

# Osteoporosis In Men: A Study from Jammu Region

Rajesh Sharma, Priyanka Mattoo\*

## Abstract

Osteoporosis is recognized as the disease of females; however, males are also affected and have serious consequences thereof., the present study was undertaken with the aim to study the prevalence of osteoporosis in otherwise healthy Indian males using DEXA spine and Femur. DEXA Spine of the study population suggested that 36.53% of the population was having osteopenia and only 7.69 % of the male were suffering from osteoporosis and 55.76% of the study population was normal. DEXA Femur of the study population suggested that 30.76% of the population was having osteopenia and only 3.48 % of the male were suffering from osteoporosis and 65.38 % of the study population was normal. As per age wise classification DEXA Spine and femur suggested that age more than 40 had significantly more osteopenia & osteoporosis in comparison to population with age less than 40 years. Healthy Men particularly with advancing age presented with osteopenia and osteoporosis.

## Key Word

DEXA, Osteoporosis, Osteopenia, Men, Advancing Age

## Introduction

Osteoporosis is important and growing public health problems worldwide and osteoporotic Fractures are among the main concerns of elderly population. (1-2) Osteoporosis is associated with substantial morbidity and socio-economic burden.

An early detection can help in reducing the fracture rates and overall socio-economic burden in such patients. (3) Osteoporosis is recognized as the disease of females; however, males are also affected and have serious consequences thereof. (4)

The osteoporosis has been suggested to affects 8.5 % of otherwise healthy males aged 50 years and above. (4). However, approximately 25 % of adults aged 20-49 years have been suggested to have osteopenia, a precursor condition to osteoporosis. (5)

Dual energy x-ray absorptiometry measures bone density based on differential absorption of 2 x-ray beams by bone and soft tissues. It is the gold standard for detecting and diagnosing osteoporosis, a systemic disease

characterized by low bone density and altered bone structure, resulting in low bone strength and increased risk of fractures.

DEXA is important tool in the early diagnosis of osteoporosis, so that effective preventive and therapeutic measures can be initiated at the earliest.

DEXA is useful tool for both the axial and appendicular skeleton as the detection rate of osteopenia and osteoporosis is higher with it in comparison to calcaneal quantitative ultrasound (QUS) method. (6)

There are many studies undertaken in past to study the prevalence of Osteoporosis and osteopenia in women and men using DEXA BMD scan.

However, we failed to cite any study in men except one study from this region done using USG calcareous for evaluating osteoporosis among women (3). Thus, the present study was undertaken with the aim of studying the prevalence of osteoporosis in otherwise healthy Indian males using DEXA spine and Femur

From the Deptt. of Radiodiganosis, Govt. Medical College Jammu. (J&K) & \*Stead Fast Helth Care, Pvt. Ltd, J&K-India

Correspondence to : Dr Rajesh Sharma, Assistant Professor, Department of Radiodiganosis, Government Medical College Jammu. (J&K)

**Material and Method**

The present prospective, cross sectional community based study included healthy men, coming from different parts of Jammu city over a period of one year. Total 52 men were enrolled for DEXA Spine and 26 for DEXA Femur in the current analysis. Informed consent was taken from all the subjects who participated in the present study.

Systemic diseases like renal and hepatic disorders rheumatoid arthritis, endocrine disorders like thyrotoxicosis, hyperparathyroidism, Addison's disease,

**Table.1 Demographic Profile of Males Under Evaluation**

MALE	
MEAN SD	
AGE (years)	53.3 ± 15.27
WEIGHT (kg)	76.31 ± 15.08
HEIGHT (cm)	169.9 ± 7.17
BMD (by DEXA SPINE)	1.11 ± 0.16
BMD (by DEXA FEMUR)	1.02 ± 0.15

**Table. 3. Point Prevalance of Osteopenia & Osteoporosis picked by DEXA FEMUR (n=26)**

MALE		
	n	%
NORMAL	17	65.38
OSTEOPENIA	8	30.76
OSTEOPOROSIS	1	3.48
<b>TOTAL</b>	<b>26</b>	

**Table.4. Age Wise Distribution of Osteopenic & Osteoporotic Males and Females: by DEXA SPINE (n= 52)**

AGE	MALE (52)				Statistical Evaluation Chi-square with Yates correction
	< 40 years		= 40 years		
	Number (n)	(%)	Number (n)	(%)	
NORMAL	9	17.30	20	38.46	Chi square= 4.782 ;DF=1 one-tailed P value=0.0144 Chi square=6.440;DF=1 one-tailed P value=0.0056 Chi square= 2.340 ;DF=1 one-tailed P value=0.0630
OSTEOPENIA	4	7.69	15	28.84	
OSTEOPOROSIS	0	0	4	7.69	
<b>TOTAL</b>	<b>13</b>		<b>39</b>		

cushing syndrome and prolonged immobilization and women with oophorectomy were excluded from the study. Men on long term medication affecting the bone turnover (steroids, heparin, warfarin, thyroxine, hydrocortisone, phenytoin sodium, hormone replacement) were also strictly excluded

The bone mineral density was measured by DEXA Scan at Spine and Femur and T-scores were calculated

based on WHO criteria (7) T-score (Ratio between patients BMD and that of young adult population of same sex and ethnicity). T-score of >-1 was taken as normal, between -1 to -2.5 osteopenic and <-2.5 as osteoporosis. T-score was also utilized to find out the incidence and age wise trend of osteopenia and osteoporosis in present study.

DEXA Scan (GE) model No. Lunar DPX-NT was used for the analysis of the current study.

**Results**

The results of the current study suggested that the

**Table2. Point Prevalance of Osteopenia & Osteoporosis picked by DEXA SPINE (n=52)**

MALE		
	n	%
NORMAL	29	55.76
OSTEOPENIA	19	36.53
OSTEOPOROSIS	4	7.69
<b>TOTAL</b>	<b>52</b>	

mean age of the study population was 53.3 ± 15.27 with mean weight as 76.31 ± 15.08 and Height as 169.9 ± 7.17. The mean BMD by DEXA Spine was 1.11 ± 0.16 and of Femur was 1.02 ± 0.15. (Table.1)

DEXA Spine of the study population suggested that 36.53% of the population was osteopenic and only 7.69 % of the male were suffering from osteoporosis and 55.76% of the study population was normal. (Table-2)

DEXA Femur of the study population suggested that 30.76% of the population was osteopenic and only 3.48 % of the male were suffering from osteoporosis and 65.38 % of the study population was normal. (Table-3)

As per age wise classification, DEXA Spine and femur suggested that age more than 40 had significantly more osteopenia & osteoporosis in comparison to population

**Table.5 Age Wise Distribution of Osteopenic & Osteoporotic Males and Females: by DEXA Femur (n= 26)**

AGE	MALE (26)				Statistical Evaluation
	< 40 years		= 40 years		
	Number (n)	(%)	Number (n)	(%)	
NORMAL	3	11.53	13	50	Chi-square with Yates correction Chi square= 7.313 ;DF=1 one-tailed P value =0.0034 Chi square= 2.150;DF=1 one-tailed P value = 0.0713 Chi square= 1.020;DF=1 one-tailed P value = 0.1563
OSTEOPENIA	2	7.69	7	26.92	
OSTEOPOROSIS	0	0	1	3.84	
TOTAL	5		21		

with age less than 40. (Table-4 & 5)

### Discussion

The results of the current study depicted 30.76% & 36.53% of osteopenia among healthy male population and only 3.48% to 7.69% of the male population was found affected by osteoporosis at femur and spine respectively. The results are in accordance to the study of Al Attia H, 2007 (5), Agrawal NK, 2013 (4) and Marwaha RK, 2011

Thirty-five patients (49%) had osteopenia, 16 (22.5%) had osteoporosis, and 20 (28%) were normal in the study of Al Attia H, 2007 (5)

The osteoporosis and osteopenia were more prevalent when BMD was evaluated at neck of femur (osteoporosis 8.5 vs 8 % at trochanter and 7.5 % at total right hip; osteopenia 42 vs 37 % at trochanter and 41 % at total right hip). The BMD deteriorated with age. The osteoporosis affects 8.5 % of otherwise healthy males aged 50 years in the study of Agrawal NK, 2013 (4)

Marwaha RK, 2011 in their study suggested a high prevalence of osteoporosis in elderly Indian subjects . Osteoporosis was present in 35.1% subjects (M-24.6%, F-42.5%) and osteopenia in 49.5% (M-54.3%, F-44.9%). Prevalence of osteoporosis increased with age in females, but not in males.

The results of the current study clearly suggest that although Osteoporosis is recognized as the disease of females; however, males are also affected and can have serious health consequences thereof. Thus, these findings

highlight the need for osteoporosis detection and prevention efforts in men.

### Conclusion

Healthy Men particularly with advancing age present substantially with osteopenia and osteoporosis and equally need attention of Health care providers.

### Reference

1. Rossener S. Obesity: the disease of the twenty-first century. *Int J Obesity & Related Meta Disorders* 2002; 26: S2-S4.
2. Hu FB. Overweight and obesity in women: health risks and consequences. *J Women's Health* 2003; 12(2): 163-172.
3. Sharma S, Tandon VR, Mahajan A, Kour A, Kumar D. Preliminary screening of osteoporosis and osteopenia in urban women from Jammu using calcaneal QUS. *Indian J Med Sci* 2006;60(5):183-89.
4. Agrawal NK, Sharma B. Prevalence of osteoporosis in otherwise healthy Indian males aged 50 years and above. *Arch Osteoporos* 2013;8:116.
5. Al Attia H, Adams B. Osteoporosis in men: are we referring enough for DXA and how? *Clin Rheumatol* 2007 ;26(7):1123-26.
6. Syed Z, Khan A. Bone densitometry: applications and limitations. *J Obstet Gynaecol Can* 2002;24:476-84.
7. Kanis JA. Assessment of fracture risk and its application to screening for postmenopausal osteoporosis: synopsis of a WHO report. WHO Study Group. *Osteoporos Int* 1994;4:368-81.