Assessment of Knowledge and Risk of Osteoporosis in Dermatology Patients, Yaba Clinic, Lagos University Teaching Hospital, Lagos State

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Abstract

Background: osteoporosis is a global problem and affects mainly the bone. An individual can be predisposed to osteoporosis by many risk factors including race/ethnicity, drug, lifestyle and disease. Systemic corticosteroid use has been implicated as an important risk factor. A good knowledge of this disease and risk factors awareness help in the prevention of this debilitating disease. The study assessed the knowledge of patients on osteoporosis and the predisposing risk factors in the patient population.

Method: The study was carried out in dermatology clinic, Lagos University Teaching Hospital Yaba. A modified questionnaire was administered to the patients (n=115). The data obtained from the questionnaire were analyzed using descriptive analysis.

Result: In a total of 115 patients, 37.4% (n=43) had good knowledge of life style, 17.4% (n=20) had good knowledge of hormonal/ disease state, 12.2% (n=14) had high life style risk factors while 0.9% (n=1) had high disease state/hormonal risk factors.

Conclusion: The general knowledge level of osteoporosis of patients was poor. The patients were moderately at risk of developing osteoporosis. More awareness, health education and good life style modification is also encouraged.

Keywords: Knowledge; Risk; Osteoporosis

Introduction

Osteoporosis is a global health problem. Osteoporosis and fractures secondary to osteoporosis are important causes of mortality and morbidity [1]. Approximately 1.6 million hip fractures occur each year worldwide, the incidence is set to increase to 6.3 million by 2050 [2]. Osteoporosis is a disease that affects the bones. It leads to increased risk of fractures as a result of decreased bone mineral density, causing more than 8.9 million fractures worldwide each year [3]. Estimates by the International Osteoporosis Foundation (IOF) indicate that osteoporosis affects 200 million women globally and predict that 1 in 3 women and 1 in 5 men will experience an osteoporotic fracture when over 50 years of age [3].

Osteoporosis is not curable, but it can be prevented by increasing the level of physical activity, adequate dietary calcium and vitamin D intake, fall prevention, cessation of smoking and reduction of alcohol consumption [4]. These measures collectively play a role in improving bone mass throughout different life stages. The prevalence and prevention of osteoporosis has been widely documented in

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white (European-American) women. Recent research has supported the fact that both African-American and Hispanic women are vulnerable populations due to their risk factors including those of race/ethnicity [5]. Nigeria, being among African is likely to share in this risk factors predisposition. It is known that knowledge of osteoporosis contributes to enhanced behaviours towards preventing osteoporosis [6]. This shows that osteoporosis knowledge helps an individual to adapt an osteoporosis preventive behaviour. Previous studies have shown that persons of all ages lack knowledge about osteoporosis or do not recognize themselves as being at risk for developing bone loss and osteoporosis [4].

Some risk factors can predispose an individual to osteoporosis. Some of the established risk factors include ageing, female gender, and family history of osteoporosis, early menopause, cigarette smoking, excessive alcohol consumption and certain medications like corticosteroid use [1]. There are no enough studies on knowledge and risk factors of osteoporosis in Nigeria thus the essence of this study. A study carried out in Nigeria, on fracture neck of femur among elderly and HIV patients found out that osteoporosis is the major predisposing factor. Corticosteroids have been implicated as one of the risk factors predisposing an individual to the development of osteoporosis. Corticosteroids inhibit calcium absorption and increase the renal calcium excretion through an increase in calcium mobilization from bone and a direct effect on the kidney leading to bone resorption and bone loss [7]. The mechanism involves corticosteroids modification of osteoblastic cell differentiation, number, and function. Other risk factors such as age, ethnicity, gender, smoking, excessive alcohol consumption, amenorrhea, relative immobilization, chronic pulmonary disease, inflammatory bowel disease, hypogonadism in men, organ transplantation may increase the risk of corticosteroid induced osteoporosis [8]. Thus, it is essential to assess the knowledge of this disease and ascertain the likely factors that can predispose individual in Nigeria to osteoporosis as this will improve the disease state and awareness.

The Objective

The study aimed to assess the knowledge and risks of development of osteoporosis on patients in dermatology clinic, Yaba, Lagos State.

Study Setting

This study was carried out in the out-patients clinic of Department of Dermatology, Yaba of the Lagos University Teaching Hospital (LUTH). The clinic serves both dermatology and rheumatology patients. This study was made up of all the patients' population in the dermatology clinic of Lagos University Teaching hospital, Yaba. It is a cross-sectional qualitative study carried out using a well-structured questionnaire. It was a modified questionnaires on the assessment of knowledge and risk factors predisposing patient to osteoporosis [9,10]. The research instrument was administered for a period of two (2) months .The instrument was pre-tested using fifteen (15) patients and corrections made.

Study Period

The study was carried out within a period of two months (2) months, from the 30th of September, 2016 to 30th of November, 2016.

Data Collection

The administered questionnaires were collected immediately by the principal researcher and one trained research assistant recruited in the study for this purpose. The questionnaire had an introductory note and patient's bio-data collection tool. It was divided into two main sections: the knowledge of patients about osteoporosis and risk factors predisposing the patients to development of osteoporosis. The respondents were well informed about the study and its objectives. The instrument for data collection took approximately twenty-five (25) minutes to complete.

Data Analysis

The socio-demographic attributes of the patients were calculated using simple mean and percentage. The assessment of knowledge of osteoporosis was divided into knowledge of life style and knowledge of hormonal/disease factors. It has a total of 18 items, with more likely, Less likely, neutral and don't know as the criteria with a scale of 4, 3, 2, 1 for first part and Yes or No for the second part (hormonal/disease factors). So also, the predisposing risk factors items were twenty-two (22) in number. It is also divided into life style risk factors with Always, Often, and Sometimes, Rarely and Never in a scale of 5, 4, 3, 2, 1 and predisposing hormonal/disease risk factor with Yes or No response. The Statistical Package for Social Sciences, SPSS version 21 was used to analyze the data obtained.

Result

The total population was used for the study excluding patients below 18years of age. In a total of 211 out-patients approached for the questionnaire based structured interview, 115 out-patients accepted to fill the questionnaire which yielded a response rate of 54.5% at the dermatology clinic of Lagos university teaching hospital Yaba.

Demographic Data of Patients Population

The Table 1 below, showed the socio-demographic characteristics of the patients who presented at dermatology clinic, Yaba. The information presented reveals that 54.8% were females, while the remaining percentage was made up of males. It can also be deduced from table 1 that the majority of these patients were between the age of 31-40 years with total mean age of 31.82+11.484.

Characteristics	Frequency (n=115)	Percentage (%)
Age (years)		
≤ 20	18	15.7
21-30	41	35.7
31-40	36	31.3
41-50	7	6.1
51-60	11	9.6
61-70	2	1.7
Mean age = 31.82+11.484		
Sex		
Female	63	54.8
Male	52	45.2

Table 1: Demographic Data of Patients Population.

Knowledge of Osteoporosis

The Tables 2 & 3 below, showed that in a total of 115 outpatients, 37.4% have a very good, 40.9% (good knowledge), 19.1% (average) while 2.6% have poor knowledge of the life style factor and dietary factors that can predispose an individual to osteoporosis.

	More likely		Less likely		Neutral		Don't know		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Eating a diet low in milk-products can cause osteoporosis	50	43.5	20	17.4	11	9.6	34	29.6	115	100
Taking in enough calcium prevents osteoporosis	90	78.3	5	4.3	5	4.3	15	13	115	100
Eating diet high in dark green leafy vegetables prevent osteoporosis	54	47	14	12.2	21	18.3	26	22.6	115	100
Regular exercise helps to build strong bones and reduce osteoporosis	89	77.4	10	8.7	8	7	8	7	115	100
Regular exercise prevents osteoporosis	74	64.3	18	15.7	10	8.7	13	11.3	115	100
Regular exercise cuts down the chances of broken bones	54	47	31	27	17	14.8	13	11.3	115	100
Excessive alcohol intake can likely cause osteoporosis	36	31.3	23	20	11	9.6	45	39.1	115	100
Taking cortisone (steroids eg prednisolone for long time causes osteoporosis	31	27	19	16.5	13	11.3	52	45.2	115	100
Family history of osteoporosis can increases the tendency of getting osteoporosis	53	46.1	25	21.7	10	8.7	27	23.5	115	100
Having big bones leads to osteoporosis	19	16.6	27	23.5	21	18.3	48	41.7	115	100

Table 2: Knowledge of Life Style.

Knowledge of lifestyle	Frequency	Percent
Poor	3	2.6
Average	22	19.1
Good	47	40.9
very good	43	37.4
Total	115	100

Table 3: Summary of Knowledge of Lifestyle.

The result from Table 4 showed that age group 61-70 had a 100% life style knowledge of osteoporosis although they are relatively small in number, (2 patients). Majority (71%) of age group 41-50 years showed a very good knowledge. In terms of gender, female showed very good life style knowledge of osteoporosis of 38.1% against male (36.5%) but it is not statistically significant (p-value= 0.987).

	Knowledge of lifestyle						
Age (years)	Poor	Average	Good	Very good	Total	Fishers exact	P value
<=20	1(5.6)	2(11.1)	7(38.9)	8(44.4)	18(100.0)	16.567	0.286
21-30	1(2.4)	8(19.5)	22(53.7)	10(24.4)	41(100.0)		
31-40	1(2.8)	10(27.8)	10 (27.8)	15(41.7)	36(100.0)		
41-50	0(0.0)	0(0.0)	2(28.6)	5(71.4)	7(100.0)		
51-60	0(0.0)	2(18.2)	6(54.5)	3(27.3)	11(100.0)		
61-70	0(0.0)	0(0.0)	0(0.0)	2(100.0)	2(100.0)		
Sex							
Female	2(3.2)	12(19.0)	25(39.7)	24(38.1)	63(100.0)	0.366	0.987
Male	1(1.9)	10(19.2)	22(42.3)	19(36.5)	52(100.0)		

Table 4: Relationship between Age, gender and knowledge of lifestyle.

Also, Tables 5 & 6 showed that 82.6% of the patients' population have poor knowledge on the hormonal changes and disease states that can predispose an individual to osteoporosis, while only 17.4% of the patient had good knowledge of osteoporosis.

	Yes		No		Total	
	Freq	%	Freq	%	Freq	%
Early menopause is a risk factor for osteoporosis	46	40	69	60	115	100
Surgical removal of ovaries in women causes osteoporosis	65	56.5	50	43.5	115	100
Osteoporosis and osteoarthritis are different names for the same disease	42	36.5	73	63.5	115	100
More women than men develops osteoporosis	59	51.3	56	48.7	115	100
Advancement in age can lead to osteoporosis	86	74.8	29	25.2	115	100
Loss of height is a common complaints of osteoporosis	27	23.5	88	76.5	115	100
Women attaining menopause are more to have osteoporosis	46	40	69	60	115	100
If you have an overactive thyroid, you are more likely to suffer from osteoporosis	42	36.5	73	63.5	115	100

Table 5: Knowledge of Hormonal/Disease State.

Knowledge of Hormonal/ disease	Frequency	Percent
Poor	95	82.6
Good	20	17.4
Total	115	100

Table 6: Summary of Knowledge of Hormonal/disease state.

Table 7 showed that the age range 41-50years had poor hormonal/disease state knowledge of osteoporosis while patients between the age of 61-70years had good knowledge of hormonal/disease state which leads to osteoporosis. Female also showed high hormonal/disease state knowledge of osteoporosis than male but it is not statistically significant (p-value= 0.983).

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	Hormonal/ disease state knowledge of osteoporosis				Fishers exact/ X^2	P value
	Poor (n=95)	**Good (n=20)**	**Total**			
			Age			
<=20	14(77.8)	4(22.2)	18(100.0)		7.981	0.05
21-30	35(85.4)	6(14.6)	41(100.0)			
31-40	30(83.3)	6(16.7)	36(100.0)			
41-50	7(100.0)	0(0.0)	7(100.0)			
51-60	9(81.8)	2(18.2)	11(100.0)			
61-70	0(0.0)	2(100.0)	2(100.0)			
			Sex			
Female	52(82.5)	11(17.5)	63(100.0)		0	0.983
Male	43(82.7)	9(17.3)	52(100.0)			

Table 7: Relationship between age, gender and knowledge of hormonal/disease.

Risk Factors

The Tables 8 & 9 below showed that 80.9% of the patients have moderate life style risk factors that can predispose them to osteoporosis, while only 12.2% were at high risk of developing osteoporosis as regards to their life style.

	Always		Often		Sometimes		Rarely		Never	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
I drink alcohol daily (more than two bottles daily)	4	3.5	1	0.9	13	11.3	22	19.1	75	65.2
I smoke cigarettes (one stick daily or more daily)	5	4.3	2	1.7	1	0.9	10	8.7	97	84.3
My daily level of physical activity is less than 30 minutes per day(housework, gardening, walking, running etc.)	21	18.3	8	7	34	29.6	28	24.3	24	20.9
I avoid milk or dairy Products	12	10.4	10	8.7	29	25.2	21	18.3	43	37.4
I am allergic to milk or dairy products	7	6.1	6	5.2	10	8.7	9	7.8	83	72.2
I spend less than 10 minutes per day outdoors (with part of your body exposed to sunlight)	8	7	8	7	12	10.4	33	28.7	54	47

Table 8: Life-Style Risk Factors Predisposing Patients to Osteoporosis.

Life-style risk factors	Frequency(115)	Percent
Low risk	8	7
moderate risk	93	80.9
High risk	14	12.2

Table 9: Summary of Life style risk factors.

The Tables 10 & 11 below showed that ages 41-50 years had highest lifestyle risk than other age groups. Females also showed more life-style risk factors of 12.7% when compared to male (11.5%) but not statistically significant (p-value = 0.492).

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Life-style risk factors						
Age (years)	Low risk (n=8)	Moderate risk (n=93)	High risk (14)	Total	Fishers exact/ X^2	P value
<=20	1(5.6)	16(88.9)	1(5.6)	18(100.0)	6.809	0.722
21-30	3(7.3)	34(82.9)	4(9.8)	41(100.0)		
31-40	4(11.1)	28(77.8)	4(11.1)	36(100.0)		
41-50	0(0.0)	5(71.4)	2(28.6)	7(100.0)		
51-60	0(0.0)	8(72.7)	3(27.3)	11(100.0)		
61-70	0(0.0)	2(100.0)	0(0.0)	2(100.0)		
Sex						
Female	6(9.5)	49(77.8)	8(12.7)	63(100.0)	1.439	0.492
Male	2(3.8)	44(84.6)	6(11.5)	52(100.0)		

Table 10: Relationship between Age, Gender and life style risk factors**.**

	Yes		No		Total	
	Freq	%	Freq	%	Freq	%
Have you ever been diagnosed with rheumatoid arthritis	11	9.6	104	90.4	115	100
Have you been diagnosed with an over-active thyroid, overactive parathyroid glands	2	1.7	113	98.3	115	100
Have you been diagnosed with Diabetes mellitus (especially type 1Diabetes mellitus)	5	4.3	110	95.7	115	100
Do you have gastrointestinal disorder such as Crohn's or celiac disease? (example of the symptoms -diarrhea, fever, abdominal pain, blood in stool, reduce appetite and weight loss)	16	13.9	99	86.1	115	100
Have either of your parents been diagnosed with osteoporosis or broken a bone after a minor fall (a fall from standing height or less)	8	7	107	93	115	100
Did either of your parents have a stooped back (dowager's hump)	4	3.5	111	96.5	115	100
Are you 40 years old or older	20	17.4	95	82.6	115	100
Have you ever broken a bone after a minor fall, as an Adult	14	12.2	101	87.8	115	100
Do you fall frequently (more than once in the last year) or do you have a fear of falling because you are frail	8	7	107	93	115	100
After the age of 40, have you lost more than 3 cm in height Gust over 1 inch)	4	3.5	111	96.5	115	100
Are you underweight (is your Body Mass Index less than 19 kg/m2)	7	6.1	108	93.9	115	100
Have you ever taken corticosteroid tablets (cortisone, prednisone, etc.) for more than 3 consecutive months (corticosteroids are often prescribed for conditions like asthma, rheumatoid arthritis, and some inflammatory diseases)	20	17.4	95	82.6	115	100
Did your menopause occur before the age of 45	2	16.7	10	83.3	12	100
Have your periods ever stopped for 12 consecutive months or more (other than because of pregnancy, menopause or hysterectomy)	1	8.3	11	91.7	12	100
Were your ovaries removed before age 50, without you taking Hormone Replacement Therapy	1	8.3	11	91.7	12	100
Have you ever suffered from impotence, lack of libido or other symptoms related to low testosterone levels	3	5.8	49	94.2	52	100

Table 11: Disease State/Hormonal Risk Factors Predisposing Patients to Osteoporosis.

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From the Table 12 below 0.9% (1 patient) had high disease state/hormonal risk factors while 99.1% of patient had a low risk.

Disease state/hormonal risk factors	Frequency(n=115)	Percent
Low	114	99.1
High	1	0.9

Table 12: Summary of Disease state/hormonal risk factors.

The Table 13 below showed that only age group 31-40 years had high genetic/disease state risk factor. This was only shown by one patient. Also, male had high genetic/ disease state risk factor than female but it is not statistically significant (p-value = 0.452).

	Risk on genetic / disease state			Fishers exact/ X^2	P value
Age (years)	Low (n=114)	High (n=1)	Total		
<=20	18(100.0)	0(0.0)	18(100.0)	6.422	0.643
21-30	41(100.0)	0(0.0)	41(100.0)		
31-40	35(97.2)	1(2.8)	36(100.0)		
41-50	7(100.0)	0(0.0)	7(100.0)		
51-60	11(100.0)	0(0.0)	11(100.0)		
61-70	2(100.0)	0(0.0)	2(100.0)		
Sex					
Female	63(100.0)	0(0.0)	63(100.0)	1.598	0.452
Male	51(98.1)	1(1.9)	52(100.0)		

Table 13: Relationship between Age, gender and Disease state/hormonal risk factors.

Discussion

Patients in this study showed a poor knowledge of osteoporosis. A percentage of 82.6% showed poor knowledge of hormonal/disease state while not up to 50% had a good knowledge of healthy life style to osteoporosis. A study by Olayinka A, et al. [11] carried out among health workers noted that there was a very low level of awareness of the risks factors, preventives measures and consequences of osteoporosis. This study also showed that females had more knowledge than males. This is similar to a cross-sectional study done on the osteoporosis knowledge and belief among the employees (384 employees) of Tanta University, Egypt which revealed a poor knowledge of osteoporosis among Pakistan, Taiwanese and American women [4]. Also, there is a low Knowledge of osteoporosis among rural Turkish women with majority of women unaware of the risk factors and consequences of osteoporosis [12]. Many studies on knowledge of osteoporosis from the literature have been carried out more on women than men. In a study done by Tlt AE, et al. [13] involving a general population in Saudi Arabia showed that female had a higher percentage in the knowledge of osteoporosis risk factors than men and this is similar to the result obtained from this study. This may be explained by the fact that osteoporosis has been termed 'women disease'. Thus women show more interest in knowing osteoporosis pathogenesis and risk factors. Hammoudeh S, et al. [3] found no significant difference in the knowledge of lifestyle, risk factors, preventive measures and general perception of osteoporosis in gender as opposed to the above mentioned studies. A major limitation in the literature is the lack of studies on osteoporosis that included older men compared to the number of studies that included postmenopausal women. This patient population also showed high life-style risk factor predisposition. According to literature, Men have a lower fracture rate than women. This was seen in Cawthon PM [14], who opined that the prevalence of osteoporosis and the risk of fracture are higher in women than in men. The explanation was based on the partial differences in BMD, bone size, and bone strength between men and women [15].

Conclusion

The general knowledge level of osteoporosis of patients was poor and females seemed to be more knowledgeable than males. Meanwhile, the patient population were moderately at risk of developing osteoporosis. Females showed more life-style risk factors than males while males

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were more predisposed to the genetic/disease states risk factors. Therefore, there is need for more awareness and education on osteoporosis. This can be done through health talks to patients before consultation in special clinics like dermatology and rheumatology clinics where the uses of steroids are imperative. Men should also be of great focus in patients' education on osteoporosis. This is because osteoporosis has been believed to be "woman disease" but more outcomes of bone fractures are seen more in men. There is also need to encourage patients on good life-style modification. This will decrease the life-style risk factor predisposition and decrease the prevalence of the disease.

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