Socio Demographic Factors Associated with Osteoporosis among Female in Baghdad

Buthaina Ateyah Rashid (MSc)[1]

Abstract

Background: Osteoporosis is defined as disease in which the density and quality of bone are reduced, leading to weakness of the skeleton and increased risk of fracture, particularly of the spine, wrist, hip, pelvis, and upper arm.

Objectives: To find out association of risk factors of osteoporosis and bone mineral density of lumbar spine.

Patients and methods: A convenient sample consisted of 150 women were interviewed with special questionnaire in Medical city in Baghdad of not random sample.

Results: The results showed that the highest percent of osteoporosis at age group (55-64) years because the aging process leaded to loss of mass and weakening bone.

The study presents that cases that have previous family history appeared to be a great risk to develop osteoporosis.

Also the result of study showed that most of cases that were not exposing to sun light, low physical activity, always drinking tea and /or coffee, inadequate intake of calcium and vitamin D indicate to have osteopenia or osteoporosis.

Conclusion: Female at older age group has greater risk of osteoporosis. Female having past family history of osteoporosis is at high risk of osteoporosis. Inadequate intake of calcium, vitamin D increases the risk of osteoporosis. Drinking (tea, coffee, soft drinks) increase the risk of osteoporosis. Osteoporosis was highly associated with low physical activity.

Keywords: Osteoporosis, vitamin D, Socio Demographic Factors.

[1] College of Health and Medical Technology - Baghdad University - Baghdad - Iraq.

Introduction

Osteoporosis is defined as disease in which the density and quality of bone are reduced, leading to weakness of the skeleton and increased risk of fracture, particularly of the spine, wrist, hip, pelvis, and upper arm [1]. Osteoporosis, often referred to as "The Silent Disease", is a painless weakening of the bones that allows bones to fracture and break more easily. The disease can continue to progress until even a slight twisting or bending motion can cause bones to fracture and break [2].

The burdens of fractures are increasing in direct correlation with life expectancy, this increase is greater in undeveloped counties [3].

Bone loss is a serious issue for women who are approaching menopause because a dramatic reduction in bone density can lead to osteoporosis serious fractures may require hospitalization and major surgery [4].

Adequate dietary calcium intake and regular physical activity maximizes the development of peak bone mass throughout the adolescent and young adult growth period. Prevention of osteoporosis should begin in adolescence and continue throughout adulthood, such as intake high calcium diet and exercise, have been very effective in preventing osteoporosis [5].

Although osteoporosis is generally considered a disease among older individuals, osteoporosis manifests itself early in life, taking years to develop. Throughout life, bone tissue is constantly add and removed in the process of bone remodeling. In the first three decades of life, bone formation occurs more rapidly than does bone restoration, allowing attainment of peak bone mass [4].

It is well documented that bone mass declines throughout adult life; thus most of the intervention strategies in adults and older adults are directed at reducing the rate of bone loss [6].

The less bone that it lost with aging, the lower the risk of osteoporosis in later life. However, it is also thought that an equally, if not more important factor in affecting adult bone health, is the maximum amount of bone mass or peak bone mass, (PBM) that occurs by early adulthood [7].

That is, optimizing the attainment of PBM during childhood and adolescence and the resulting increase in bone strength may reduce the risk of osteoporosis in later life [8].

The aim of the study is to find out association of risk factors of osteoporosis and bone mineral density of lumber spine.

Patients and Methods

This study was carried out during period from 1st July 2013 to 1st May 2014.The place where data collected is Medical city in Baghdad. A convenient sample of 150 women.

Data collection: Data taken from the patient by direct interview. A special questionnaire was designed to including information such as age, Social status, height(m),weight (kg),number of pregnancies, smoking, medication, drinking of soft drink, tea and coffee , milk, eating milk products, red meat, fruits, vegetables, exposure to sunlight.

Statistical analysis: Statistical was that descriptive frequency percentage, chi-square to find any association between variables.

Result

Table (1) shows that the highest percent (16.7%) were in age (55-64) having Osteoporosis but the lowest percent (2%) in age >= 65 having Osteopenia and normal bone. Diagnosis made by DXA (dual energy X-ray absorpiometry) examination measuring bone mineral density of lumbar spine and both femoral neck practice of regular execises**.

Table (1): Distribution of cases according to age group and Body mineral density.

Age		Result of (BMD)						Total	
		Osteoporosis		Osteopenia		Normal			
		No	%	No	%	No	%	No	%
	< 35	4	2.7	5	3.3	9	6	18	12
	35 - 44	4	2.7	7	4.7	6	4	17	11.3
	45 - 54	16	10.7	11	7.3	17	11.3	44	29.3
	55 - 64	25	16.7	15	10	10	6.7	50	33.3
	>= 65	15	10	3	2	3	2	21	14
Total		64	42.7	41	27.3	45	30.0	150	100

P < 0.01 (HS)

Table (2) shows that the highest percent (18.7%) were in Obesity having Osteoporosis but the lowest percent (1.3%) were in Normal weight and Underweight having Normal bone.

Table (2): Distribution of cases according to body mass index and body mineral densit)

BMI	Result of (BMD)						Total	
	Osteoporosis		Osteopenia		Normal			
	No	%	No	%	No	%	No	%
Under weight(< 18.5)	1	7	1	7	2	1.3	4	2.7
Normal weight (18.5- 24.9)	18	12	9	6	2	1.3	29	19.3
Over weight(25 - 29.9)	17	11.3	15	10	12	8	44	29.3
Obesity (>= 30)	28	18.7	16	10.7	29	19.3	73	48.7
Total	64	42.7	41	27.3	45	30	150	100

P> 0.05 (NS)

According to table (3) shows that the highest percent (38%) were non-smoker and having Osteoporosis but the lowest percent (2.7%) in smoker and having Normal bone.

Table (3): Distribution of cases according to Smoking and body mineral density.

Result of (BMD)	Smoking				Total	
	Yes		No			
	No	%	No	%	No	%
Osteoporosis	7	4.7	57	38	64	42.7
Osteopenia	5	3.3	36	24	41	27.3
Normal	4	2.7	41	27.3	45	30
Total	16	10.7	134	89.3	150	100

MCP> 0.05 (NS)

Table (4) shows that the highest percent (23.3%) were having Family history of Osteoporosis and Osteoporosis but the lowest percent (11.3%) in Non family history of Osteoporosis and having Osteopenia and Normal bone.

Table (4): Distribution of cases according to Family history and body mineral density.

Result of (BMD)	Family History				Total	
	Yes		No			
	No	%	No	%	No	%
Osteoporosis	35	23.3	29	19.3	64	42.7
Osteopenia	24	16	17	11.3	41	27.3
Normal	28	18.7	17	11.3	45	30
Total	87	58	63	42	150	100

$X^2= 12.62$ **P<0.05 (S)**

Table (5) shows that the highest percent (30%) were always eating food rich with vitamins and minerals (Fruit and vegetables) and having Normal bone, but the lowest

percent (1.3%) were never eating food contain calcium and minerals (Fruit and vegetables) and having Normal bone, (1.3%) were always eating food contain fat and having osteopenia, (1.3%) were never eating red meat and having normal bone.

Table (5): Distribution of cases according to Food habits and body mineral density**.**

Food habits		Result of (BMD)						Total		Test of sig.
		Osteoporosis		Osteopenia		Normal				
		No	%	No	%	No	%	No	%	
Eating food contain calcium	Always	33	22	29	19.3	33	25.3	100	66.7	MCP<0.05 (S)
	Sometimes	12	8	12	8	24	16	48	32	
	Never	-	-	-	-	2	1.3	2	1.3	
	Total	45	30	41	27.3	64	42.7	150	100	
Eating food contain fat	Always	7	4.7	2	1.3	3	2	12	8	MCP <0.05 (NS)
	Sometimes	31	20.7	27	18	27	18	85	56.7	
	Never	26	17.3	12	8	15	10	53	35.3	
	Total	64	42.7	41	27.3	45	30	150	100.0	
Eating food rich with vitamins and minerals	Always	36	24	31	20.7	45	30	112	74.7	MCP<0.05 (S)
	Sometimes	9	6	10	6.7	17	11.3	36	24	
	Never	-	-	-	-	2	1.3	2	1.3	
	Total	45	30	41	27.3	64	42.7	150	100	
Eating red meat	Always	15	10	9	6	10	6.7	34	22.7	MCP <0.05 (NS)
	Sometimes	42	28	26	17.3	33	22	101	67.3	
	Never	7	4.7	6	4	2	1.3	15	10	
	Total	64	42.7	41	27.3	45	30	150	100	

Table (6) shows that the highest percent (34%) were always drinking tea and/or coffee and having Osteoporosis the lowest percent (2.7%) were Never Drinking tea and/or coffee and having Normal bone.

Table (6): Distribution of cases according to Drinking habits and body mineral density.

Drinking habits		Result of (BMD)						Total		Test of sig.
		Osteoporosis		Osteopenia		Normal				
		No	%	No	%	No	%	No	%	
Drinking soft drinks	Always	19	12.7	14	9.3	8	5.3	41	27.3	X^2 =5.4 P>0.05 (NS)
	Sometimes	30	20	20	13.3	21	14.0	71	47.3	
	Never	15	10	7	4.7	16	10.7	38	25.3	
	Total	64	42.7	41	27.3	45	30	150	100	
Drinking coffee، tea	Always	51	34	35	23.3	32	21.3	118	78.7	X^2=12.897 P< 0.05 (S)
	Sometimes	13	8.7	6	4	9	6	28	18.7	
	Never	-	-	-	-	4	2.7	4	2.7	
	Total	64	42.7	41	27.3	45	30	150	100	
Drinking milk	Always	11	7.3	7	4.7	13	8.7	31	20.7	X^2 =3.06 P>0.05 (NS)
	Sometimes	22	14.7	13	8.7	11	7.3	46	30.7	
	Never	31	20.7	21	14	21	14	73	48.7	
	Total	64	42.7	41	27.3	45	30	150	100	

Table (7) shows that the highest percent (32%) were never playing exercise and having Osteoporosis, but the lowest percent (1.3%) were never Exposure to sun light and having osteopenia, (1.3%) were always follow weight loss program and having osteopenia.

Table (7): Distribution of cases according to Personal behaviors and body mineral density.

Personal behaviors		Result of (BMD)						Total		Test of sig.
		Osteoporosis		osteopenia		normal				
		No	%	No	%	No	%	No	%	
Exposure to sun light at least 15 mints per day	Always	14	9.3	19	12.7	24	16.0	57	38.0	MCP<0.001 (HS)
	Sometimes	46	30.7	20	13.3	20	13.3	86	57.3	
	Never	4	2.7	2	1.3	1	.7	7	4.7	
	Total	64	42.7	41	27.3	45	30.0	150	100.0	
Follow weight loss program	Always	6	4.0	2	1.3	3	2.0	11	7.3	MCP> 0.05 (NS)
	Sometimes	11	7.3	13	8.7	17	11.3	41	27.3	
	Never	47	31.3	26	17.3	25	16.7	98	65.3	
	Total	64	42.7	41	27.3	45	30.0	150	100.0	
Walking for at least half an hour daily	Always	13	8.7	10	6.7	12	8.0	35	23.3	MCP> 0.05 (NS)
	Sometimes	42	28.0	30	20.0	29	19.3	101	67.3	
	Never	9	6.0	1	.7	4	2.7	14	9.3	
	Total	64	42.7	41	27.3	45	30.0	150	100.0	
Playing exercise	Always	6	4.0	3	2.0	0	.0	9	6.0	MCP<0.05 (S)
	Sometimes	10	6.7	12	8.0	17	11.3	39	26.0	
	Never	48	32.0	26	17.3	28	18.7	102	68.0	
	Total	64	42.7	41	27.3	45	30.0	150	100.0	
Climbing stairs	Always	11	7.3	10	6.7	9	6.0	30	20.0	MCP> 0.05 (NS)
	Sometimes	31	20.7	21	14.0	25	16.7	77	51.3	
	Never	22	14.7	10	6.7	11	7.3	43	28.7	
	Total	64	42.7	41	27.3	45	30.0	150	100.0	
Doing daily home activities	Always	17	11.3	16	10.7	17	11.3	50	33.3	MCP> 0.05 (NS)
	Sometimes	18	12.0	15	10.0	16	10.7	49	32.7	
	Never	29	19.3	10	6.7	12	8.0	51	34.0	
	Total	64	42.7	41	27.3	45	30.0	150	100.0	

Discussion

This study presents interpretation and discussion of findings with supportive evidence. From the result of study we found that (16.7%) of study sample at age group (55- 64) years indicate to have osteoporosis. This result agree with result found by Denise Al-rahawi (2008), who found that female indicate osteoporosis at age group (>55) years [8, 9]. This is because the aging process lead to loss of mass and weaking bone.

It is found that (18.7%) of female are obese indicate to have osteoporosis .This result differs with the result found by Romana *et al*., (2007), who found the majority of osteoporosis were normal BMI [10,11], this disagreement due to the different

of social factors and culture and health awareness of people.

Relative to smoking the finding of study indicated that insignificant association was found between smoking and osteoporosis. This is agreement with finding of Mai in Palestine, (2013) and Maghraoui *et al.* (2010) in Morocco-Rabat, they find that no association between smoking and osteoporosis [12, 14].

There was significant relationship between family history of osteoporosis and osteoporosis. This is agreement with Shin *et al.* (2004), who find that high significant between family history of osteoporosis and osteoporosis. This is because bone and muscles share similar growth factors [15, 17].

The majority of study sample (30%) have normal bone because they always practice healthy food habits(eating food rich with vitamins and minerals).This is agree with Ailing *et al*, (2010), who provide that inadequate intake of calcium and vitamin D cause osteoporosis in Morocco [18].

The result show that about (34%) of study sample always drinking tea and /or coffee indicated to having osteoporosis which is agree with the result found by Kristin *et al.* (2003), who found that high intake of caffeine increase risk of osteoporosis in Norway [19].

Finally result show that (32%) were never playing exercise indicated to have osteoporosis that was provide by Sharami *et al.*,(2008), who found that low physical activity indicate to have osteoporosis in Iran [17-19].

In conclusion, female at older age group have greater risk of osteoporosis. Female having past family history of osteoporosis is at high risk of osteoporosis. Inadequate intake of calcium, vitamin D increases the risk of osteoporosis. Drinking (tea, coffee, soft drinks) increase the risk of osteoporosis. Osteoporosis was highly associated with low physical activity.

Deepening on early stated conclusions, the present study recommends that, Practice a healthy and varied diet with adequate calcium and vitamin D intake, Educate people especially female about the risk of osteoporosis and the complication resulting from it through the application of prevention program. Controlling caffeine intake. Leading an active lifestyle including regular practice of physical activity.Sun exposure especially for those with limited activity.

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