



Emergency treatment of proximal femoral fracture within 48h: The Umbria Region experience

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ABSTRACT

Objective: To study the main aspects of osteoporotic emergency fracture of the hip in the Umbria Region in the years 2006-2011. **Methods:** The study was conducted from January 1 of 2006 to December 31 of 2011, and included only patients over 49 years of age. Patients who did not habitually reside in the region were excluded. They were collected in each based on the following data: age, sex, place of residence (urban or rural), time of the year, fractured side, type of trauma, history of fracture contralateral and perioperative mortality. **Results:** From 2006 to 2011, a progressive increase in the number of femoral fracture admissions in regional hospitals was observed, equal to 4.73% per annum. The incidence went from 6.8 to 8.1 for 1.000 ultra-65th residents. The most affected age groups are those between 75-84 years and 85-94 years. **Conclusions:** The epidemiology of osteoporotic hip fracture in the Umbria Region follows a pattern similar to that of other Italian regions. The in-hospital mortality of these patients is partly determined by age and number of complications they suffer during admission. The impact of economic resources on patients who break the osteoporotic hip justifies the implementation of programs for the prevention of osteoporosis and fractures.

1. Introduction

The proximal fracture of the femur[1] is the most serious complication of osteoporosis, due to its high mortality and morbidity, as well as to the important social, economic and welfare cost that it generates. Its incidence varies markedly from one country to another and even within from one country, from one region to another. In Italy, proximal femoral fractures generate acute hospitalization and direct costs comparable to those of myocardial infarction and are characterized by a higher incidence of age-related increases[2]. They are burdened with high mortality rates, 5%-8% in the acute phase and 25%-30% within the year, compared to a one-year mortality rate for the same age group no more than 10%, as well as permanent disability: only 20% of patients undergoing

surgery for proximal femoral fracture recover the previous level of independence or functional autonomy.

2. Materials and methods

The histories of all patients have been reviewed with proximal femur fracture treated in the Umbria Region between the 1st of January 2006 and the 31st of December of 2011. Its identification was made by verification of the diagnoses of hospitalization, as

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well as through the diagnosis of the units of traumatology of the care centers to acute patients of the Umbria Region.

All operated patients had been identified in the verification of the diagnosis of admission and high (in particular they accounted for 97% of the total the same). The following data were collected from each patient: age, sex, place of residence (medium rural or urban), time of year, type of fracture, fractured side, type of trauma, history of contralateral proximal femoral fracture and mortality perioperative. In no case was there a bone lesion focal area underlying the fracture, such as metastasis, of Paget or others[3-5]. The analysis included only patients over 49 years.

The patients with non-resident hip fractures habitual in Umbria were not included in the study. Fractures were classified as cervical and trochanteric. The mortality perioperative period was defined as that produced during the period of hospitalization. Information on the population of Umbria is obtained from the National Institute of Statistics. The statistical analysis was performed with computer support (Sigma and Horus Hardware)[6-8]. The results are expressed in the form of Mean±SE. For the assessment of differences Student's *t*-test was used, comparing percentages, analysis of variance and test of χ^2 , depending on the number and characteristics of the variable to be studied. They are considered significant *P*-values less than 0.05.

3. Results

From 2006 to 2011, there was a progressive increase in the number of femoral fractures in regional hospitals, which is 4.73% per annum. The incidence went from 6.8 to 8.1 for 1.000 ultra-65th residents. Ultraphytes account for 93% of femoral fractures. The most affected age groups are those between 75-84 years and 85-94 years (Figure 1). In 2011, 1 699 patients aged 65 years or older (hospitalization rate of 200 cases per 100 000), mainly women (75.3% of cases) with a median age of 84 years, were hospitalized for femoral fracture. In 2011, 91.9% (*n* = 1 562) of fractured females residing in ultrafood was surgically treated: 204 (13%) within 24 hours, 520 (33%) within 48 hours, the remaining 838 cases in a time between 3 and 20 days from hospitalization (Figure 2). The treatment or conservative was reserved for 8% of the females fractured [9-10].

The waiting time for access to surgery remained basically stable over the period 2006-2011, which corresponded to 3.47 days and 3.88 days (Figure 3).

In the same period, the average duration of hospital stay has increased steadily, from 10.86 days in 2006 to 11.60 days in 2011, while intra-hospital mortality (total and postoperative) remained substantially overlapping, respectively 2.5% and 1.7%, in the same period (Figure 4).

There were no significant differences between the incidence of fractures in the rural and in the urban environment.

The most frequent type of fracture corresponded to trochanterism

(60% in women and 55% in men). The side that fractured most frequently was the left (61% in the women and 58% in males).

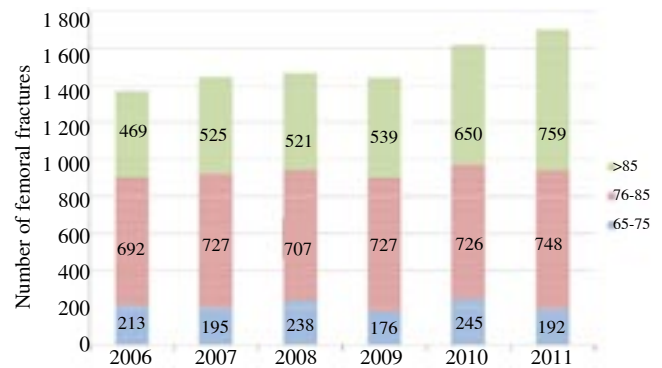


Figure 1. Distribution by age groups of resident patients and hospitalized in regional hospital fractures by femoral fracture, from 2006 to early 2011.

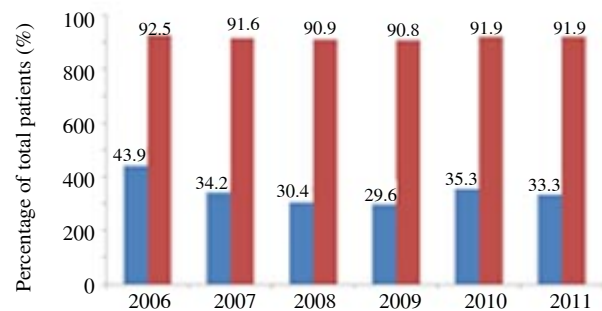


Figure 2. Patients undergoing surgical intervention within two days of entry into the hospital due to femoral fracture (compared to the total number of those who underwent surgery).

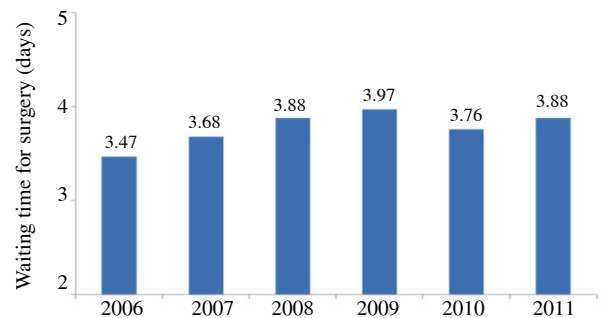


Figure 3. Progress in waiting times for surgery for the period 2006-2011.

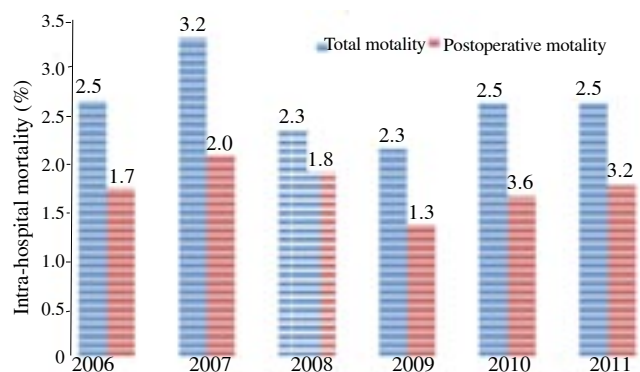


Figure 4. Total and post-operative intra-hospital mortality after femoral fracture in the ultra-65-year-olds from 2006-2011.

5. Conclusion

Surgery should be performed quickly in clinically stable subjects in order to reduce the preoperative waiting within 24–48 hours. In ensuring timely access to the intervention, it is recommended to examine the organizational factors related to this specific process and outcome. The possibility of early intervention requires the availability of operating rooms, surgical and anesthesiologic staff, separate paths between traumatology and election interventions. The hospital organizational model, prepared by companies in agreement with the multidisciplinary team, should be aimed at minimizing cases of delayed intervention for non-clinical reasons.

Fracture surgical stabilization represents the procedural standard for femoral fracture in the elderly^[11-12]. The aim of the surgery is to achieve a stable fracture synthesis to allow a rapid recovery of the ability to walk with load or to return to levels of autonomy and quality of life pre-existing to the traumatic event. Orthogeriatric evaluation and clinical patient stabilization are paramount and should facilitate access to surgery within 24–48 hours^[12].

The rapid recovery of mobility after surgery is a pivotal point of the elder patient's pathway with femoral fracture. Practically 90% of all fractures of hip seen in a hospital are attributable to osteoporosis. Osteoporotic hip fracture is a process related to aging and, in large part of published studies to date, it has been communicated an exponential increase in incidence of this fracture with age^{5-9,27}. In the present study has been proven which doubles the incidence for each age group (5 years) from the age of 75 years¹³. The incidence of hip fracture in Umbria is similar to that of other Italian regions^[14-24].

Within the world geography, the incidence of osteoporotic hip fracture in this region and in general in Italy²⁵⁻³⁴, is well below the reported for the countries of northern Europe and Anglo-Saxons, and approach to that presented by other countries European countries.

Regarding sex, the hip fracture is more frequent in women than in males. There are very few populations in which an inverse relationship is observed ^[35-45].

The epidemiology of osteoporotic hip fracture in the Umbria Region follows a pattern similar to that of other Italian regions. The in-hospital mortality of these patients is partly determined by age and number of complications they suffer during admission. The impact of economic resources on patients who break the osteoporotic hip justifies the implementation of programs for the prevention of osteoporosis and fractures.

Conflict of interest statement

The authors report no conflict of interest.

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