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Original Article

Improving compliance to osteoporosis workup and treatment in postmenopausal patients after a distal radius fracture

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ABSTRACT

Objective: Distal radius fracture (DRF) in postmenopausal women is often the first clinical sign of osteoporosis (OP). Despite the availability of effective treatments, only a minority of patients who sustain a fragility fracture are tested for OP. The purpose of this study was to examine whether a simple intervention by the hospital staff increases rates of OP workup.
Materials and Methods: We conducted a prospective randomized clinical trial. Ninety nine patients after DRF were randomized to two groups. Both groups were contacted after their fracture and were asked to answer a questionnaire and were informed about the possible relationship between DRF and OP. In the intervention group, patients were sent an explanatory pamphlet and a letter to their primary care physician. An additional survey was conducted to establish whether the intervention improved the number of patients who undergo OP workup.
Results: The intervention increased the proportion of patients who turned to their primary care physician from 22.9% to 68.6%, and increased the proportion of patients undergoing OP workup from 14.3% to 40% ($p < 0.001$).
Conclusion: Women with DRF who receive an explanation about possible OP implications and are sent explanatory materials are more likely to undergo OP workup.

Introduction

Osteoporosis (OP) is a common disease, affecting 8 million people in the United States alone, 4–6 million of whom are women. An even larger number of people suffer from decreased bone mass that could lead to OP in the future [1,2]. It is estimated that more than half of all women over the age of 50 years will suffer from osteoporotic fractures and conversely, more than 80% of fractures in postmenopausal women are related to OP [1].

Fragility fractures are a major public health problem, with over 1.5 million injuries occurring each year in the United States. Among these fractures, distal radius fractures (DRFs) are a major cause of morbidity as patients have a two- to fourfold increased risk of a subsequent fracture compared to individuals with no prior fracture [3–5]. Women with a DRF typically have lower bone mineral density (BMD) compared with age-matched controls [6,7]. These fractures have enormous physical, psychological, and social consequences for patients, including serious physical injury and reduced quality of life, and are also a source of substantial cost to health systems worldwide. There have been a limited number of randomized controlled trials, mainly using multifactorial interventions, aiming to prevent recurrence by detecting and treating OP.

OP can be treated when diagnosed. Various pharmacologic agents have been shown to increase BMD and decrease the incidence of future fractures [8]. However, treatment of OP is not as common as might be expected based on its prevalence. Several studies have shown that only 24% of women over the age of 60 years, who have suffered from a fracture, undergo subsequent OP workup or treatment [1,9]. More specifically, studies regarding DRF have shown that only 15–25% of women who sustained a fracture were referred for further workup or treated [1,9–12]. The purpose

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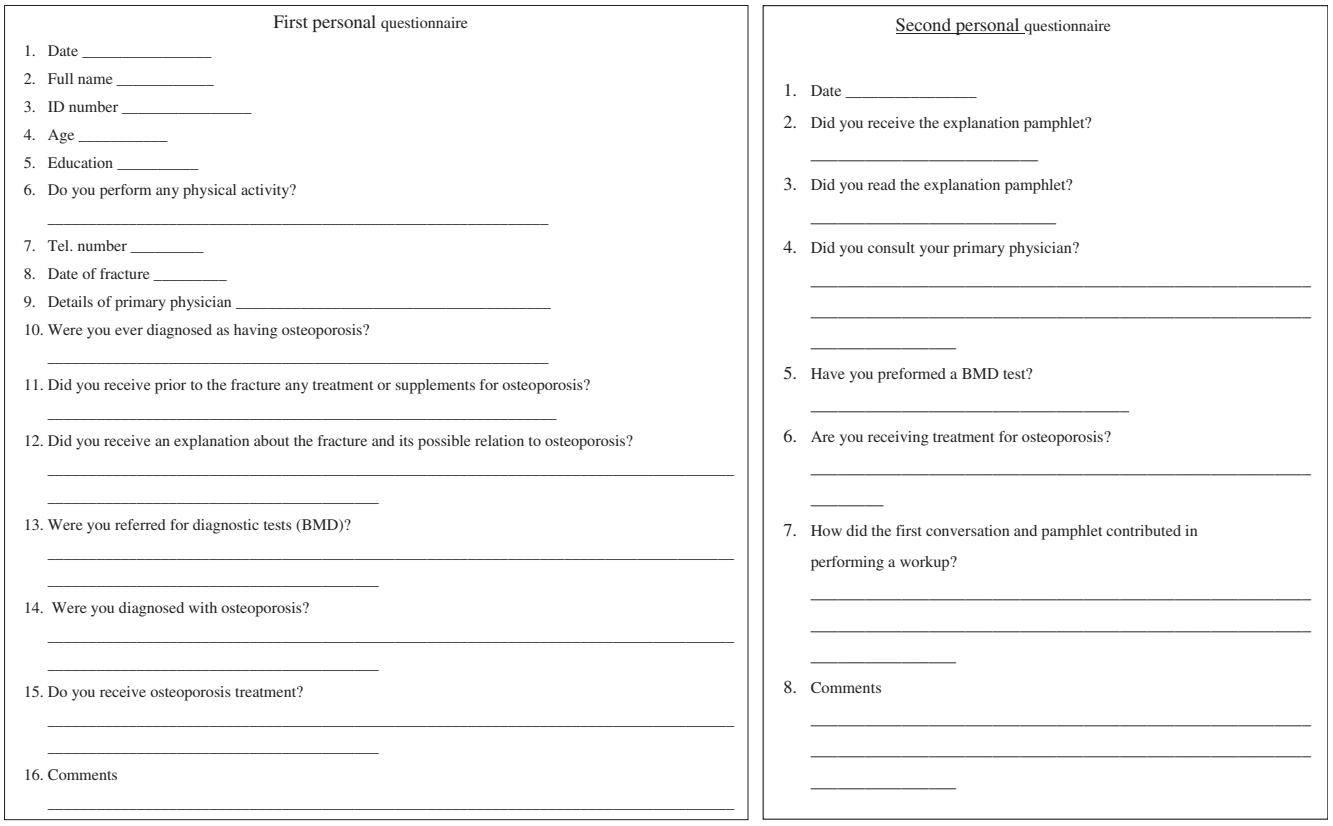

First personal questionnaire

1. Date _____
2. Full name _____
3. ID number _____
4. Age _____
5. Education _____
6. Do you perform any physical activity?
_____
7. Tel. number _____
8. Date of fracture _____
9. Details of primary physician _____
10. Were you ever diagnosed as having osteoporosis?
_____
11. Did you receive prior to the fracture any treatment or supplements for osteoporosis?
_____
12. Did you receive an explanation about the fracture and its possible relation to osteoporosis?
_____
_____
13. Were you referred for diagnostic tests (BMD)?
_____
_____
14. Were you diagnosed with osteoporosis?
_____
_____
15. Do you receive osteoporosis treatment?
_____
_____
16. Comments
_____

Second personal questionnaire

1. Date _____
2. Did you receive the explanation pamphlet?
_____
3. Did you read the explanation pamphlet?
_____
4. Did you consult your primary physician?
_____
_____
_____
5. Have you preformed a BMD test?
_____
6. Are you receiving treatment for osteoporosis?
_____
_____
7. How did the first conversation and pamphlet contributed in performing a workup?
_____
_____
_____
8. Comments
_____
_____
_____

Fig. 1. Questionnaires used in the first and second surveys in the study. BMD = bone mineral density.

of this study was to investigate whether a simple clinical intervention after sustaining a DRF will encourage patients to visit their primary care physician and undergo OP workup.

Methods

Setting

The study was conducted in the Orthopedic Department at Hadassah medical center, Jerusalem, Israel. The Institutional Review Board, in accordance with the Helsinki declaration, approved the study.

Study population

All female patients aged 48–70 years who were diagnosed with DRF by the emergency room (ER) during the years 2005–2007 were eligible for this study. An oral informed consent was obtained from all patients who were suitable and willing to participate in the study in accordance with the approval of the Institutional Review Board. The exclusion criteria were: (1) patients diagnosed or treated for OP prior to the fracture; (2) patients with tumor-related pathologic fractures; and (3) patients who are chronically treated with steroids.

Study design

Patients who sustained a DRF were identified after reviewing all orthopedic ER X-rays. Patients were divided into two groups using an Internet-based randomization plan: an intervention group and a control group. Patients in both groups were contacted by telephone 6–8 weeks after sustaining the DRF and asked to answer a questionnaire regarding their knowledge about the relationship between fragility fractures and OP, and whether they had been referred for OP workup (Fig. 1).

After the first telephone survey, only the intervention group patients were sent an explanatory pamphlet. An article concerning OP with a letter addressed to their primary care physician that recommended further diagnostic workup was also sent to patients in the intervention group [1].

The outcome was established by an additional second telephone survey for both the control and intervention groups (Fig. 1) conducted 6–8 weeks after the first telephone conversation. A positive outcome of the intervention was considered to be the patient's referral to their primary care physician and undergoing an OP workup.

Statistical analysis

Data were analyzed using the SPSS 11.0 PC program (SPSS Inc., Chicago, IL, USA). Power analysis revealed that a sample size of 40 women is needed in each group to identify a twofold increase in OP workup with an 80% power and 0.05 beta. Group data were compared using cross-tab analysis, including Chi-square and correlation tests.

Results

During the study period, 99 patients were diagnosed with a DRF. At the ER, only one patient received a basic explanation about their fracture and has been informed regarding its possible association to OP.

Fifty patients were randomized to the intervention group and the control group consisting of 49 patients. Twenty nine patients