



## Original Article

# One-year mortality of elderly patients with hip fracture surgically treated at a hospital in Southern Brazil<sup>☆</sup>

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## ABSTRACT

**Objective:** To analyze the mortality rate at one-year follow-up of patients with hip fracture who underwent surgery at the university hospital of this institution.

**Method:** The authors reviewed 213 medical records of hospitalized patients aged 65 years or older, following to the order they were admitted to the orthopedics and traumatology service from January 2012 to August 2013.

**Results:** One-year mortality rate was 23.6%. Mortality was higher among women, with a 3:1 ratio. Anemia ( $p = 0.000$ ) and dementia ( $p = 0.041$ ) were significantly associated with the death group. Patients who remained hospitalized for less than 15 days and who were discharged within seven days after surgery showed increased survival.

**Conclusion:** In the present sample of patients with hip fracture who underwent surgery, one-year mortality rate was 23.6%, and the main comorbidities associated with this outcome were anemia and dementia.

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## Mortalidade em um ano de pacientes idosos com fratura do quadril tratados cirurgicamente num hospital do sul do Brasil

## RESUMO

**Objetivo:** Analisar a mortalidade, em um ano de seguimento, de pacientes com fratura da extremidade proximal do fêmur submetidos a procedimento cirúrgico no hospital universitário da nossa instituição.

## Palavras-chave:

Fraturas do quadril

Mortalidade

Idoso

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**Método:** Foram revisados 213 prontuários de pacientes internados com 65 anos ou mais, conforme a ordem de admissão no Serviço de Ortopedia e Traumatologia de janeiro de 2012 a agosto de 2013.

**Resultados:** A taxa de mortalidade em um ano foi de 23,6%. A mortalidade foi maior em mulheres, numa proporção 3:1. Anemia ( $p=0,000$ ) e demência ( $p=0,041$ ) estiveram significativamente associadas ao grupo óbito. Pacientes que permaneceram internados por até 15 dias e os que tiveram alta hospitalar em até sete dias após a cirurgia apresentaram um aumento na sobrevida.

**Conclusão:** Em nossa amostra de pacientes com fratura de fêmur submetidos a procedimento cirúrgico, a taxa de mortalidade foi de 23,6%; as principais comorbidades associadas a esse desfecho foram anemia e demência.

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## Introduction

Hip fractures are very common and serious events in elderly patients. A significant increase in the incidence of proximal femur fractures has been observed in recent decades, mainly due to the increase of the elderly population, since this incidence progresses with advancing age.<sup>1</sup> This type of fracture accounts for 84% of bone lesions in people aged over 60 years; it is a public health issue and a major cause of mortality, disability, excessive medical and hospital expenses, and social and family problems in this population.<sup>2-4</sup>

Fractures of the proximal end of the femur include subtrochanteric and transtrochanteric fractures, as well as those in the femoral neck. Most often, trauma is low-energy and is related to factors such as malnutrition, impaired activities of daily living, decreased visual acuity and reflexes, sarcopenia, and – particularly – bone fragility.<sup>1,5,6</sup>

In most cases, surgery is indicated. Conservative treatment is chosen in cases of incomplete fractures without displacement or when there are no clinical conditions for surgery. A period between 24 and 48 h after the fracture is considered ideal for the surgical procedure to take place, considering the general health of the patient.<sup>7-12</sup> Several studies indicate advanced age, physical status, male gender, and delayed treatment as determining factors in mortality.<sup>6,11,13</sup> Other factors related to an unfavorable outcome include non-ambulatory condition prior to fracture, cognitive deficiencies, occurrence of a second fracture, low functional level at time of discharge, and lack of bisphosphonates and vitamin D replacement.<sup>6,14</sup>

Because fractures of the proximal end of the femur occur in patients with significant comorbidities and high risk of pre-operative complications, this condition has a high mortality rate when compared with other fractures.<sup>10,11,13,15</sup> An important indicator in the evaluation of care provided in health institutions, mortality rate can also be used for two other purposes: determining the performance of a hospital over time and monitoring the performance of a number of hospitals.<sup>16</sup>

Given the importance of this issue, this study aimed to determine the mortality rate in the first year of follow-up of elderly patients with hip fracture who underwent surgery at

the university hospital of this institution and to identify the comorbidities associated with these patients.

## Material and methods

This was a retrospective study conducted at the university hospital of this institution. The study included elderly patients (65 years or older) admitted with a fracture of the proximal end of the femur and surgically treated from January 2012 to August 2013.

This study was approved by the Research Ethics Committee of the institution. The research followed the recommendations of Resolution No. 196/96 of the National Health Council for Research in Human Beings, and was approved on 1/10/13 (CAAE: 21388913.1.0000.5349). Thus, no information that could identify individuals involved in the research will be published, ensuring the anonymity of the subjects and the privacy of information.

The survey was conducted through a review of medical records and telephone contact with patients and their relatives. The information on death and its date were obtained through telephone contact or through the Canoas Health Department, when direct contact was not possible. Patients whose medical records were incomplete or who died prior to surgical treatment were excluded. Patients who underwent conservative treatment were not included.

The following variables were studied: age, sex, comorbidities, type of fracture, surgical procedure, type of implant used, mean time between fracture and surgery, postoperative complications, and death. The cause of death was not assessed, as it had already been identified in a study conducted earlier in this service and because in most cases the cause of death was not directly related to the surgical procedure.

Data were analyzed with tables, descriptive statistics, and chi-squared and Fisher's exact tests, using SPSS software, version 13.0. A maximum significance level of 5% ( $p \leq 0.05$ ) was considered to be significant. The chi-squared test was used to assess the gender and age prevalence between groups, as

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