

Temporal analysis of hospitalizations for femoral fractures in elderly people in the southeast region of Brazil: 2009 to 2019

Análise temporal das internações por fratura de fêmur em idosos na região Sudeste do Brasil: 2009 a 2019

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Abstract

Introduction: Femoral fractures are today one of the biggest public health problems in the country, being responsible for high rates of morbidity and mortality in the elderly population. The increase in the incidence of the trauma is related to the increase in life expectancy in Brazil, and the consequent higher proportion of elderly people. Knowing the hospital statistics on the epidemiology of femoral fractures is essential for planning actions that contribute to improving the quality of health service assistance. **Objective:** To analyze the epidemiological profile of femur fractures in the elderly in Southeastern Brazil. **Methodology:** Ecological time series study. Data collected referring to 2009 to 2019, considering the male and female sex, the different age groups and the character of the attendance of hospitalizations, on the DATASUS platform. Sample composed of the elderly population of the Southeast region of Brazil affected by fracture of the femur hospitalized in public or private regime. **Results:** Hospitalizations for femur fractures in the Southeast region of Brazil showed a linear growth pattern that accompanies the changing demographic profile of the country. Considering gender, women were the most affected and, with regard to age, without distinction of sex, individuals aged 80 years or over. **Conclusion:** The profile of hospitalization for femur fracture in the Southeast of the country is similar to the profiles found in the national territory. Thus, it is essential to plan assistance at all levels of health care, given the unquestionable increase in the frequency of this type of trauma today.

Keywords: Epidemiology; Femoral Fractures; Health of the Elderly.

Resumo

Introdução: As fraturas de fêmur são hoje um dos maiores problemas de saúde pública do país, sendo responsáveis por altos índices de morbimortalidade na população idosa. O aumento da incidência do trauma está relacionado com o aumento da expectativa de vida no Brasil, e com a consequente maior proporção de idosos. Conhecer a estatística hospitalar da epidemiologia das fraturas de fêmur é fundamental para o planejamento de ações que contribuam para a melhoria da qualidade da assistência dos serviços de saúde. **Objetivo:** Analisar o perfil epidemiológico das internações por fratura de fêmur em idosos na região

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Sudeste do Brasil. **Metodologia:** Estudo ecológico de série temporal. Dados coletados referentes a 2009 a 2019, considerando o sexo masculino e feminino, as diferentes faixas etárias e o caráter do atendimento das internações, na plataforma DATASUS. Amostra composta pela população idosa da região Sudeste do Brasil acometida por fratura de fêmur internada em regime público ou privado. **Resultados:** As internações por fratura femoral na região Sudeste do Brasil apresentaram um padrão de crescimento linear que acompanha a mudança de perfil demográfico do país. Considerando o sexo, as mulheres foram mais acometidas e, com relação à faixa etária, sem distinção de sexo, os indivíduos de 80 anos ou mais. **Conclusão:** O perfil de internação por fratura de fêmur no Sudeste do país assemelha-se aos perfis encontrados em território nacional. Assim, é fundamental o planejamento da assistência em todos os níveis de atenção à saúde, dado o inquestionável aumento da frequência deste tipo de trauma na atualidade.

Palavras-chave: Epidemiologia; Fratura Femoral; Saúde da Pessoa Idosa.

Introduction

Brazil has come over the years showing changes in its demographic profile. These changes are the result of advances in the treatment of transmissible and parasitic diseases, reduced fertility and improved sanitary conditions in the country. As a result, there is a decrease in mortality in all age groups, with a consequent increase in life expectancy and in the population ageing¹.

With the aging process, there is a tendency to increase the problems related to this age group, with femur fractures being one of the most prevalent occurrences in the elderly population². Bone trauma in the elderly leads to a series of events that directly impact on the individual's quality of life, since they are associated with losses, such as loss of autonomy, functional dependence, as well as social and economic problems³.

The main cause of femoral fractures in the elderly is falling from a height. The falls suffered by the elderly are related to intrinsic factors, such as the physiological, functional and cognitive changes of aging, and to extrinsic factors related to environmental risks, such as lighting, uneven surface, presence of loose carpets and other household problems in general⁴. Still, the influence of diseases that evolve with functional deficit, such as osteoporosis, which, when present, are at high risk for the occurrence of trauma, stands out^{3,2}.

Thus, femoral fractures in people aged 60 years or over represent today a major problem for public health in the country, since they are associated with high numbers of morbidity and mortality in addition to bringing high economic costs to the Brazilian health system⁵. Due to its high rate of occurrence and complexity, it represents a challenge for the Unified Health System (SUS), as it requires a series of specialized care, both in trauma care, in the preoperative period and rehabilitation.

In this sense, getting to know the epidemiological profile of hospitalizations for this pathology is essential for planning health actions aiming to prevent and improve the quality of life of the population in question. Thus, this study's objective is to analyze the epidemiological profile of hospitalizations for fracture of the femur in the elderly in the Southeast of Brazil.

Materials e Methods

Amostra e tipo de estudo

Ecological time series study on the epidemiology of hospitalizations for fractures of the femur in the elderly in the Southeast of Brazil. The sample consisted of individuals affected by femur fracture, who were admitted to the public or private regime in the Southeast region of the country.

Delineamento da pesquisa

Initially, a bibliographic search was carried out with a focus on general aspects regarding epidemiology, clinical characteristics and prognosis of the pathology. Then, data were collected regarding hospitalizations for femur fracture, in the Hospital Information System (SIH), from the Department of Informatics of the Unified Health System (DATASUS), covering a period of 11 years, comprising the data recorded in the period from 2009 to 2019.

The data were collected using the search terms femur fracture and femur fracture in the elderly, in addition to the variables that allowed the study to be designed. The following variables were observed: total number of hospitalization authorizations (AIH) for fracture of the femur, analyzed by year of attendance, sex and age group (60-69 years, 70-79 years and 80 years or more) and the character of attendances in the studied period

Crítérios de Inclusão e Exclusão (quando houver exclusão)

In this sample, the inclusion criteria were all female and male individuals who were admitted to the public or private regime in the Southeast region of Brazil, aged over 60 years, registered on the platform used as the basis of the study. Exclusion criteria were individuals under

the age of 60 and non-residents of the Southeast region of the country.

Procedimentos

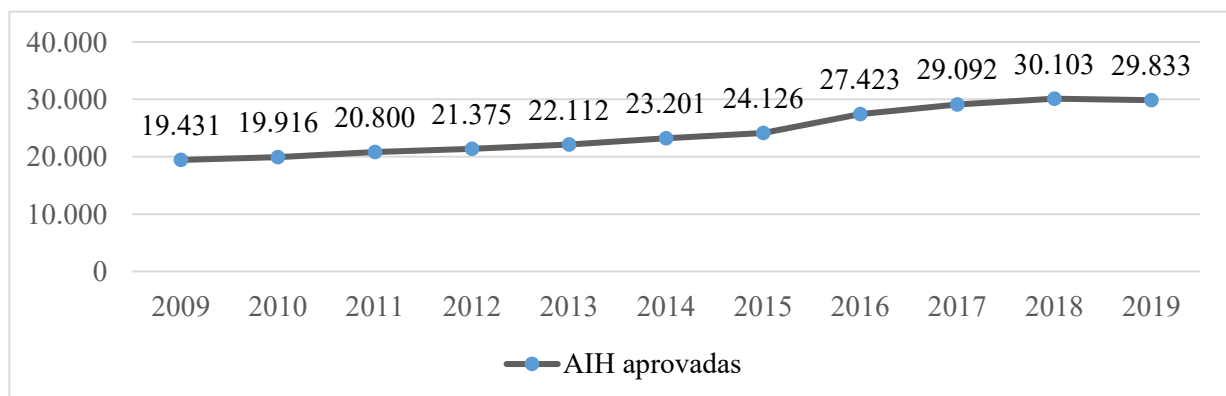
The data were treated statistically and analyzed using descriptive and quantitative analysis in the Microsoft Excel 2013 program (Office 2013). The results found were later presented in the form of graphs and tables for better exposure of the data.

According to resolution 466/12 of the National Health Council, it was not necessary to submit the work to the Research Ethics Committee because it is public domain data.

Results

In the period analyzed from 2009 to 2019, there were 267,412 hospitalizations for femur fractures in the elderly in the Southeast of Brazil. In that interval, it was observed that the number of hospitalizations for femoral trauma in the elderly population has been growing in the region, having registered its peak in 2018 (30,103 cases), against 29,833 cases in 2019 and 29,092 in 2017 (**Figure 01**). Still, it was observed that, when comparing the number of hospitalizations registered in 2009 with the value found in 2019, there was an increase of approximately 53% in the total of hospitalizations in the region.

Figure 1. Hospitalizations for femur fractures in the elderly in the Southeast of Brazil (2009-2019).



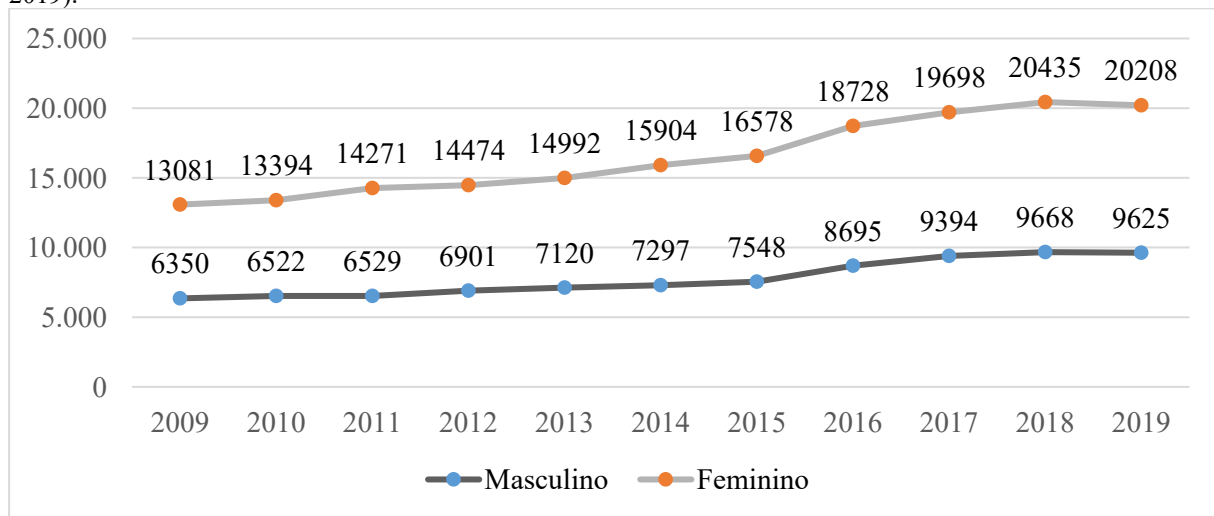
Legend: AIH: Hospitalization Authorization

Source: Prepared by the authors.

The profile of the population analyzed was categorized according to sex and age. **Figure 02** shows hospitalizations for femur fractures in the elderly in the Southeast of the country according to sex. It was found that among the total cases in the period, there was a higher prevalence in

females, with 67.97% of hospitalizations being found in women and only 32.02% in men. In addition, between 2009 and 2019, there was a significant increase in the number of hospitalizations of both sexes, of 51.57% for men and 54.48% for women.

Figure 2. Hospitalizations for femur fractures in the elderly in the Southeast of Brazil, according to sex (2009-2019).

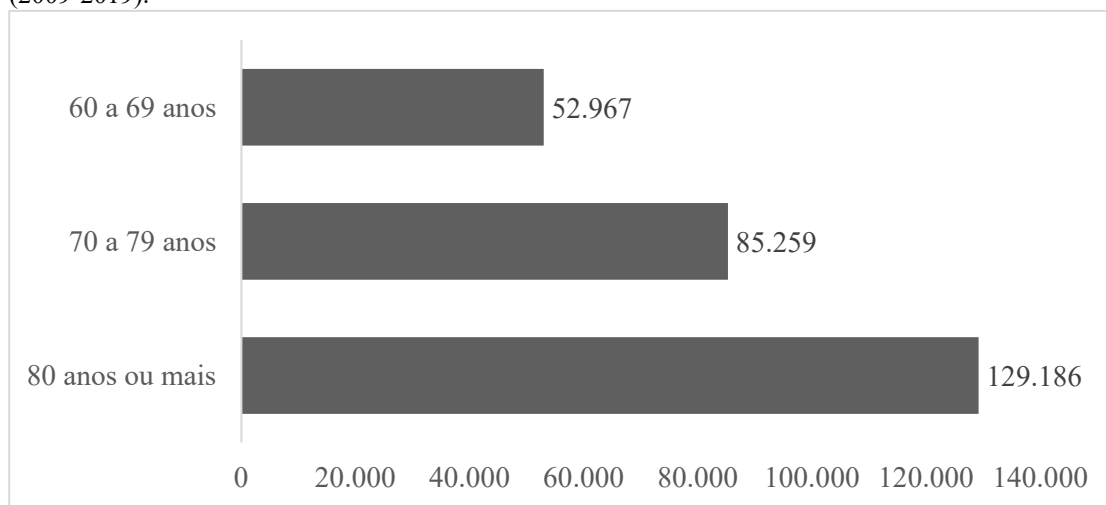


Source: Prepared by the authors.

When comparing hospitalizations, considering the age group of 60-69 years; 70-79 years and 80 years or more in the period from 2009 to 2019, it is noted that the highest prevalence is in the last

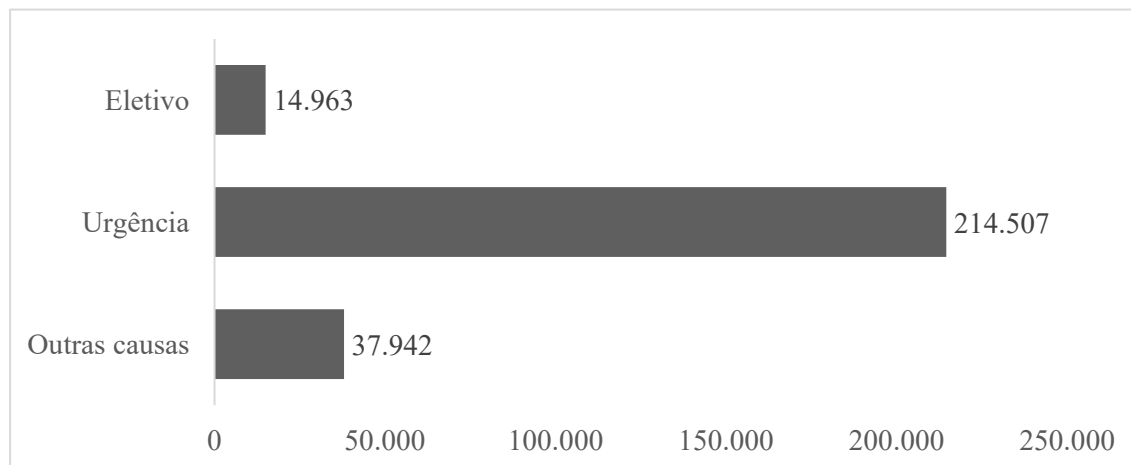
mentioned age group, totaling 129,186 cases in this period, and the lowest prevalence is in the 60 to 69 age group, with 52,967 hospitalizations.

Gráfico 01. Hospitalizations for femur fractures in the elderly in the Southeast of Brazil, according to age group (2009-2019).



Source: Elaborated by the authors.

Gráfico 02. Hospitalizations for fracture of the femur in the Southeast region of Brazil, according to attendance (2009-2019).



Source: Elaborated by the authors.

Still, it was found that, during the period studied, hospitalizations of an urgent nature were the most prevalent in the Southeast region of Brazil, representing 80.22% of the total, corresponding to 241,507 hospitalizations, and hospitalizations of an elective character and for other causes, in a total of 52,905 hospitalizations, accounted for the remaining 19.78% (**Graphic 02**).

Discussion

Analyzing the results found in the present study, it is observed that there was a considerable increase in the number of hospitalizations for fracture of the femur in the elderly population living in the Southeast of Brazil over the analyzed period. Out of the total number of cases, the highest number of hospitalizations occurred in female patients aged 80 years or over, with more than 80% of cases having an urgent character.

Population aging is a reality worldwide. In Brazil, this aging has been very fast, with an estimate that in 2043 a quarter of the Brazilian population is over 60 years old, according to data from IBGE⁶. This change in the demographic profile is directly related to the increase in life expectancy and the improvement of health indicators, generating increases in

economic systems, while contributing to the increase in costly diseases, specific to this age group, such as fracture of the femur⁷.

Considering this perspective, it was found that, in the period from 2009 to 2019, the Southeast region showed a linear increase in the number of hospitalizations for femoral fractures, as shown in **Figure 01**. A study previously carried out in Brazil revealed that there was also an increase in the hospitalizations in the Southeast in the historical evolution of cases from 2008 to 2012, corroborating the temporal evolution found in this study⁸.

It is noted that, with the sharp population aging, several public health policies aimed at the health of the elderly were created in the country, such as the Elderly Statute (Law No. 10.741/2003). Thus, interventional actions and measures aimed at the well-being of elderly patients contribute to improving their quality of life, with a consequent increase in longevity⁹. In this sense, the increase in life expectancy of this population associated with the physiological and functional changes that occur in the elderly that make them more prone to illness processes, directly affects the growing increase in bone trauma, with fracture of the femur being the trauma with greater morbidity, hospitalization and mortality in this population^{5,9}.

An important point of note was the observation of a very high proportion of hospitalizations in women compared to hospitalizations in men. According to the data in **Figure 02**, it is observed that, in all years, female patients were the most affected by the condition, with the years 2018 and 2019 showing the greatest differences between genders (n = 10,767 and n = 10,583, respectively). A study by Pinheiro and Guedes¹⁰ reported that, in the sample analyzed, the incidence of fractures in women was 75% and 25% in men. In a study by Franco et al³, in which 275 patients with femur fractures were evaluated, 133 were female and 62 were male. In this sense, it was found that the studies corroborate this study, revealing a predominance of fractures in female patients in other regions of the country.

This higher prevalence observed in women may be related to physiological and hormonal changes that occur with increasing age. After the age of 50, the action of the estrogen hormone causes a decline in bone mass in women, with a consequent potential for developing bone diseases, such as osteoporosis⁹. Still, the higher prevalence in female patients may also be related to the domestic activities performed by them, even in old age, in addition to their greater aptitude for physical exercise and leisure activities¹¹. In this sense, the association of these factors with the decrease in bone content and the appearance of pathologies that contribute to the increased risk of fractures, there is a greater occurrence of femur fractures in women after menopause^{9,11}.

The data presented here show that the Southeast region presented similar epidemiology to the rest of the national territory. This region had a higher number of hospitalizations in patients older than 80 years and a similar profile was found in studies previously published in the country. A retrospective study showed that in the Federal District, the occurrence of fractures was also higher in elderly people aged 80 years or older¹². The etiology of femoral

fractures in patients aged 60 years or older is closely related to low-energy traumas and the decrease in added proximal bone mass and physical and behavioral factors of these patients, such as physical inactivity, alcoholism, poor diet and smoking¹³.

Still, other factors associated with the aging process may also be related to the incidence of pathology in these patients, such as decreased visual acuity, altered balance and other associated comorbidities, such as cardiovascular and neurological diseases. Thus, the exposure of individuals to these factors influences the higher risk of fractures, as well as complications and mortality and morbidity in the postoperative period¹⁴.

The research also sought to carry out an analysis of the character of hospitalization care considering the individuals affected. Femoral fracture is a medical emergency, and immediate care is essential to reduce complications, such as hip dislocation and heterotypic ossification. Treatment will vary according to the fracture size, location and age of the patient, consisting of a surgical approach^{14,15}. In agreement with this, it was found that, during the period studied, hospitalizations of an urgent nature were the most prevalent, as observed in **Graphic 02**.

The occurrence of femoral fractures limits the quality of life of owners who have suffered such an injury. In this bias, the results reinforce the importance of health actions aimed at the health of this public, in order to prevent their occurrence. Still, it is worth noting that this study, as it was carried out using secondary data from the Hospital Information System of the Unified Health System, did not allow for more in-depth analysis of the variables, limiting the study only to their description. Thus, it was not possible to investigate other risk factors and their impact on the prognosis of the disease.

Conclusion

This study allowed us to conclude that there was an increase in hospitalizations for femur fractures in the Southeast region of Brazil, between the years 2009 and 2019. The prevalence of fractures found was higher in patients older than 80 years old and female. These results point to the need for further studies in the region, in or-

der to find out the incidence and morbimortality of the pathology to know the epidemiological pattern of the disease and assist in the planning of health care. Thus, it is essential to promote targeted subsidies for the prevention of the fracture, through programs that encourage healthy habits, physical exercise, combined with health education for the elderly, family and caregivers about the factors of risks related to fractures.

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