FACTORS LEADING TO OSTEOPROSIS AMONG MENOPAUSAL WOMEN

Prof. Sanaa Ali Nour; Dr. Amina Saad Gonied; Dr. Seham Shehata Ibrahim; Fatma Zaky Mohamed Farahat

Professor of Maternal and Newborn Health Nursing, Faculty of Nursing, Zagazig University; Assist. Prof and Head of Obstetrical and Gynecological Health Nursing Department, Faculty of Nursing, Zagazig University; Lecturer of Maternity, Gynecology & Obstetrics Nursing, Faculty of Nursing, Port Said University; Assistant Lecturer in Obst/Gyne Nursing, Faculty of Nursing, Port Said University.

ABSTRACT

Objectives: The aim of this study was to identify the factors leading to osteoporosis among menopausal women. **Subject and Methods:** The study was carried out in the rheumatic and rehabilitation outpatients' clinic at Mansoura University Hospital using a cross section analytical design. The subjects of the study were 400 menopausal women attending the rheumatic and rehabilitation outpatients' clinic at Mansoura University Hospital setting and being diagnosed as positive or negative for osteoporosis. Data were collected using three tools devised specifically for the study. **Results**: The results revealed that the osteoporosis was found in more than half of studied women (58.45%) of the women while, 41.15 % of women were not exposed to osteoporosis, the majority (93.7%) of the osteoporotic group had a history of chronic diseases compared to 77.3% of the control group. **Conclusion**: Many risk factors were associated with osteoporosis. Some of these factors were related to un-modifiable factors as (increases women age, associated medical conditions, family history of osteoporosis,….) , while the others were related to modifiable factors (abnormal body mass index in the form of overweight, morbid obesity, unhealthy dietary habits, unhealthy lifestyles,….) **Recommendations:** Early screening of menopausal women is recommended using DXA to help in the early detection of the disease, increasing women awareness about osteoporosis and its effect on women quality of life and upgrading their knowledge about the possible ways of its prevention and treatment.

Key Words: *Risk factors, osteoporosis, menopausal women.*

INTRODUCTION

Osteoporosis is a major global public health problem and an important metabolic bone disease associated with significant morbidity, mortality, and socioeconomic burden. It is defined as a skeletal disorder characterized by a decrease in bone mass and density, leading to an increased risk of fragility fractures. The greatest bone loss occurs in women during peri-menopause and is associated with estrogen insufficiency, a condition of menopause ***(Neelam et al., 2011)***.

According to National Health and Nutrition Examination survey (NHANES III), an estimated 14 million American women over age 50 years are affected by low density at the hip. The prevalence of osteoporosis increases with age for all sites, and by World Health Organization (WHO) definition, up to 70% of women over the age 80 years have osteoporosis ***(Melton, 1995)***

Osteoporosis occurs when bone mass diminishes and bones become fragile and susceptible to fracture ***(Downey & Siege, 2006).*** The most common fractures associated with osteoporosis are fractures of the hip, vertebrae, and distal radius (Colles' fracture). It is also estimated that the number of hip fractures will increase worldwide to almost fourfold from 1990 to 2050 due to increased life expectancy ***(Gannage et al., 2000)***.

Risk factors of osteoporosis in postmenopausal women are classified into; un-modifiable risk factors as (advanced age, menopause, white race, low body weight, menstrual factors, hereditary factors, chronic diseases and organ transplantation) and potentially modifiable risk factors as; hyperparathyroidism, hyperthyroidism, diabetes Mellitus, Hyperprolactinemia, nutritional status, lifestyle and medications ***(Huang & Kung, 2006).***

Measuring bone mineral density (BMD) is the most important tool in the diagnosis of osteoporosis. The gold standard for measuring BMD is the dual-energy X-ray absorptiometry densitometer, a specialized X-ray device that precisely quantifies BMD at the spine, femur, and other skeletal sites.

Dual-energy X-ray absorptiometry (DEXA) scans are noninvasive and comfortable for the patient, with very low radiation requiring only 10 minutes for the entire examination. With the onset of menopause, rapid bone loss occurs which is believed to

average approximately 2–3% over the following 5–10 years, being greatest in the early postmenopausal years ***(Keam & Plosker, 2004).***

AIM OF STUDY:

The aim of this study is to identify risk factors associated with the occurrence of osteoporosis among menopausal women.

SUBJECT AND METHODS:

Research Design:

A cross section analytical design.

Setting:

The study was conducted in Rheumatic and Rehabilitation Outpatient Clinic of Mansoura University Hospital in Mansoura City.

Sample:

The subjects of the study were 400 menopausal women attending the rheumatic and rehabilitation outpatients' clinic at Mansoura University Hospital and being diagnosed as positive or negative for osteoporosis, Women were eligible for recruitment in the study if they met the following inclusion criteria: Age: 40 to 60 years, different social class, rural and urban residence and accept to participate in the study.

Tools of data collection:

Data were collected using three tools devised specifically for the study these tools include the following.

- ***Structured interview sheet:*** It has included the following sections:

- Socio-demographic data.
- Medical history of chronic diseases.
- Family history of osteoporosis.
- Past menstrual, obstetrical and gynecological history.
- Orthopedic history including past history of fractures.
- Dietary habits and Women life style.
- Medications received and prescribed by the physician

- ***Estimation of body mass index sheet*:**

BMI = 18.5-24.9 kg/m² (healthy weight)

= 25-29.9 kg/m² (over weight)

≥ 30 kg/m² (obese)

≥ 40 kg/m² (morbidity obese)

- ***Estimation of bone density sheet:***

It was done by the technician through dual energy X-ray absorptiometry (DXA) which is present at the hospital.

Tools Validity and Reliability:

The tools were developed by the researcher based on review of related literature and similar tools. They were exposed to face and content-validated by a panel of experts in obstetrics and gynecology from nursing and medical discipline. The reliability of the tool was assessed through measuring its internal consistency using Cronbach alpha coefficient method.

Pilot Study:

Before embarking on the actual study, a pilot study was conducted on 40 (10% of study sample) menopausal women, who were excluded from the study. It was done for evaluating the applicability and clarity of the tools as well as assessing the feasibility of the study and finds the possible obstacles and problems that might face the researcher and interfere with data collection. It also aimed to estimating the time needed for the interview. Modifications were done according to the pilot results. The time required for the interview was 30 minutes.

RESULTS

Table (1) illustrates that the women over 50 years of age were more likely to have osteoporosis (67.9%). Meanwhile, more than half (53.6%) of osteoporotic women were illiterate or could read and write compared to 41.1% of the non osteoporotic group. They also had more housewives and married women compared to the non osteoporotic group (75.9% & 68.7% vs. 69.6% & 62.0% respectively).

Table (2) points to a statistically significant difference between the study and control groups regarding their menstrual history. It is clear that more women in the osteoporotic group (30.4%) had an early age of menarch (9-11 years), irregular (24.1%) and heavy amount of the menstruation (31.2%) compared to the control group (19.0%, 15.3% and 23.4% respectively).

Concerning women's obstetric history, **Table (3)** shows that more women in the osteoporotic group had 4+ gravida and para compared to the control group (65.8% & 52.3% vs. 55.3% & 46.7% respectively). Meanwhile, they had history of previous abortion (48.0%) compared to the control group (41.7%). However, differences observed are not statistically significant.

Table (4) shows that the majority (93.7%) of the osteoporotic group had a history of chronic diseases compared to 77.3% of the control group. It is obvious that hypertension was the most common problem, with highest percentage (24.1% vs. 22.7%), followed by arthritis and anemia (5.1% & 17.3% vs. 4.9% & 11.7% respectively). Differences observed are statistically significant (P=<0.001*).

The history of women exposure to fractures is demonstrated in **table (5).** It reveals that more than one fourth (28.7%) of osteoporotic women were exposed to fractures compared to only 14.7% of the non osteoporotic group. Wrist and arm fractures were the most common fractures with highest percentage (15.2% vs. 10.3%), followed by leg fracture (12.2% vs. 3.3% respectively). Falling and dropping were the most common causes of fracture with a higher proportion among the study group (8.9% & 13.0% vs. 1.2% & 6.0 respectively). Meanwhile, more women in the osteoporotic group had a family history of osteoporosis (30.0%) compared to 19.0% in the control group.

Table (6) illustrates the degree of severity of osteoporosis according to the Dexa measurements among the study group. Thus, more than half of women had moderate (37.2%) or severe degree (14.3%) of osteoporosis, the rest (48.5%) had a mild degree. More than two third of women had more body mass index (62%) compared to only (47.2) in the non osteoporotic group.

Table (7) indicates absence of any significant differences between the osteoporotic and non osteoporotic groups in their nutritional practices. However, women in the study group were more likely to keep themselves from drinking milk, eating dairy products or protein food compared to the control group (33.7% & 6.7% vs. 23.3% & 4.9% respectively).

Table (8) indicates that more than two fifth (41.8%) of the study group were not able to use their time usefully, never practice daily sport (37.6%) or avoid obesity (65.4%) compared to those in the control group (33.7%, 36.2% and 57.1% respectively. The table also indicates that more women in the non osteoporotic group significantly got the benefit of exposure to sunlight (24%) than the osteoporotic group only (11.7%).

Table (9) represents the psychological life style risk factors of the studied subjects. It reveals that women in the osteoporotic group were significantly more likely to avoid social activities compared to the control group (60.8% vs. 54.0% respectively). Meanwhile, they were not able to control psychological stresses and the majority had sometimes or often the feeling of worrying state compared to the control group (38.4% & 70% vs. 27.6% & 57.1% respectively). Differences observed are statistically significant.

Table (10) reveals that there was no statistical significant difference between both osteoporosis and non osteoporosis group in relation to their intake of treatment medication as antidepressants, anticoagulants, immunosuppessant, the table indicates that more than one fifth (22.4%, 37.6%) of the study group were intake narcotics and contraceptive medication, compared to those in the non osteoporotic group (17.8%, 36.8% respectively).

Table (1): Distribution of the studied women according to their socio-demographic characteristics (n=400)

Socio-demographic Characteristics	Non-Osteoporosis (n = 163)		Osteoporosis (n = 237)		$\chi 2$	P
	No.	%	No.	%		
Age:						
40-45	28	17.2	30	12.7		
46-50	28	17.2	46	19.4	3.299	0.348
51-55	35	21.4	65	27.4		
56-60	72	44.2	96	40.5		
Education:						
Illiterate	67	41.1	127	53.6		
Read & Write	20	12.3	32	13.5		
Primary& preparatory	21	12.9	16	6.8	10.263	0.068
Secondary	34	20.9	44	18.5		
University	18	11.0	16	6.8		
More	3	1.8	2	0.8		
Occupation:						
House wife	112	68.7	180	75.9	2.567	0.109
Working	51	31.3	57	24.1		
Social status:						
Married	101	62.0	165	69.6		
Single	1	0.6	1	0.4	10.086	
Divorced	0	0.0	8	3.4		
Widow	61	37.4	63	26.6		

(*) Statistically significant at P < 0. 05

Table (2): Distribution of the studied women according to menstrual history (n=400).

Menstrual History	Non-Osteoporosis (n = 163)		Osteoporosis (n = 237)		$\chi 2$	P
	No	%	No	%		
Age of Menarch:						
9-11	31	19.0	72	30.4	6.702	0.035*
12-14	98	60.1	126	53.2		
15+	34	20.9	39	16.4		
Duration of Menstruation:						
3-5	94	57.6	134	56.5	0.892	0.640
6-9	65	39.9	93	39.3		
9+	4	2.5	10	4.2		
Regularity:						
Regular	138	84.7	180	75.9	4.499	0.034*
Irregular	25	15.3	57	24.1		
Amount:						
Mild or light	3	1.8	13	5.5	7.262	0.026*
Moderate	122	74.8	150	63.3		
Heavy	38	23.4	74	31.2		

(*) Statistically significant at P < 0. 05

Table (3): Distribution of the studied women regarding their obstetric history (n=400).

Obstetric History	Non-Osteoporosis (n = 163)		Osteoporosis (n = 237)		$\chi 2$	P
	No	%	No	%		
Number of gravida:						
Non	3	1.8	1	0.4	6.407	0.093
1-3	70	42.9	80	33.8		
4+	90	55.3	129	65.8		
Number of abortion:						
Non	95	58.3	123	51.9	5.130	0.163
1-3	66	40.5	102	43.0		
4+	2	1.2	12	5.0		
Parity:						
Non	7	4.2	7	3.0	1.631	0.652
1-3	80	49.1	106	44.7		
4+	76	46.7	124	52.3		

Table (4): Distribution of the studied women according to associated disorders (n=400).

Associated Disorders	Non-Osteoporosis (n = 163)		Osteoporosis (n = 237)		$\chi 2$	P
	No	%	No	%		
ronic Disease						
	126	77.3	222	93.7	22.884	<0.001*
	37	22.7	15	6.3		
pe of Chronic Disease						
rtension	37	22.7	57	24.1	32.619	<0.001*
etes	27	16.6	37	15.6		
nia	10	6.1	30	12.7		
itis	19	11.7	41	17.3		
& chest diseases	8	4.9	12	5.1		
diseases	11	6.7	11	4.6		
diseases	6	3.7	14	5.9		
ey diseases	5	3.1	5	2.1		
disease	3	1.8	15	6.3		

(*) Statistically significant at P < 0. 05

Table (5): Distribution of the studied women according to incidence of fractures (n=400).

Incidence of Fractures	Non-Osteoporosis (n = 163)		Osteoporosis (n = 237)		χ2	P
	No.	%	No.	%		
Past History of Fracture:						
YES	24	14.7	68	28.7	4.882	0.027*
No	139	85.3	169	71.3		
Site of Fracture:						
Wrist & arm	17	10.3	36	15.2	4.5	0.279
Hipbone & Vertebral column	2	1.2	3	1.3		
Leg	5	3.3	29	12.2		
Cause of Fracture:						
Falling	2	1.2	21	8.9	8.965	0.110
Simple trauma	2	1.2	0	0.0		
Dropping	10	6.0	31	13.0		
Accident	8	5.0	8	3.4		
Twisting	2	1.2	8	3.4		
Family past history of osteoporosis:						
Yes	31	19.0	71	30.0	6.084	0.014*
No	132	81.0	166	70.0		

(*) Statistically significant at P < 0. 05

Table (6): Distribution of the studied women according to their anthropometric measurement (n=400)

Anthropometric measurement	Non-Osteoporosis (n = 163)		Osteoporosis (n = 237)		χ2	P
	No	%	No	%		
Weight						
50-60	29	17.8	19	8	41.521	<0.001*
61-70	44	27	32	13.5		
71-80	35	21.5	55	23.2		
81-90	43	26.4	59	24.9		
90+	12	7.4	72	30.4		
Height						
150-160	95	58.3	91	38.4	16.281	0.001**
161-170	54	33.1	124	52.3		
171-181	8	4.9	12	5.1		
180+	6	3.7	10	4.2		
Body mass index						
<20-30 kg \ m	21	12.9	13	5.5	11.474	0.003*
31-<40 kg \ m	65	39.9	77	32.5		
40+ kg\ m	77	47.2	147	62		
DXA						
<=-1	160	98.2			383.78	<0.001**
>-1 – -2.5	3	1.8	115	48.5		
>-2.5 – -3.5	-	-	88	37.2		
>-3.5 – -4	-	-	29	12.2		
>-4	-	-	5	2.1		
Severity of osteoporosis						
Mild	-	-	115	48.5	400.00	<0.001**
Moderate	-	-	88	37.2		
Sever	-	-	34	14.3		
Non	163	100	-	-		

(*) Statistically significant at P < 0. 05

Table (7): Distribution of the studied women according to their nutritional habits.

Nutritional Habits	Non-Osteoporosis (n = 163)		Osteoporosis (n = 237)		χ2	P
	No	%	No	%		
Drinking Milk or Dairy Products:						
Never	38	23.3	80	33.7	5.571	0.062
Sometimes	96	58.9	126	53.2		
Often	29	17.8	31	13.1		
Eat Protein:						
Never	0	0.0	16	6.7	0.645	0.724
Sometimes	131	80.4	173	73.0		
Often	32	19.6	48	20.3		
Eat Carbohydrates:						
Never	0	0.0	0	0.0	1.620	0.445
Sometime	64	39.3	100	42.2		
Often	99	60.7	137	57.8		
Eat Fats:						
Never	14	8.6	7	2.9	5.418	0.067
Sometimes	121	78.5	193	81.5		
Often	21	12.9	37	15.6		
Eat Vegetables & Fruits:						
Never	3	11.1	4	10.1	0.835	0.659
Sometimes	133	78.5	214	81.9		
Often	17	10.4	19	8.0		

Table (8): Distribution of the studied women according to their daily life style (n=400).

Daily Life Style	Non-Osteoporosis (n = 163)		Osteoporosis (n = 237)		χ2	P
	No	%	No	%		
Woman used her time usefully:						
Never	55	33.7	99	41.8	11.860	0.003*
Sometimes	94	57.7	134	56.5		
Often	14	8.6	4	1.7		
Practice sport daily:						
Never	59	36.2	89	37.6	9.310	0.010*
Sometimes	94	57.7	146	61.6		
Often	10	6.1	2	0.8		
Exposed to sun daily:						
Never	40	24.5	54	22.8	9.836	0.007*
Sometimes	104	63.8	126	53.1		
Often	19	11.7	57	24.1		
Avoid obesity:						
Never	93	57.1	155	65.4	3.255	0.196
Sometimes	48	29.4	60	25.3		
Often	22	13.5	22	9.3		

(*) Statistically significant at P < 0. 05

Table (9): Distribution of the studied women according to their psychological life style risk factors (n=400).

Psychological Life Style Risk Factors	Non-Osteoporosis (n = 163)		Osteoporosis (n = 237)		χ2	P
	No.	%	No.	%		
Sharing in social activities						
Never	88	54.0	144	60.8	12.488	0.002*
Sometime	63	38.6	91	38.4		
Often	12	7.4	2	0.8		
Controlling psychological stress						
Never	45	27.6	91	38.4	5.064	0.079
Sometimes	99	60.7	124	52.3		
Often	19	11.7	22	9.3		
Feeling of worry in her life						
Never	34	20.8	32	13.5	7.316	0.026*
Sometime	93	57.1	166	70.0		
Often	36	22.1	39	16.5		

(*) Statistically significant at P < 0. 05

Table (10): Distribution treatment medication among the studied subjects (n=400).

Practices	Non-Osteoporosis (n = 163)		Osteoporosis (n = 237)		χ2	P
	No	%	No	%		
Antidepressants						
Never	131	80.4	196	82.7	0.974	0.614
Sometime	31	19	38	16		
Often	1	0.6	3	1.3		
Anticoagulants						
Never	139	85.3	197	83.1	1.977	0.372
Sometimes	11	6.7	25	10.5		
Often	13	8	15	6.3		
Immunosuppressuants						
Never	146	89.6	218	92	2.790	0.248
Sometimes	15	9.2	13	5.5		
Often	2	1.2	6	2.5		
Narcotics						
Never	46	28.2	48	20.3	3.792	0.150
Sometimes	88	54	136	57.4		
Often	29	17.8	53	22.4		
Glucocorticoids						
Never	103	63.2	116	48.9	7.914	0.019*
Sometimes	35	21.5	70	29.5		
Often	25	15.3	51	21.5		
Conraceptives drugs						
Never	65	39.9	79	33.3	2.378	0.305
Sometime	38	23.3	69	29.1		
Often	60	36.8	89	37.6		
Thyroid drugs						
Never	153	93.9	217	91.6	9.943	0.007*
Sometimes	0	0	12	5.1		
Often	10	6.1	8	3.4		

(*) Statistically significant at P < 0. 05

DISCUSSION

According to National Health and Nutrition Examination survey **(NHANES III),** an estimated 14 million American women over age 50 years are affected by low density at the hip. The prevalence of osteoporosis increases with age for all sites, and by World Health Organization (WHO) definition, up to 70% of women over the age 80 years have osteoporosis ***(Krug et al., 2010).***

Thus, the present study was undertaken to identify risk factors associated with the occurrence of osteoporosis among menopausal women in Rheumatic and Rehabilitation Outpatient clinic of Mansoura University Hospital.

Osteoporosis is highly prevalent among postmenopausal women, although it can affect people of all ages and both sexes. Worldwide, approximately one-third of women aged 60-70 years and two-thirds of women aged 80 years and older had osteoporosis. The risk of fracture for a 50-year-old white woman is estimated at over 70%, the risk of hip fracture alone is about 14%. Morbidity from fractures is substantial, and mortality is increased by about 20% after hip fracture ***(Keam & Plosker, 2006).***

In the present result more than half (58.7%) of the studied sample who over 50 years had osteoporosis. Such rate is high than that reported by ***Gluer (1997)*** in USA who found that 17.0% of postmenopausal Caucasian women had osteoporosis of the hip compared to 12.0% of the Hispanic American women and only 8.0% of the African-American women. In Egypt extrapolated prevalence for osteoporosis was estimated as (7,846,721) and extrapolated undiagnosed prevalence for osteoporosis as 5,037,182 from the estimated population used 76,117,421 ***(El Sayed, 2008).***

In the present study the women over 50 years of age were more likely to have osteoporosis (67.9%), conversely, ***Aradwi et al. (2004)*** found no statistically significant association between women's age and low bone density which not corresponds with the present study finding. The discrepancies between the previous results and the present study finding might be related to the difference in sample size and its characteristics ***(Bonnick, 2007)***.

Concerning the medical history of studied women, the present study revealed that osteoporotic women were significantly more likely to have hypertension, arthritis, anemia, diabetes diseases and liver diseases**.** Similarly, ***Abou-Seif (2002), Sodeman (2005)*** in USA has mentioned that cardiovascular disease was the most frequent type of the chronic disease among osteoporotic women.

The present study has also revealed a statistically significant relation between family history of osteoporosis and the occurrence of osteoporosis**.** In this regard, ***Chinappen (2007)*** reported that a family history of fragility fracture, particularly hip fracture, can be used in the risk assessment of patients. This result coincides with ***Mohamed (2009); Abdurrahman (2010)*** who has reported that there was a statistically significant relation between family history and osteoporosis.

Concerning the diet received by the osteoporotic women and its relation to osteoporosis, the present study finding revealed a statistically significant increasing trend of in taking inadequate healthy diet (especially low calcium rich diet) and the usual habit of drinking harmful drink such as; tea, coffee, cola which lead to osteoporosis. In congruence with this finding ***Gad (2010)*** found that nutritional status was an important risk factor for low bone mineral density and fragility fractures. ***Bachrach (1999)*** reported that each additional gram of calcium in the diet was associated with a 25.0% of reduction in hip fracture risk. In this respect, ***Ferrari et al. (1998)*** mentioned that an adequate vitamin D status in the elderly may also improve muscle strength and reduce both the risk and consequences of falling.

CONCLUSION:

Based on the results of the present study, it can be concluded that:

Based on the findings of the current study, it is concluded that osteoporosis was found in more than half of the studied sample while, more than two third of women were not exposed to osteoporosis. Many risk factors were associated with osteoporosis. Some of these factors were related to un-modifiable factors as (increases women age, associated medical conditions, family history of osteoporosis,….) , while the others were related to modifiable factors (abnormal body mass index in the form of morbid obesity, unhealthy dietary habits, unhealthy lifestyles,….).

RECOMMENDATIONS:

Based on the study findings, the following recommendations are required to be implemented:

 Early screening of menopausal women is recommended using DXA to help in the early detection of the disease.

 Increasing women awareness about osteoporosis and its effect on women quality of life and upgrading their knowledge about the possible ways of its prevention and treatment.

 Changing women lifestyle; in relation to nutrition, exercise, avoiding fractures, receiving appropriate medical treatment, indulging herself in social activities and coping with life stresses are strategies used to prevent osteoporosis and alleviate its severity.

REFERENCES:

Abdrrahman W., Delate CE. and Van D. (2010): Osteoporosis Influencing Post menopausal women at E Massoura City. Master thesis in, Maternal and Newborn Health Nursing, Faculty of Nursing, Zagazig University.

Abou-Seif A. (2002): Development of scoring system to identify population at risk for osteoporosis and assessment of their quality of life. PhD thesis in Community, Environmental and Occupational Medicine. Faculty of Medicine, Ain Shams University. pp 206-244.

Aradawi M., Maimany A. and Bahksh T. (2004): Bone mineral density of spine and femur in healthy Saudis. Osteoporosis International: A study in one general practice; 41: 194-196.

Bachrach LK. (1999): Malnutrition, endocrinopathies, and deficits in bone mass acquisition. In: Bonjour JP, Tsang RC, eds. Nutrition and bone development (Nestle Nutition workshop Series, vol. 41). Philadelphia, PA, Lippincott Raven, 1999:261-277.

Bonnick SL. (2007): Bone mass measurement techniques in clinical practice, methods, applications and interpretation. Topics in Geriatric Rehabilitation. January/February/March; 21(1): 30-41.

Chinappen U. (2007): Physical activity and osteoporotic fracture risk in older adults. J of Bone and Joint Surgery; 48: 83-93.

Downey PA. and Siegel MI. (2006): Bone biology and the clinical implications for osteoporosis. The Physical Therapy. January; 86(1): 77- 91.

El Said H. (2008): *Risk Factors Leading to Proximal Femur Among elderly Patients. Unpublished Thesis. Master degree. Faculty of Nursing. Alexandria University.*

Ferrai S., Bonjour JP. and Raizzoli R. (1998): The vitamin D receptor gen and calcium metabolism. Trends in Enocrinorologyy and Metabolism, 9: 259-265.

Gad R. (2010): Quality of life among postmenopausal women with osteoporosis. unpublished thesis. Master degree. Faculty of Nursing. Ain Shams University.

Gannage-Yared MH., Chemali R., Yaacoub N., Halaby G. (2000): Hypovitaminosis D in a sunny country: relation to lifestyle and bone markers. *J* Bone Miner Res 15, 1856–62.

Huang QY. and Kung AW. *(2006)**:*** Genetics of osteoporosis. Molecular Genetics and Metabolism. August; 88(4): 295-306.

Keam SJ. and Plosker GL. (2006): Prevention and treatment of osteoporosis in postmenopausal women. Defining the role of Alendronate. Disease Management and Health Outcomes. May; 12(1): 19-37.

Krug R., Burghardt AJ., Majumdar S. and Link TM. (2010): High-resolution imaging techniques for the assessment of osteoporosis. Radiol Clin North Am; 48(3):601–621. Cross Ref Medline

Melton LJ. (1995). How many women have osteoporosis now? J Bone Miner Res; 3rd 10(2):175–7.7. [PubMed]

Mohamed H. (2009): Knowledge and Health Behaviors among the Elderly Regarding Osteoporosis. Unpublished thesis. Master degree. Faculty of Nursing. Alexandria University.

Neelam A., Ainharan R., Niranjan K. and Ramesh KS. (2011): *Prevalence and related risk factors of osteoporosis in peri- and postmenopausal Indian women. Jul-Dec; 2(2): 81–85.*

Sodeman W. (2005): Instruction for Geriatric Patients. 3rd ed. Elsevier Sunders Company; 202-3.

العوامل التي تؤدي إلي هشاشة العظام عند السيدات أثناء فترة انقطاع الطمث

أ.د. سناء علي نور، أ.م.د. أمينة سعد جنيد، د. سهام شحاتة إبراهيم، فاطمة زكي محمد فرحات

أستاذ تمريض النساء والتوليد- كلية التمريض- جامعة الزقازيق، أستاذ مساعد ورئيس قسم تمريض النساء والتوليدكلية التمريض- جامعة الزقازيق، مدرس تمريض الأمومة والنساء والتوليد- كلية التمريض- جامعة بورسعيد، مدرس مساعد بقسم تمريض الأمومة والنساء والتوليد- كلية التمريض - جامعة بورسعيد

الخلاصة

الدراسة الحالية دراسة وصفية هدفها تقييم العوامل التي تؤدي الي هشاشة العظام للسيدات في فترة انقطاع الطمث في عيادة الروماتيزم والتأهيل في مستشفي جامعة المنصورة. وشملت عينة البحث **(400)** سيدة، وقد تم تجميع البيانات عن طريق استخدام ثلاث استمارات استبيان للسيدات لتقييم العوامل المؤدية للمرض. وقد أسفرت نتائج البحث عن أن أكثر من نصف عينة الدراسة 58.7% كان لديها مرض هشاشة العظام، 19 ٪ في المجموعة الغير مصابة بالهشاشة لديهن تاريخ عائلي لمرض الهشاشة مقارنة ب (30٪) من السيدات في مجموعة هشاشة العظام، الغالبية العظمى (77.3٪ و 93.7 ٪) من المجموعتين يعانون من الأمراض المزمنة و لكن مجموعة هشاشة العظام كانت أكثر عرضة لهذة الأمراض من المجموعة الغير مصابة بالمرض، الغالبية العظمى من المجموعتن أكثر من (70 ٪) لا يتناولن القدر الكافي من اللبن و منتجاته ولا من البروتين أو يتناولنه أحيانا في الماضي وكذلك في الوقت الحالي، نسبة كبيرة من النساء في المجموعتين (80 أكثر من %) لا يتناولن مكملات الكالسيوم الا أحيانا أو بشكل غير منتظم، السيدات في المجموعة المصابة بالمرض أكثر استخداما للأدوية المؤثرة سلبا على العظام خاصة بعض الأدوية مثل المنومات والكورتيزون وموانع الحمل22.4% ، 21.5%، 37.5% مقارنة بالمجموعة الغير مصابة بالمرض 36.8%، 15.3%، 17.8%.

الكلمات المرشدة : *العوامل التي تؤدي الي هشاشة العظام، مرض الهشاشة، سن انقطاع الطمث.*