Cross sectional study to determine the prevalence of osteoporosis and osteopenia in rural people of Thiruvarur district, Tamil Nadu, India

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Abstract

Osteoporosis is a common chronic metabolic bone disease characterized by increased bone fragility. Osteoporosis is related to various factors including sedentary life style, aging, drug induced and menopausal women. Currently more than 200 million people are suffering from osteoporosis. Worldwide 1 in 3 women over the age of 50 yrs and 1 in 5 women will experience osteoporotic fractures in their life time. Osteoporosis has no clinical manifestation until there is a fracture cause morbidity and mortality also. Osteoporosis results in decreased quality of life and big financial burden to the patients. With an early diagnosis of this disease, osteoporosis can be prevented. Therefore increasing awareness among staff including doctors in Government Thirivarur Medical College Hospital, Thiruvarur, Tamil Nadu, which in turn facilitates increase awareness of osteoporosis and will be effective in preventing this epidemic. This cross sectional study was carried out to analyze the prevalence of osteoporosis and Osteopenia in staff of Thiruvarur Medical College Hospital, Thiruvarur District, after institutional ethical committee approval. This study was carried out by department of Physical Medicine and Rehabilitation Government Thiruvarur Medical College Hospital, Thiruvarur. The disabilities due to Osteoporosis can be prevented by proper health advices and awareness program. 104 Staff of Thiruvarur Medical College Hospital between 30 to 58 yrs attended free BMD(Bone Mineral Density) camp conducted by Department of Physical Medicine and Rehabilitation. That staff were subjected to do BMD measurement by calcaneal quantitative ultrasound method after getting informed consent.

Key Word: Osteporosis, Osteopenia, Quantitative Ultra Sound.

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INTRODUCTION

Osteoporosis is one of the emerging health issues in India. According to WHO criteria, osteoporosis is the

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. It is a silent disease causing pain and fractures of the bone. Osteoporotic fractures are becoming a major cause for morbidity and mortality. In India more than 30 million population are affected osteoporosis. Prevalence of osteoporosis and osteopenia is more in post menopausal women, old age and patient with systemic diseases. This asymptomatic condition often remain undiagnosed until it manifests as low trauma fractures. there are several limitation of dexa scan which prevent its usage in screening of osteoporosis. Calcaneal quantitative ultrasound is a bone health assessment technique which has gained popularity in recent years. Compared to dexa

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OBJECTIVES

To analyze the reason for the Prevalence for osteoporosis and Osteopenia in staff of Government Thiruvarur Medical College Hospital, Thiruvarur, Tamilnadu, and to plan for Osteoporosis awareness programme. There by to prevent disability due to fracture and other Osteoporosis related complications. This study is useful for upgrading the Medical science in Osteoporosis management.

MATERIALS AND METHODS

After the Institutional ethical committee clearance, this study was carried out. In this clinical study the staff of were subjected to do BMD (Bone Mineral Density) measurement by Quantitative Ultra sound.

Inclusion criteria:

- 1. Male and female between 30yrs to 58 yrs
- 2. Diabetic patients
- 3. Hypertensive patients
- 4. Cardiac patients

Exclusion criteria:

- 1. Pregnant ladies
- 2. Rheumatoid Arthritis patient on steroids
- 3. Skin disease
- 4. Osteomyelitis

Calcaneal Quantitative Ultra sound is more reliable, most cost effective. Quantitative Ultra sound of calcaneal bone was used to calculate BMD (Bone Mineral Density) of right heel. This equipment itself convert the BMD (Bone Mineral Density) value into T SCORE. All good clinical practice guidelines (GCP) was followed. Clinical details about diabetes, Hypertension, Cardiac status, Menopause were recorded. These results were tabulated and analyzed statistically. Test of significance (CHI-SQUARE TEST and Z TEST) were applied whenever necessary.

Osteoporotic and Osteopenic Distribution:

- 1. Age wise Distribution
- 2. Sex wise Distribution
- 3. Menopasual Distribution
- 4. Distribution in Hypertensive Patient
- 5. Distribution in Diabetic Patient

RESULT

Out of 104 patients 44 were Osteopenic and 22 were Osteoporotic. More than60% were affected due to

Osteoporosis and Osteopenia. In menopasual women 62% were Osteopenic and 38% Osteoporotic. In hypertensive patients 42% were Osteoporotic and 33% were Osteoporotic . In diabetic patients 50% were Osteopenic and 37.5% were Osteoporotic.







Figure 3: Distribution in Menopausal Women



Figure 4: Distribution in Hypertensive Patient



Figure 5: Distribution in Diebetic Patient

DISCUSSION

Worldwide osteoporosis causes more than 8.9million fractures annually. Osteoporosis is estimatyed to affect 200 million women World Wide. Osteoporosis complication are major health problem in India also. Osteoporosis affects both urban and rural population. Disability due to Osteoporosis is preventable. It is easy to measure Bone Mineral Density (BMD) by Quantitative Ultrasound method. We found that from our study Osteoporosis and Osteopenia are more prevalent in staff of Government Thiruvarur Medical College Hospital, Thiruvarur, Patient with menopause and systemic diseases are more Osteoportic and Osteopenic. This is the time to treat the high risk cases and to prevent major disability due to Osteporosis and to prevent economic burden to the affected families.

CONCLUSION

We found that Osteoporosis and Osteopenia are more prevalent in staff of Government Thiruvarur Medical College Hospital, Thiruvarur, Tamil Nadu. Prevalence is more in post menopausal Women and with systemic diseases. Affected staff were advised to take calcium and vitamin D3 tablets and advised to do physical exercise and to follow dietary habits.

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