

**Original Article**

A Study on Low Back Pain and Fragility Fractures in Elderly Females Along with Its Risk Factors

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Abstract

Objectives: Skeletal disorder recognised by a reduction in bone mass with accompanying micro architectural damage that increases chances of bone fracture as osteoporosis. This study evaluated the osteoporosis as a causative factor for low back pain and fragility fractures in elderly postmenopausal females of rural India and its risk factors.

Materials and Methods: About 50 patients who presented with complaint of low back pain in our OPD were studied and subjected to radiological investigations.

Results: The age includes was in the range of 25-80 years. out of these 37 were females and 13 were males. The number of patients with significant past medical or surgical history was 31 % (n=17). The anthropometric characteristics of the studied group included weight, height and BMI in kg/m² which was 18.23, 19.06 in males and 17.343, 19.42.

Conclusion: In postmenopausal females low backache is highly prevalent and is a major factor for low back pain and fragility fractures in this age group.

Keywords: Osteoporosis, Fracture, Low back pain.

Introduction

Bone fragility and risk for fracture increases due to reduction in bone mass with accompanying microarchitectural damage which is a skeletal disorder known as Osteoporosis^(1,2). Low back pain is highly prevalent in osteoporotic patients and affects their quality of life. It is the most common skeletal disorder seen in orthopedic clinical practice. The clinical manifestation of

osteoporosis is fracture, in particular of the spine (compression fracture), hip and forearm. The incidence of fractures in general population is bimodal, with peaks in the young and very old. Overall, the incidence of osteoporosis is greater in females than in males with a ratio of 1:3 (male: females). Vertebral fractures are probably the most common type of osteoporotic fractures. The female to male ratio is estimated to be between

2:1 to 8:1 over a life time^(3, 4). Incidence is found to be more in case of postmenopausal women living in rural areas. It has also been seen that increasing fat mass may not have a beneficial effect on bone mass^(5,6).

The various risk factors for the development of osteoporosis can be grouped as-

Non modifiable	Potentially modifiable
Female gender	-cigarette smoking
Advanced age	-early menopause.
Dementia	- low calcium intake.
History of fracture in past	- vitamin D deficiency
History of fracture in first degree relative	- Sedentary life style

Materials and Methods

The present study was carried out in the department of orthopaedic in collaboration with radiodiagnosis and imaging in a tertiary care hospital. About 50 patients were included in this study, both genders were included and was done over a period of 2010 to 2012. The patients presented to outpatient department orthopaedics with chief complaints of Low back pain not responding to routine analgesics at home. Analysis of records included their chief complaints, signs and symptoms, diagnostic investigations, risk factors and treatment modalities they underwent. patients presented with chief complaints of low back pain, complete history was elucidated, general physical, orthopaedic and neurological examination was carried out. Various relevant investigations were carried out which include X ray DL- spine, DEXA -scan and CT (if required) apart from all routine blood investigations including serum calcium and PTH levels.

Inclusion criteria- Both genders, Age >25 and < 80years with complaint of low back pain.

Exclusion criteria- Age >80 years, Patients with radiological documented lumbar disk or vertebral disease.

Results

The total number of patients studied and evaluated was 50, out of which 13 were males and 37

females. The age of the patients was in the range of 25-80 years. (56.54±91). The total number of subjects who presented with severe lowback pain was 83 % (n=83). Out of these 85.10 % (n=13) were females and 78.80 % (n= 37) were males. The number of patients with significant past medical or surgical history was 21 % (n=21). Regarding demographic features of patients, the total number of patients from urban areas was 37 % (n=73) and from rural areas the number was 13 % (n=27). Regarding lifestyle characteristics of studied patients, 38 out of 50 were having sedentary habits with 8 males and 12 females. the total number of moderate workers was 19 with 9 males and 10 females and heavy workers were 9 with 9 males and no female. Regarding menstrual characteristics, out of 67 the number of non-menopausal women was 22.4%(n=15) and menopausal was 77.60% (n=52). the age at menopause was 46.44±3.27(35,50) and duration of menopause was 13.54±6.38(1,27). The anthropometric characteristics of the studied group included weight, height and BMI in kg/m² which was 20.23, 21.06 in males and 19.34, 20.42.

Discussion

Our study entitled as "Osteoporosis as a cause of low back pain and fragility fractures in elderly females and its risk factors – a study done in a tertiary care hospital" was a prospective study conducted on 50 patients randomly chosen who attended the opd of department of orthopaedics, from August 2010 to January 2012 with the chief complaint of low back pain. Among these 50 patients there were 37 females and 13 males. the sex ratio of males to females was 1:2.03 which is comparable to the results obtained by Cooper and Kanjis in 1992 i.e. 2:1 and 8:1. The total number of patients who presented in our opd with chief complaints of low back pain only was 83 which is comparable to other study i.e. 66 % who conducted a study to evaluate the impact of osteoporosis on patients quality of life⁽⁷⁾. The majority of patient's belonged to urban areas (73 %) while as 27 were from rural areas. Due to more sedentary lifestyle

in urban areas as also suggested that the level of physical activity may modify the amount of bone loss in postmenopausal women with sedentary lifestyle.

Out of 50 patients studied 50 % had a significant past medical and surgical history including history of hysterectomy, hypothyroidism and intake of antiepileptics. This was also suggested by Barrett et al in 2008 who studied a large cohort of postmenopausal women who had sufficient power to identify 18 risk factors for osteoporosis⁽⁸⁾. In our study of 50 patients, 73 % were having sedentary lifestyle and a smaller number were doing moderate to heavy work (p value =0.000, 0.000), as also suggested by other study. Out of 13 males, 9 were smokers and had a high incidence of osteoporosis as has been also seen by Lorentzon in 2006 in a study, and found that smoking in young men is associated with lower bone mineral density and reduced cortical thickness (p value= 0.000, 0.006). In present study male subjects were having a BMI in the range of 20.23 to 21.06 and females 19.34 to 20.42.

The number of menopausal women i.e 77.60 % exceeded non menopausal women 22.40 % in the study group which is comparable to the study carried out by Jang et al in 2006 who found that the prevalence of osteoporosis in postmenopausal women increased with age from 46.3 % of those aged 45-64 years to 68.70% for those aged 75 and over. Lean body mass appeared a significant contributor. Also, the prevalence of osteoporosis with low back pain increased with the increase in duration of menopause⁽⁹⁾. So from our study it is evident that osteoporosis and fracture incidence increases with increase in age in females and also duration of menopause. X ray dorsolumbar spine of the patients revealed osteopenia in 72 % patients and BMD results in case of females was on lower side i.e 0.01-1.60 as compared to males which was 0.48-1.96. Singer et al in 2006, in a study found that nearly half of the all women and one quarter of men more than 50 years of age will experience an osteoporosis related fracture during their lifetime⁽¹⁾.

Conclusion

In postmenopausal women low back pain is highly prevalent with other risk factors. Osteoporosis is one of the major factors causing low back pain affecting quality of life in postmenopausal women especially with additional risk factors for this disease. The various risk factors for osteoporosis and low back ache are smoking, medical diseases like diabetes mellitus, thyroid disorders and hormonal abnormalities.

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