Osteoporotic fracture risk in menopausal women with obesity

Popovic-Pejicic Snjezana[1], AksenticVera[2]

1.Center for diabetes et endocrinology , University hospital , Clinical center, Banja Luka ,Republic of Srpska , Bosnia and Herzegovina
2. Institute for Physical Medicine and rehabilitation „Dr Miroslav Zotović „ Banja Luka, Republic of Srpska , Bosnia and Herzegovina

Introduction and objectives

Osteoporosis is a metabolic disease that is characterised by low mineral bone density (BMD) and increased risk of fractures . Wight loss reduced BMD and increased risk of hip fractures ,while it reduces in a weight gain. Osteoporosis fracture risk and body mass index (BMI) correlate more frequently denied in recent studies. The aim of this study was to examine relationship between BMI and BMD in a group of postmenopausal women .

Material and Methods

The study involved 100 postmenopusal women ,aged 46 to 70 years (59,08 6,07). BMD was determined by DXA method (dual energy X-ray absorptiometry) by Lunar Prodigy Advance Unit.BMD was measured at lumbal spine and both hips . BMI values were correlated with total T score values of the lumbal spine and both hips ,as well as total T score values of spine and hip.

Results

	Age	Height	Weight	BMI
Mean value	59.08	161.29	73.64	28.27
Standard deviation	6.07	6.11	11.98	4.12
Minimal	46	147	52	21.08
Maximal	70	173	119	42.67

Table 1. Basic anthropometric parameters

	Spine t_score	hip t_score
Mean values	-2.19	-1.11
Standard deviation	1.25	0.95
Minimal	-5.5	-3.7
Maximal	1.8	1.7

Table 2. Measured values BMD of Spine and Hip
Median lumbal spine T score was -2,19 SD ±1,25 ,and hip T score -1,11 SD ±0,95 .

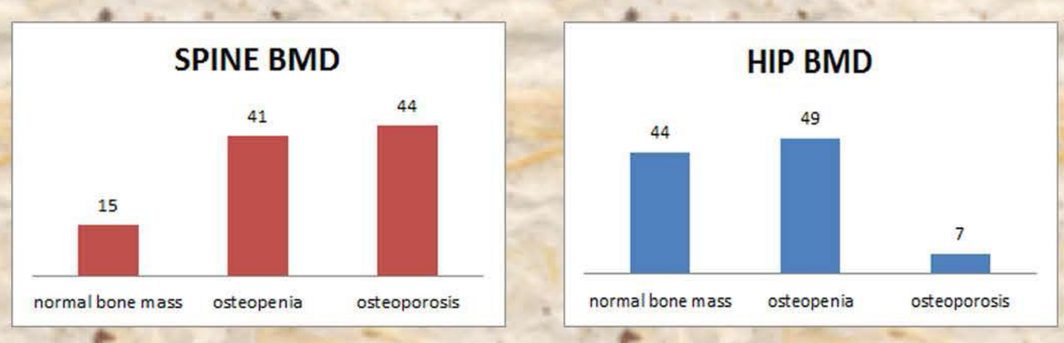

Figure 2. Classification of subjects respondent to BMD of Spine and Hip

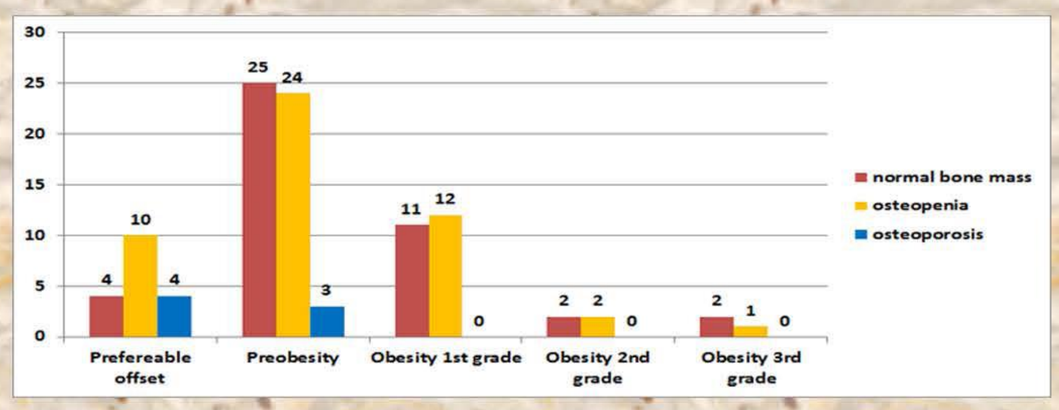

Figure 3. Comparative review BMI and hip BMD of subjects (Correlation significans p<0.01)

	No	Percentage %	Cumulative percentage
Prefereable offset	18	18.0	18.0
Preobesity	52	52.0	70.0
Obesity 1st grade	23	23.0	93.0
Obesity 2nd grade	4	4.0	100.0
Obesity 3rd grade	3	3.0	

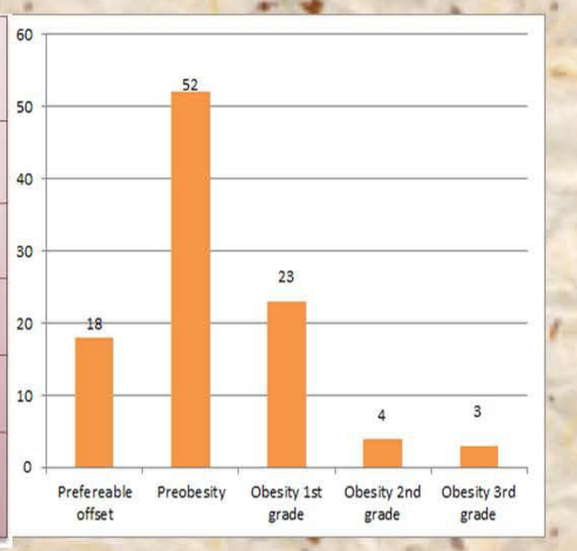

Table 3. Figure 1. Classification of subjects respondent to BMI
Results have shown that BMI was normal in 18 % subjects ,1 st grade obesity was faund in 52 % ,2 nd grade obesity in 23 % ,3 rd grade obesity in 7 % of subjects . Median BMI value was found in 28,27 ±4,12.

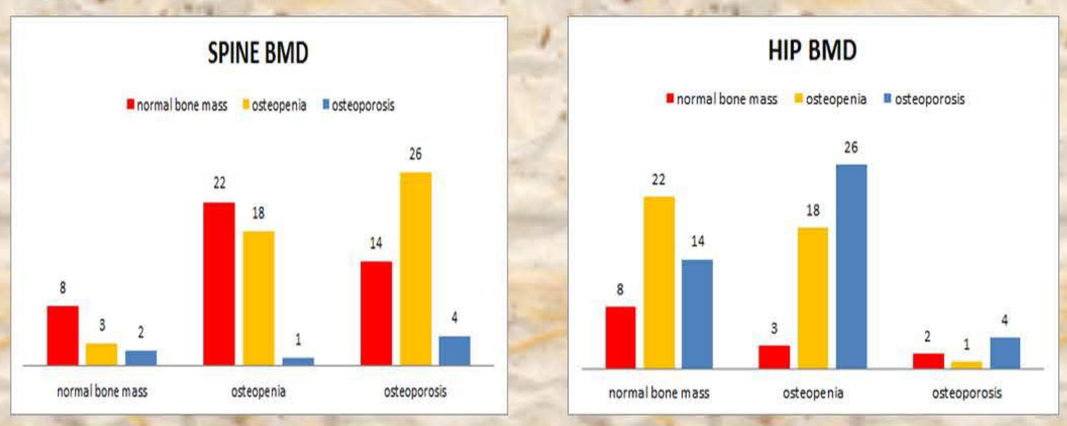

Figure 4. Classification of subjects respondent to BMD of Spine and Hip
A statisticaly significant positive correlation was found between BMI and BMD of hip (r =0.01),whereas between BMI and BMD of lumbal spine there was no.There was ,statisticaly significant correlation (r =0.01) betwen BMD values of lumbal spine and hip

Conclusion

In postmenopausal women BMI is more important predictor of hip BMD ,as compared to spine BMD .
BMD of hip is increased with increase of BMI in postmenopausal women ,what indicates that incidence of fracture of the hip decrease in women with obesity.
A lack of correlation betwen BMI and BMD of spine might be due to predominant effect of lack of estrogen and faster bone metabolisam in spinal region ..

Literature

1.Campstone JE et al .Obesity Is Not Protective against Fracture in Postmenopausal Women :GLOW .Am J Med , 2011;124(11): 1043-50.
2.Management of osteoporosis in postmenopausal women :2010 position statement of The North American Menopuse Society.Menopause 2010;17:25
3.Berkvist D et al.Surg Obes Relat Dis,2009 ;5 :670-672
4,Nielson CM et al.JBMR,2011:26(3):496-502
5.Johnell O,Kanis JA. An estimate of the worldwide prevalence and disability associated with osteoporotic fractures. Osteoporos Int. 2006;17(12):1726.
6.Rosen CJ.Clinical parctise.Postmenopausal osteoporosis .N Engl J Med 2005;353:595
7.Wenggreen HJ ,Munger RG,West NAet al.Dietary protein intake and risk of osteoporotic hip fracture in elderly residens of Utah.J Bone Miner Res 2004;19:537
8.Hannan MT, Tucker KL ,Dawson -Huges B , et al.Effect of dietary protein on bone loss in elderly men and women :The Framingham Osteoporosis Study .J Bone Miner Res 2000;15:2504
9.Eiff MP, Hatch RL. Fracutre Management for Primary Care, 3rd, Elsevier Saunders, Philadelphia 2012. p.26.
10.Macmahon P, Eustace SJ. General principles. Semin Musculoskelet Radiol 2006; 10:243.
11.Buckwalter JA, Glimcher MJ, Cooper RR, Recker R. Bone biology. I: Structure, blood supply, cells, matrix, and mineralization. Instr Course Lect 1996; 45:371.

17 ECE
266--EP
Calcium, vitamin D and bone
snjezana pejicic
DOI: 10.3252/pso.eu.17ece.2015
Poster presented at: ECE2015 16-20 May 2015 DUBLIN, IRELAND 17th EUROPEAN CONGRESS OF ENDOCRINOLOGY
PosterSessionOnline.com