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PREVALENCE OF OSTEOPENIA IN FEMALE RESIDENTS OF PUNJAB MEDICAL COLLEGE HOSTELS

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Abstract:
Objective: The research aimed to find out the prevalence of osteopenia in females living in the hostel of Punjab Medical College. Our aim is also to compare the bone destiny in them during they stay in the hostel.
Research Design: Cross-sectional study
Placement and Duration of the study: This study held in Liaqat Hall and Fatima Hall of Punjab Medical College Hostels, Faisalabad from June 2014 to August 2014.
Materials and Methods: Inclusion criteria were female students of any class of MBBS residing in Punjab Medical College Hostels, while students on steroid therapy were excluded. Data was collected by us on predesigned questionnaires. Names, age, class, home town and ethnicity of all participants were noted. BMD was tested using calcaneal quantitative ultrasound (osteo Sys Sonost 3000 Ac10B1110271). No amount was charged from any person, as per cost of machine or test. Data was entered into SSPS version 13. Descriptive statistics were applied and results were presented using tables. Means with standard deviation were calculated for continuous variables, while frequencies were calculated for categorical variables. Chi square test was used to compare various groups. Results were considered significant if p value was < 0.05.
Conclusion: Majority of our young female population has osteopenia. Steps should be taken to address this problem at an earlier age so as to prevent its complications in later life.
Keywords: *Osteopenia, Females, Postmenopausal women, T-score, BMD*

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INTRODUCTION:

Osteopenia is a condition in which bone mineral density is lower than normal. It is considered by many doctors to be a precursor to osteoporosis. However, not every person diagnosed with osteopenia will develop osteoporosis. More specifically, osteopenia is defined as a bone mineral density T-score between -1.0 and -2.5 [1]. Osteopenia was defined in June 1992 by the World Health Organization. , a group of experts decided that condition would mean a bone density that was one standard deviation below that of an average 30-year-old white woman. The group also defined osteoporosis as bone density 2.5 standard deviations or more below that [2]. Previously it had been used only in cases where elderly patients had fractured or broken a bone. An osteoporosis epidemiologist at the Mayo Clinic who participated in setting the criteria said "It was just meant to indicate the emergence of a problem," and noted that "It didn't have any particular diagnostic or therapeutic significance [3]. It was just meant to show a huge group who looked like they might be at risk." Like osteoporosis, osteopenia occurs more frequently in post-menopausal women as a result of the loss of estrogen. It can also be exacerbated by lifestyle factors such as lack of exercise, excess consumption of alcohol, smoking or prolonged use of glucocorticoid medications. It can also be a result of exposure to radiation [4]. Osteopenia occurs more frequently in participants in non-weight-bearing sports like bicycling or swimming than in participants in weight-bearing sports like running, since bone-loading exercise tends to protect or possibly increase bone mineral density. In particular, the condition is often noted in young female athletes. It is one of the three major components of female athlete triad syndrome, along with amenorrhea and disordered eating. Female athletes tend to have lower body weight, lower fat percentage, and higher incidence of asthma than their less active peers.

A chronic negative energy balance can suppress estrogen levels and decrease bone mineral density [5]. It is also a sign of normal aging, in contrast to osteoporosis which is present in pathologic aging. Osteopenia is also a common effect of coeliac disease, even among patients who are otherwise asymptotic people [6]. The treatment of osteopenia is controversial. Currently, candidates for therapy include those at the highest risk of osteoporotic bone fracture based on bone mineral density and clinical risk factors. Recommendations from the National Osteoporosis Foundation (NOF) are based on risk assessments from the World Health Organization (WHO) Fracture Risk Assessment Tool (FRAX).

METHOD AND MATERIAL:

The research design researcher used in this research was cross-sectional study. Research main focused is on females. As a sample researcher surveyed 220 of the females. The sampling unit is the female living in the Punjab Medical College Hostel. Whereas the sampling techniques researcher used in this research was non-probability Sampling and convenient sampling. The method. Researcher placed the stall in the Liaqat Hall and Fatima Hall of Punjab Medical College Hostels, and females visited them. Those who consented were included in the study. Close ended Questionnaire which was pretested and self-administered. Inclusion criteria were female students of any class of MBBS residing in Punjab Medical College Hostels, while students on steroid therapy were excluded. Data was collected by us on predesigned questionnaires. Names, age, class, home town and ethnicity of all participants were noted. BMD was tested using calcaneal quantitative ultrasound (osteo Sys Sonost 3000 Ac10B1110271). No amount was charged from any person, as per cost of machine or test. The whole duration for collecting sample was from June 2014 to August 2014.

RESULTS:

FREQUENCY TABLE

T score – group

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid <= -2.5	81	38.2	38.2	38.2
-2.4 - -1.0	123	58.0	58.0	96.2
-0.9+	8	3.8	3.8	100.0
Total	212	100.0	100.0	

Duration of stay in hostel

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid < 6 months	41	19.3	19.3	19.3
1 year	6	2.8	2.8	22.2
2 years	28	13.2	13.2	35.4
3 years	31	14.6	14.6	50.0
4 years	66	31.1	31.1	81.1
5 years	40	18.8	18.8	100.0
Total	212	100.0	100.0	

This table shows that from how long participants living in the hostel

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std.
	Statistic	Statistic	Statistic	Statistic	Std. Error	Deviation Statistic
T score	212	-4.6	1.7	-2.208	.0600	.8735
T score (%)	212	17.0	108.3	60.094	1.0266	14.9470
Age (years)	212	18	25	21.36	.118	1.713
Body Mass index (BMI)	212	14.53	55.00	20.9004	.26057	3.79394
Valid N (list wise)	212					

DISCUSSION:

A total of 220 students were included in study with a mean age of 22 + 2 years. Of these, 70 were < 20 years , 80 were from between 21 & 22 years and 62 were 22 above.41 students were residing in hostel for <6 months ,6 for 1 year ,28 for 2 years ,31 for 3 years ,66 for 4 years and 40 for 5 years. Frequency of decreased BMD was 17 % in students residing for <6 months ,3.3% in students residing for 1 year ,8.1 % in students residing for 2 years , 14.6% in students residing for 3 years, 35% in students residing for 4 years and 21.1% in students residing for 5 years. We have found a high frequency of reduced BMD in all age groups studied. In particular, osteopenia was found in 56% of women < 30 years and in 54% of women < 45 years as compared to 47% in women > 45 years of age. Higher frequency of osteopenia in the present younger population signifies that they are at a greater risk of developing osteoporosis in later life. The modern family trends towards consumption of fast food and carbonated beverages and sedentary living due to greater hours spent indoors with computers and television could be responsible. The National Osteoporosis Risk Assessment Study (NORA) showed that the risk of osteoporosis was 1.56 times greater for Asian women as compared to Caucasian women.

CONCLUSION:

Majority of our young female population has osteopenia. Steps should be taken to address this problem at an earlier age so as to prevent its complications in later life.

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