 36 percent. Significantly higher prevalence of osteoporotic fractures was seen with increasing age. **Conclusion:** Significantly high prevalence of osteoporotic fractures among elderly females is seen.

Keywords: Osteoporotic, Females, Fractures.

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Introduction

Osteoporosis is a disease that is characterized by low bone mass, deterioration of bone tissue, and disruption of bone microarchitecture: it can lead to compromised bone strength and an increase in the risk of fractures.^[1-3]

Osteoporosis is the most common bone disease in humans, representing a major public health problem. It is more common in Caucasians, women, and older people. Osteoporosis is a risk factor for fracture just as hypertension is for stroke.^[4]

In developing populations however, particularly in Asia, the rates of osteoporotic fracture appears to be increasing. The massive global burden consequent to osteoporosis means that fracture risk assessment should be a high priority amongst health measures considered by policy makers.^[5]

Hence; under the light of above mentioned data, we planned the present study to assess prevalence of osteoporotic fractures among females of known population.

Subjects and Methods

The present study was conducted in the department of orthopedics and gynecology, Government S K Hospital, Sikar, Rajasthan (India) and it included assessment of prevalence of osteoporotic fractures among females of known population. Ethical approval was obtained from institutional ethical committee and written consent was obtained after explaining in detail the entire research

protocol. A total of 50 females were included in the present study. Complete demographic of all the subjects was obtained.

Exclusion criteria for the present study include:

- Subjects with presence of any other bone metabolic disorder,
- Diabetic and hypertensive subjects
- Postmenopausal women who had undergone hormone replacement therapy;
- Individuals with serious chronic renal disease, chronic liver disease, or osteogenesis imperfect.

A self-framed questionnaire was prepared for assessing the past medical history and family history of all the subjects. Detailed history of presence or absence of osteoporotic fractures was obtained. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. Chi- square test was used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

Results

In the present study, a total of 50 subjects were analyzed. Mean age of the subjects of the present study was 50.2 years. 40 percent of the patients belonged to the age group of more than 45 years. The overall incidence of osteoporotic fractures in the present study was 36 percent. Significantly higher prevalence of osteoporotic fractures

was seen with increasing age.

Table 1: Age-wise distribution of subjects

Age-group (years)	Number of patients	Percentage of patients
Less than 30	12	24
30 to 45	18	36
More than 45	20	40
Total	50	100

Table 2: Incidence of osteoporotic fractures

Parameter	Number of patients	Percentage
Incidence	18	36

Table 3: Age-wise distribution of patients with fractures

Age-group (years)	Number of patients with osteoporotic fractures	Percentage of patients osteoporotic fractures	p- value
Less than 30	4	22.22	0.00 (significant)
30 to 45	4	22.22	
More than 45	10	55.56	
Total	18	100	

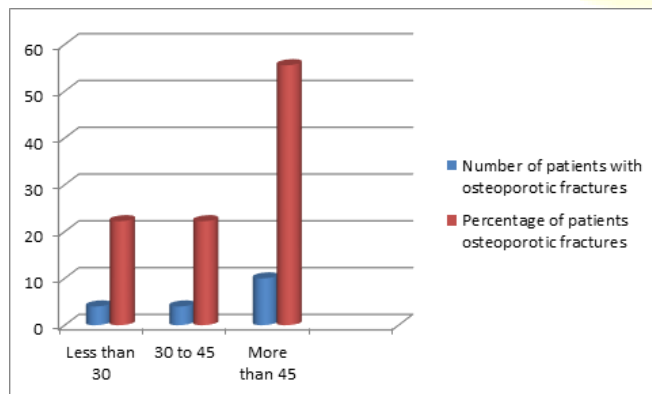


Figure 1: Age-wise distribution of patients with fractures

Discussion

Osteoporosis is defined as a progressive, systemic, skeletal disease characterized by low bone mass and microarchitectural deterioration of bone tissues with a consequent increase in bone fragility and susceptibility to fracture. Studies have shown that bone loss starts from the age of 30–40 years in both men and women. In women, it has been postulated that menopause is followed by an immediate decrease in bone mass and density within a year. This increased rate of bone loss reaches equilibrium approximately 10 years after menopause and then merges into a continuous age-related loss.^[6-8]

The incidence of osteoporotic fracture (OF), a condition that leads to higher morbidity and mortality in the elderly, is increasing yearly worldwide. However, most studies of OF have focused on the epidemiology of initial fractures, mainly in female and white populations.^[9]

Peak bone mass is generally achieved by age 30 years. Thereafter, bone density progressively falls with age and

consequently the prevalence of osteoporosis thus increases. While most white women under the age of 50 years have normal bone density, by the age of 80 years 27% are osteopenic and 70% are osteoporotic at the hip, lumbar spine or forearm.^[10]

In the present study, a total of 50 subjects were analyzed. Mean age of the subjects of the present study was 50.2 years. 40 percent of the patients belonged to the age group of more than 45 years. Fracture incidence is bimodal. There are peaks in childhood and in the elderly. In young people fractures may follow significant trauma and predominantly affect long bones. In the elderly, in contrast, fractures are typically due to minor or moderate trauma. They usually occur following falls from the standing position, but have been known to occur spontaneously.^[11]

The overall incidence of osteoporotic fractures in the present study was 36 percent. Significantly higher prevalence of osteoporotic fractures was seen with increasing age. Tian L et al investigated the osteoporosis prevalence and the risks of postmenopausal women and elderly men. Areal bone mineral density (BMD) (g/cm²) was measured at the distal one-third radius of the nonstressed forearm using dual-energy X-ray absorptiometry (DXA: Osteometer MediTech). The prevalence of osteoporosis in the entire study population was 9.65% for postmenopausal women and 8.08% for elderly males by WHO criteria, while the rate of osteopenia were 27.09% for postmenopausal women and 26.68% for elderly males. Risk of osteoporosis was significantly associated with age, menopause age, duration of menopause, body mass index (BMI), educational level, and alcohol consumption in postmenopausal women. In elderly men, age, BMI, current smoking, alcohol consumption, physical activity, and sun exposure were associated with osteoporosis. The bone turnover markers osteocalcin (OC) and C-terminal cross-linked telopeptides of type I collagen (β -CTX) were inversely correlated with BMD in both genders; serum P and 25(OH)D found no significant correlation with BMD. Serum Ca showed a positive effect on BMD in elderly men only. The osteoporosis prevalence of postmenopausal women and the men aged over 60 years in Gansu province is presented. Risk of osteoporosis was significantly associated with age, menopause age, year since menopause, BMI, and educational level in postmenopausal women. In elderly men, age, BMI, and current smoking were associated with osteoporosis.^[12]

Conclusion

Under the light of above obtained data, the authors conclude that significantly high prevalence of osteoporotic fractures among elderly females is seen. However; further studies are recommended.

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