



## Original Article

# Epidemiology of fractures of the proximal third of the femur in elderly patients<sup>☆</sup>



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## ABSTRACT

**Objective:** This was an epidemiological study on fractures of the proximal third of the femur in elderly patients who were treated at a teaching hospital in the central region of São Paulo. **Methods:** The subjects were patients over the age of 60 years who were attended over a 1-year period. A questionnaire seeking basic sociodemographic data and information on comorbidities presented and medications used was drawn up. The circumstances of the fractures and their characteristics, the treatment instituted and the intra-hospital mortality rate were evaluated.

**Results:** The 113 patients included in the study presented a mean age of 79 years. The ratio between the sexes was three women to each man. Only 30.4% of the patients reported having osteoporosis and only 0.9% had had treatment for the disease. Low-energy trauma was the cause of 92.9% of the fractures. Femoral neck fractures accounted for 42.5% of the fractures and trochanteric fractures, 57.5%. Five patients did not undergo operations; 39 underwent joint replacement; and 69 underwent osteosynthesis. The mean length of hospital stay was 13.5 days and the mean length of waiting time until surgery was 7 days. The intra-hospital mortality rate was 7.1%.

**Conclusion:** The patients attended at this institution presented an epidemiological profile similar to what is found in the Brazilian literature. Chronic kidney failure is a significant factor with regard to intra-hospital mortality. Preventive measures such as early diagnosis and treatment of osteoporosis and regular physical activity practices were not implemented.

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## Epidemiologia das fraturas do terço proximal do fêmur em pacientes idosos

### R E S U M O

**Palavras-chave:**  
Epidemiologia  
Fraturas do quadril  
Idoso

**Objetivo:** Estudo epidemiológico das fraturas do terço proximal do fêmur em pacientes idosos, tratados em hospital-escola na região central de São Paulo.

**Métodos:** Pacientes a partir 60 anos atendidos no período de um ano. Questionário foi elaborado com informações sociodemográficas básicas, comorbidades apresentadas e medicações em uso. Foram avaliadas circunstâncias da fratura e suas características, tratamento instituído e taxa de mortalidade intra-hospitalar.

**Resultados:** Os 113 pacientes incluídos no estudo apresentavam 79 anos em média. A proporção entre os sexos foi de três mulheres para cada homem. Somente 30.4% dos pacientes relataram osteoporose e somente 0.9% tratavam a doença. Trauma de baixa energia foi a causa de 92,9% das fraturas. Fraturas do colo do fêmur representaram 42,5% das fraturas e trocântéricas 57,5%. Cinco pacientes não foram operados, 39 foram submetidos a substituição articular e 69 foram submetidos a osteossíntese. O tempo médio de internação foi de 13,5 dias e de espera até a cirurgia sete dias. A taxa de mortalidade intra-hospitalar foi de 7,1%.

**Conclusão:** Pacientes atendidos na instituição apresentam perfil epidemiológico semelhante àqueles encontrados em literatura nacional. Insuficiência renal crônica é um fator significativo para mortalidade intra-hospitalar. Medidas preventivas como diagnóstico precoce e tratamento da osteoporose e prática regular de atividades físicas não são adotadas.

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## Introduction

Aging of the population is a Brazilian reality. In 1991, the total number of elderly people, i.e. individuals aged 60 years and over, was 10.7 million or 7.2% of the population. In 2011, this group amounted to 23.5 million or 12.1% of the population.

This trend has led to greater concern regarding problems of diseases relating to this age group, which include fractures of the proximal third of the femur. These cause a high rate of morbidity and mortality.<sup>1-3</sup> A large number of these patients die within two years and many never recover their quality of life or functional independence.<sup>4-6</sup>

Among elderly people, these fractures occur in relation to low-energy trauma. The main cause is falls from a standing position.<sup>3,5,7,8</sup> Several risk factors have been correlated with fractures of the proximal third of the femur and, among these, advanced age and osteoporosis stand out.<sup>2,9,10</sup>

These fractures can be divided into femoral neck, transtrochanteric and subtrochanteric fractures.<sup>5,6</sup> All of them should be treated surgically,<sup>1,5</sup> but there is no consensus regarding the best surgical technique for each of them. Nonetheless, there are factors relating to the treatment that may modify the mortality rate among these patients. These include the length of time between hospital admission and surgery, use of prophylactic antibiotic therapy, and use of post-operative physiotherapy.<sup>3,4,11-13</sup>

The objective of this study was to determine the epidemiological profile of fractures of the proximal third of the femur among elderly people who were treated in the orthopedics department of a hospital. Thus, the study aimed to analyze the causes of the fractures, their characteristics and the treatment

instituted. In addition it aimed to observe whether measures were being taken to avoid similar new occurrences.

## Sample and method

This was a prospective observational study conducted in a single teaching hospital in the central region of the city of São Paulo. The study included elderly patients with fractures of the proximal third of the femur who were attended consecutively between August 1, 2009, and July 31, 2010. Patients were excluded if they refused to participate or were not in a condition to answer questions. Patients were also excluded if they had a diagnosis of metastatic fracture or a fracture related to neoplastic processes in the femur.

A questionnaire was drawn up by the present authors, to be answered by the patients themselves or by a relative or caregiver who might be living with the patient. In this questionnaire, in addition to basic sociodemographic information such as sex, age, nationality, ethnicity and work activity, the trauma mechanism, the place where the event occurred and time when it occurred were evaluated. The patients were also asked about any comorbidities, including osteoporosis, that they were aware of having, along with the medications that they were using.

The other data gathered in the present study comprised the type of fracture, total duration of hospital stay, presence of osteoporosis seen on radiography, length of waiting time until surgery and treatment instituted.

To define the types, the fractures were divided into femoral, transtrochanteric and subtrochanteric types. For the femoral

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