CLINICAL SCIENCE

IDENTIFICATION AND TREATMENT OF OSTEOPOROSIS AMONG ELDERLY PATIENTS WITH HIP FRACTURES

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OBJECTIVE: To evaluate the profile of osteoporosis treatment among patients hospitalized due to hip fractures at a tertiary-level university hospital. To compare the impact of hospitalization on approaches toward treating bone mass losses.
METHOD: The medical records of 123 hip fracture patients aged 60 years and over at the Institute of Orthopedics, Hospital das Clínicas, University of São Paulo School of Medicine, between 2004 and 2006 were reviewed and analyzed with respect to approaches towards investigating osteoporosis and treatments before and after fracture.
RESULTS: The patients' mean age was 78 ± 8.3 years, and the majority were women (71.54%). The patients had a mean of 2.72 comorbidities and used 3.26 medications on average. Among these patients, 12.3% reported a previous diagnosis of osteoporosis, and 5.83% were on medication for this. The mean waiting time for surgery was 6.3 ± 7.54 days, and seven patients (5.7%) died during the hospitalization. There were no investigations using bone densitometry, no changes in osteoporosis therapy between admission and discharge (p = 0.375), and no reports of referrals for the patient to have access to treatment.
CONCLUSIONS: Investigations and treatments of osteoporosis and strategies for preventing new fractures were not implemented during the hospitalization of these elderly patients with hip fractures, even though this is the most feared complication of osteoporosis. These data need to be disseminated so that professionals dealing with elderly patients are attentive to the need for primary and secondary prevention of osteoporosis because of the impact of fractures on these patients' quality of life, independence, morbidities, and mortality.

KEYWORDS: Hip fracture; Elderly person; Osteoporosis; Diagnosis; Treatment.

INTRODUCTION

The aging of the population has presented a series of challenges for the healthcare system worldwide. One of the main challenges is to maintain functionality within society. In this context, osteoporosis is of fundamental importance, both because of its high prevalence and because it is a risk factor for hip fractures.[1,2] Hip fractures are related with high rates of complications within hospitals, mortality within the first year after the trauma, and institutionalization.[3-5]

Patients who have already suffered some kind of fracture due to osteoporosis have a five times greater risk of suffering a new episode compared to the population without any antecedents of osteoporosis or previous fractures.[3] This segment of the population seems to be the one that would most benefit from the various treatments for osteoporosis that are currently available. These treatments may increase bone mass and reduce the risk of fractures by up to 40-60%.[4,5] However, recent studies have demonstrated that physicians are missing opportunities to intervene with regard to prevention of secondary fractures. [6,7,8,9]

METHOD

The medical records of patients over 60 years old, of

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both sexes, admitted in our hospital between 2004 and 2006 with a diagnosis of hip fracture, were reviewed and analyzed for approaches toward investigating osteoporosis and treatments before and after the fracture.

Investigation was also made regarding comorbidities and the number of medications taken per patient.

This research was approved by the ethical committee of Hospital das Clínicas, University of São Paulo School of Medicine.

RESULTS

The patients were 78 ± 8.3 years old, predominantly female (71.54%) with a mean of 2.72 ± 1.81 comorbidities and taking a mean of 3.26 ± 2.86 medications.

Among these patients, only 12.3% reported a diagnosis of osteoporosis, while 8.13% had histories of previous femoral or radial fractures, and 5.83% were under medication for osteoporosis (Table 1).

Table 1 - Type of treatment on admission and at discharge

	Admission n (%)	Discharge n (%)
ALENDRONATE	3 (2.50%)	1 (0.88%)
CALCIUM	7 (5.83%)	3 (2.65%)
VITAMIN D	3 (2.50%)	3 (2.65%)
CALCITRIOL	1 (0.83%)	0 (0%)
TERIPARATIDE	0 (0%)	0 (0%)
RALOXIFENE	1 (0.83%)	0 (0%)

Note: Some patients received more than one treatment

Age (p=0.97), sex (p=0.08), and number of comorbidities (p=0.123) were not statistically correlated with previous treatment for osteoporosis. Nonetheless, the patients using fewer medications were receiving treatment more frequently (p=0.007).

During the hospitalizations, there were no investigations of any cases that utilized bone densitometry, and there were no changes in therapy between admission and discharge (p=0.375). On the contrary, there was a tendency toward prescribing fewer medications at discharge (Table 1). The patients didn't report previous investigations or treatment for osteoporosis.

DISCUSSION

Our results show that in our population, even before hospitalization, the rates of diagnosis and treatment of osteoporosis are low. In fact, only 12.3% had a previous diagnosis of osteoporosis and 8.13% had previous fractures. In addition, only 5.83% were in treatment for osteoporosis. In other words, only a minority (43%) of patients with previous confirmed osteoporosis diagnosis were under any kind of treatment before the hip fracture.

In our study, this lack of interventions continued even during hospitalization for hip fractures, even though the elderly is a segment of the population with a greater risk of new fractures.

Similar data are reported in other countries. In Australia, Smith et al. demonstrated that among patients with hip or wrist fractures, only 34% had received some type of medical information, only 32% had undergone bone densitometry, and only 39% had received treatment for osteoporosis. Most patients were treated only with calcium supplementation.[10] In the United States, out of 142 patients with hip fractures, none had undergone bone densitometry, and hospitalization did not modify the treatment profile among these patients, even if they received follow-up from geriatricians or clinicians.[11]

Among male patients, the lack of treatment is even more evident, although this segment of the population accounts 20-30% of hip fractures. In a study at the National Traumatology-Orthopedics Institute, the incidence of osteoporosis among community-dwelling men over the age of 80 years was 36.4%, and the incidence was over 68% among individuals with low body mass index.[12] More alarmingly, the mortality rate at 12 months after fracture is greater among men than among women (32% versus 17%, respectively).[13]

There are various reasons for this practically universal absence of investigation and treatment of osteoporosis while patients are hospitalized due to hip fractures. On the one hand, some professionals seem to assume that, particularly in the case of very elderly people (over 85 years of age), the treatment will be inefficient.[10] On the other hand, the use of bisphosphonates during the acute phase of fracture recovery is in fact controversial, given that it is postulated that the mechanism of anti-reabsorption of these agents could impair bone consolidation following surgical repair. Despite scanty evidence and lack of proof, it has been reported that long-term treatment with bisphosphonates, particularly if associated with other agents like estrogen, could lead to occurrence of stress fractures with slower healing.[14,15,16]

As for investigations of osteoporosis among patients who already present fractures due to frailness, reasons for the observed results may include the existence of an attitude that such investigations are redundant, considering that such fractures are already diagnostic criteria for osteoporosis.[17] Nevertheless, it can be argued that these investigations would serve to raise awareness among professionals, so that they would treat osteoporosis or contribute to risk forecasting.

One possible explanation for minimal treatment for

osteoporosis during the acute phase of the fracture is that the surgical team's priority is almost exclusively directed toward correcting the fracture and seeking to provide conditions of mobility for the patient, in order to avoid perioperative complications. From this perspective, the benefit of treatment for such patients might be grasped if the team were interdisciplinary.[18]

The strategies recommended for improving treatment for these patients include systematic education for healthcare professionals, objective reminders, preparation of algorithms and guidelines, and combined follow-up conducted by both the geriatrician and the orthopedist throughout the hospital stay.[19,20] Furthermore, collaboration between medical teams has been shown to be effective, with a lower mortality rate during hospitalization and the return of most patients to their homes after discharge.[19]

Within our setting, the establishment of an interdisciplinary team outpatient service for postoperative follow-up among elderly patients treated for fractures started a few months ago. The aim was to control these patients' conditions by providing support to cope with the limitations inherent to their frailness and osteoporosis. We believe that this type of intervention, as used in the Department of Orthopedics in USA may enable better-adapted and more efficient treatment of patients who present fractures due to their frailness.[21] The previous experience in our service with elderly patients in other types of pathology confirms this idea.[22,23]

CONCLUSIONS

Investigation and treatment of osteoporosis and strategies for preventing new fractures were not established before and while these elderly patients were hospitalized due to hip fractures. In many countries, preventive treatment is regarded as having little value. The possibility of preventive measures for these patients requires strategies to alert the health team and coordination of interprofessional care.

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