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Retrospective study to evaluate patients with osteoporosis associated with proximal femur fracture

Dr. Eid Mosleh Raheel

M.B.Ch.B. \ F.I.B.M.S. \ (Orthopedic), Ministry of Health, Department of Health Al-Anbar, Al-Ramadi Teaching Hospital, Al-Anbar, Iraq
Email: dreidmr@gmail.com

Lecturer Dr. Hasan AbdulHadi Mohammed*

Egyptian Board of Orthopedics (Orthopedics and Traumatology), Ministry of Higher Education and Scientific Research, College of Medicine, University of Anbar, Al-Anbar, Iraq

*Corresponding Author: hasan.Abdulhadi@uoanbar.edu.iq

Dr. Ali Sulaiman M. Saeed

M.B.CH.B. \ F.I.C.M \ M.R.C.S. \ (IRLAND), Orthopedics and Traumatology and Ministry of Health, Department of Health Al-Anbar, Al-Ramadi Teaching Hospital, Al-Anbar, Iraq
Email: dralisulaiman68@gmail.com

Abstract---This paper aims to Create a Retrospective study to evaluate patients with osteoporosis associated with proximal femur fracture. A retrospective analysis from 22-3-2020 to 11-4-2021 was performed on patients for the purpose of evaluating patients with osteoporosis associated with proximal femur fracture, where 50 patients with ages ranging from 60 to 80 years were collected. Data and demographic information about patients were collected from Al-Anbar Hospital of Iraq. The patients were divided into two groups. (Group with proximal femur fracture 30 patients and group without proximal femur fracture 20 patients) outcomes results were collected and comparison has created a comparison between the group of patients and the control in terms of body mass index and age in addition to physical activity and calcium intake. With a low BMI, they are more protective to proximal femur fracture.

Keywords---BMI, osteoporosis, proximal, fracture, retrospective, pff.

Introduction

Osteoporosis and related osteoporotic fractures are important medical and social health problems in developed countries. About 75% of bone fractures [1,2]

and spine over the age of 45 are due to osteoporosis, and the most unfavorable in terms of prognosis are fractures of the proximal femur, causing high mortality, limited physical activity, and the need for outside care. Numerous epidemiological studies conducted abroad have shown a high prevalence of osteoporotic fractures and variability in the frequency of fractures not only in different countries but also in certain regions of the same country [3,4,5]

Osteoporosis is a multifaceted disease whose development depends on genetic predisposition, lifestyle, physical activity, and endocrine status, presence of comorbidities, medications, human aging, and life expectancy [6]. An increase in bone mass occurs in childhood and adolescence, reaching its maximum at the age of 20-30. After peaking up to the age of 35-40, the bone mass remains practically unchanged, after which it begins to gradually decrease. In women, the rate of decline in BMD is much higher than that in men, and this is due to estrogen deficiency in the premenopausal and postmenopausal period. Bone tissue is in constant flux [7,8,9]. At the same time, two opposite processes occur bone formation and bone resorption, the balance of which determines bone density, bone quality, and strength. In cases of estrogen deficiency, this balance shifts towards bone loss. However, estrogen deficiency is not the only cause of loss of BMD, as previously thought. Bone tissue remodelling depends on the metabolic status of phosphorous, calcium, parathyroid hormone, vitamin D, and luteinizing hormone. growth, calcitonin, thyroid hormones, and glucocorticoids. [10,11]

However, the frequency of fractures determined in the central part of the country may differ from their prevalence in other part. [12,13]

The aim of this work was to study a Retrospective study to evaluate patients with osteoporosis associated with proximal femur fracture [14]

Material and method

Patient sample

A retrospective analysis was performed on patients for the purpose of Evaluate patients with osteoporosis associated with proximal femur fracture, where 50 patients with ages ranging from 60 to 80 years were collected.

Data and demographic information about patients were collected from Al-Anbar Hospital of Iraq.

The patients were divided into two groups. (Group with proximal femur fracture 30 patients and group without proximal femur fracture 20 patients).

Study design

Fifty patients were collected from Al-Anbar Hospital in Iraq, where the study was conducted on patients with osteoporosis and its effects on the proximal femur fracture.

The patients were divided into two groups, where 30 patients were enrolled in the group with a proximal femur fracture, and in the control group were 20 patients. Primary information on patients' height, weight, and body mass index were collected; in this study, an assessment was made of physical activity divided into three categories (no activity, little activity, activity more than 5 hours per day), and smoking patients were registered to patients who smoked more than ten cigarettes per day.

Fractures in this study were described as falling or spontaneous, and information and data on the presence of comorbidities and previous medications were collected.

Study period

The study period for collecting demographic data and information for patients was a full year, which also included statistical analyses by the specialist. The study period was from 22-3-2020 to 11-4-2021

Aim of study

Created a Retrospective study to evaluate patients with osteoporosis associated with proximal femur fracture

Results

Table 1-
Characteristics and demographic data of patients N=50

Variable	Patient	Control (group without pff)	P-value
Age			
60-64 N (%)	10 (20)	6 (12)	0.01
65-69 N (%)	7 (14)	4 (8)	0.04
70-74 N (%)	7 (14)	5 (10)	0.45
75-80 N (%)	6 (12)	5 (10)	0.84
Sex			

Male N (%)	20 (40)	12 (24)	0.01
Female N (%)	10 (20)	8 (16)	0.33
Smoking			
Yes N (%)	7 (14)	6 (12)	0.98
No N (%)	23 (46)	14 (28)	0.05
Previous morbidity and medications N (%)			
cardiopathy	7 (14)	8 (16)	0.9
arterial hypertension	10 (20)	5 (10)	0.5
senile dementia	5 (10)	3 (6)	0.78
arthrosis	4 (8)	2 (4)	0.61
hypothyroidism	4 (8)	2 (4)	0.61
medications that were mentioned N (%)			
thiazides	12 (24)	10 (20)	0.66
oral hypoglycemic agents	8 (16)	5 (10)	0.32
anti-hypertensive agents	6 (12)	3 (6)	0.40
psychotropic agents	4 (8)	2 (4)	0.46
BMI			
Normal weight = 18.5–24.9	7	10	0.88
Overweight = 25–29.9	8	5	0.86
Obesity = BMI of 30 or greater	5	5	0.000

Table 2
Results of the patient according to Physical activity

Physical activity	N (%)		
not perform any activity	20 (40)	14 (28)	0.03
had an activity of less than 4 hours a day	7 (14)	4 (8)	0.58
had an activity of more than 4 hours a day	3 (6)	2 (4)	0.88

Table 3
Results of patients according to calcium ingestion

calcium ingestion	N (%)		
calcium ingestion less than 500 mg/day	14 (28)	6 (12)	0.67
between 500 and 1000 mg/day	10 (20)	7 (14)	0.06
greater than 1000 mg/day	6 (12)	7 (14)	0.88

Table 4
Demographic characteristics of patient women

	Patient	control
Age (years)	75.3±8.9	77.9±7.9
BMI	25.1±4.2	24.2±3.9
Age of menarche (years)	13.2 ±1.54	13.1±1.6
Age of menopause (years)	50.6±4.7	46.6±2.9

Table 5
Evaluate the type of fracture according to the most prevalence

	Men	Age	Frequency	Female	Age	Age Frequency	P value
fracture of the femur neck	9	70-74 75-80	4 5	5	60-64 65-69	4 1	0.66

trochanteric fractures	2	65-69	2	1	60-64	1	0.99
the predominance of the transtrochanteric fractures	9	75-80 60-64 65-69	1 4 4	4	70-74 60-64	3 1	0.01

Discussion

In this study, patients with osteoporosis were associated with proximal femur fracture. were evaluated

Where patients were improved into two groups (a group with a proximal femur fracture, 30 patients), and they were distributed by gender to (20 male patients with 40% and ten female patients with 20%) As for. The group without proximal femur fracture (20 patients) They were distributed according to gender to (12 male patients with 24 percent, and eight female patients with 16 percent), and a small percentage of smokers ranging from 6 to 7 percent were found in the two study groups.

Patients were assigned to previous morbidity and medications, and the most common were arterial hypertension for ten patients with 20% of all patients, followed by cardiopathy for seven patients with 14%, senile dementia for five patients with 10%, and arthrosis for four patients with 8% hypothyroidism for four patients with 8%. As for medications that were mentioned, the most common was thiazides for 12 patients with 24% of the patient group and ten patients (20%) for the control group, followed by oral hypoglycemic agents for eight patients with 16 % and anti-hypertensive agents for six patients with 12% as shown in Table 1

In Table 2, which shows the results of the patient according to physical activity, they are categorized into three categories, the most common being not perform any

activity for 20 patients with 40% in the group of patients and 28% in the control group, followed by the second group had an activity of less than 4 hours a day for seven patients with 14%, And the third group had an activity of more than 4 hours a day for three patients, with 6%

In Table 5, which evaluated the type of fracture according to the most prevalence, the most common was fracture of the femur neck for nine male patients with ages between 70 to 80 years, five female patients, distributed as follows: 60-64 years for four patients and 65-69 years for patient one and not statistically significant relationship found in this case, the same is for the predominance of the trans trochanteric fractures where nine male patients and four female patients were found, and a statistically significant relationship was found at p-value 0.01

In the previous studies, we note a large similarity to our current study, especially in the older ages, as it was noted in the Farmer study that it is the risk of proximal (femur) fracture doubles every five years after 50 years of age [15,16], especially the ages over 75 years. There is a statistically significant relationship between the two types of bells, but in other studies, it was observed that there were intra-statistical differences between the two sexes, and women were at greater risk of proximal femur fracture by almost three times men

Conclusion

In this study, we conclude that femur fractures are more frequent in those who are more than 70 years old, and there is a positive effect and a direct relationship between body mass index and physical activity on protection from a proximal femur fracture.

Through the statistical analysis, a negative effect was detected in one of the cases of Pregnancy on the frequency of proximal femur fracture

Recommendation

The proximal femur fracture is a major problem in society due to the high number of deaths and varies from person to person. One of the ways to protect against femur fractures is calcium intake in addition to physical activity

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