ADEQUACY OF MANAGEMENT OF OSTEOPOROSIS

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ABSTRACT

Objective: To evaluate the adequacy of the diagnosis and treatment of osteoporosis in postmenopausal women following distal radial and \or hip fracture.

Methods: A retrospective review of patients with distal radial /or hip fracture at 2 referral hospitals .A computer based registry at (KHMC) and a patient's chart review at (PHH) was used to obtain patients information. One hundred and four patients fulfilling the inclusion criteria were enrolled. Accumulated data were reviewed and analyzed using the non parametric U test.

***Results*:** One hundred and four female patients aging 55 years or older were assigned for this study, of whom,47 patients [45%} and 57 patients(54%)were found to have distal radial and hip fracture respectively, while 19 patients(1%) were found to have both hip and distal radial fractures. Only 36 patients (34.6%) underwent bone densitometry measurement, while 20 patients (19%) had received treatment for osteoporosis and only 12 patients (1.1%) had received both bone densitometry and medications for osteoporosis.

Conclusion*:* The current physicians practice at the royal medical services in Jordan may be inadequate for the diagnosis and treatment of osteoporosis.

Key wards: postmenopausal osteoporosis, hip fracture, distal radial

INTRODUCTION

Osteoporosis is a silent disorder characterized by reduced bone mass and an altered bone quality resulting in compromised bone strength making the person prone to fragility fracture. The disease is usually silent until the first fracture occurs and if this fracture is not properly evaluated , the incidence of subsequent fracture increases with its consequences including pain, disability, social and psychological upset with great impact on quality of life and even death. Despite the solid body of evidence that identification of patients at high risk of fracture especially patients with distal radial fracture and their subsequent treatment could significantly prevent future fracture, many studies from different countries suggested that patients with distal radial and or hip fractures were less likely to be evaluated and treated for osteoporosis(1,2 ,3 ,4).Many authors stated that post menopausal woman who sustained distal radial fracture have nearly twice the risk of having a future hip fracture (5). Furthermore, wrist fracture can be used as a predictor of future fracture (6, 7, and 8).Ordering bone densitometry by the treating physician can improve the rate of evaluation and treatment of osteoporosis following wrist fracture (2).

We conducted this retrospective study in two major referral hospitals in Jordan providing health care services to more than 1.5 million population to evaluate the adequacy of diagnosis and treatment of osteoporosis and to answer the following questions:(1).How frequently bone densitometry was ordered for patients following distal radial and or hip fracture (2).How frequently the patients with these fracture received proper treatment.

PATIENTS AND METHODS

A retrospective review of patients with history of distal radial and or hip fracture was conducted at two referral hospital (KHMC and PHH) over a period of 5 years (from June 2003 to May 2008). A total number of 221 patient with distal radial /or hip fracture were found.

Inclusion criteria: Female 55 years of age and older; Distal radial /or hip fracture (fragility fracture) and sex months elapsed since the fracture .Seventy-two males and 45 females younger than 55 years were

found and were excluded from the study .Therefore, only 104 patients fulfilling the inclusion criteria were enrolled in this study.

End point parameters **were**: Number and percentage of patients who had undergone bone densitometry measurement; Number and percentage of patients who had received at least one of the recommended treatments for established osteoporosis; Number and percentage of patients who had received both densitometry and treatment for established osteoporosis.

Statistical analysis: Accumulated data were reviewed and analyzed using the non parametric U test.

RESULTS

One hundred and four female patients of 55 years of age or older who sustained distal radial and \or hip fragility fracture were retrospectively identified and enrolled in the study .Forty-seven patients (45%) were found to have distal radial fracture, while 57 patients (54%) were found to have hip fracture and only 19 patients (1%) were found to have both distal radial and hip fracture. As shown in (table 1), distal radial fracture tends to occur years before hip fracture .The number of patients with distal radial fracture in the age group (55-64)was 27 patients while that of hip fracture was 13 patients in the same age group. With advancing age the incidence of hip fracture exceeds that of distal radial fracture (44 patients with hip fracture were identified while only 20 patients with distal radial fracture were found after the age of 65 years). When evaluating the frequency with which bone densitometry was ordered and correlating it to the time of fracture, it is observed that the number of bone densitometry orders increases as the years progresses. For example, during the year 2003-2004, only 5 out of 22 patients (23%) had received bone densitometry measurement compared to 7 out of 12 patients (58%) had received bone densitometry measurement during the year 2007-2008. Table 2, shows the rate of bone densitometry measurement by the date of fracture.

As shown in table 3, the frequency with which the treating physician had prescribed one or more of the recommended medications for established osteoporosis is decreasing with advancing age. For example, 7 out of 20 patients (35%) in the age group 55-59 years had received medications for osteoporosis, while none of the patients after the age of 79 had received any medication for their disease. Table 4, summarizes the end point parameters of the study, I.e. the number of patients received bone densitometry measurement 36 out of 104patients(34.6%) ; the number and percentage of patients received medications for established osteoporosis 20 out of 104 patients(19%) and only 17 out of 104 patients(16%) had received both bone density measurement and treatment for osteoporosis.

Table 1: Distribution of patients by age and site of fracture.

Age (yrs)	No. of pt. with Distal radial fracture 47	No. of pt. with hip fracture 57	No of pt. with both fracture 19
55-59	12	5	2
60-64	15	8	3
65-59	10	15	7
70-74	6	16	4
75-79	3	8	2
More than 79	1	5	1

table2: Rate of bone densitometry measurement by date of fracture.

Fracture date(years)	No. of pt. with fracture	No. of pt. Underwent Dexa measurement	percentage
June1,03-May30,04	22	5	23
June1,04-May30,05	23	8	34
June1,05-May30,06	27	10	37
June1,06-May30,07	20	6	30
June1,07-May30,08	12	7	58
Total	104	36	34.6

Table3: Medical treatment prescribed for osteoporosis by age.

Age (years)	No. of pt. With fracture	No. of pt. Treated	percentage
55-59	12	7	35
60-64	22	5	23
65-69	25	4	16
70-74	22	3	13
75-79	11	1	0.9
More than 79	4	0	0
total	104	20	19

Table4. Distribution of patients according to their management.

Patients evaluation and treatment	No. of patients	percentage
Patients received bone density measurement	36	34.6
patients received medications	20	19
Pt. received both bone density measurement and medications	17	16

DISCUSSION

Osteoporosis related fractures are a major cause of suffering for the patient and his family and put a heavy burden on the National Health Service expenditure. Unfortunately, many postmenopausal women are unaware that they have osteoporosis until they experience a fracture. Treatment of osteoporosis with one or more of the approved medications is

well known to increase bone mineral density and reduces the risk of future fracture compared with the risk of untreated women.

Postmenopausal women who sustained distal radial fracture are at high risk of developing osteoporosis and are classically associated with low bone mass both site specific and generalized when compared with young adults and age matched women (8). In majority of cases distal radial fracture is a sufficient clinical evidence for the diagnosis of osteoporosis that necessitate bone mineral density measurement and initiation of therapy. In the literature, there is a solid body of evidence that patients with distal radial fracture have increased risk of hip fracture .

In our study, only 36 patients out of 104 (34.6%) who sustained distal radial and or hip fracture underwent born mineral density measurement and only 20/104 patient (19 %) received medical treatment for osteoporosis and theses findings are consistent with findings reported in the literature (13, 14).

In the current study, it is observed that the frequency of treatment of osteoporosis decreases with advancing age; it appears that the physicians wary from prescribing for osteoporosis they believe that it is too late to treat and alter the natural course of osteoporosis at this late-stage of life despite the fact there is increasing evidence that treatment of osteoporosis can lead to a reduction in future hip fracture. When considering treatment of osteoporosis, the majority of our patient had received only calcium and vitamin D supplement and interestingly these prescription were filled by a gynecologist for reasons other than osteoporosis while the rate of prescription of anti-osteoporosis therapy remains low despite the availability of medications for osteoporosis and these findings are consistent with the findings in the literature worldwide (13, 14, 15).

Limitations of the study

Several limitations of the study ; one major limitation is that , in our practice distal radial fracture is usually treated in an out-patient basis in an emergency setting without registration with a potential of missing a significant number of patients with distal radial fracture being missed that may further reduces the rate of the diagnosis and treatment of osteoporosis. Another potential limitation to this study is that, it was conducted in military hospitals with special military insurance covering only military personnel and their families that means many other patients with distal radial and or hip fracture treated in ministry of health and private sector were not included in this study who may well be under-diagnosed and under treated for osteoporosis making generalization of the study difficult.

CONCLUSION

This study demonstrates that physicians practice at royal medical services may be in adequate for the diagnosis and treatment of osteoporosis in postmenopausal women who sustained distal radial and\or hip fracture.

The aim of treatment of osteoporosis is to decrease the risk of fracture in patients at high risk for the first fracture or a subsequent one and this depends on the efficacy of clinical case finding to identify patients at high risk for the treatment. The primary physicians (usually orthopedic surgeons) who are the first physicians to treat these patients should be a ware of osteoporosis and have the opportunity to diagnose and initiate therapy or to refer patients to other specialty for further evaluation and management.

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