

ORIGINAL ARTICLE

## Traumatic Injuries Caused by Falling in the Elderly Referred to the Emergency Department; an Epidemiologic Study

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### Abstract

**Introduction:** Falling and its resulting injuries are among the important problems of the elderly all over the world and bring about a considerable rise in financial and care burdens for health care systems. To gain accurate data for prevention or treatment planning, the present study aimed to epidemiologically assess the injuries resulting from falling in elderly patients presenting to emergency department (ED).

**Methods:** The present study is a retrospective cross-sectional study carried out on elderly patients presenting to ED of Imam Reza Hospital, Mashhad, Iran, during 2011 and 2012 following falling. Consecutive sampling was used and patients over the age of 60 were included. Demographic data, accident characteristics, hospitalization duration, type of injury and fracture, frequency of visits and final outcome of the patients were recorded using descriptive statistics. **Results:** 1033 patients with the mean age of  $73.37 \pm 9.07$  years (range: 60 – 106) were studied during 2 years. 64.8% were female and the female to male ratio was 1.83 (69.5% married). Mean age of the injured women ( $73.07 \pm 8.89$ ) was not significantly different from that of injured men ( $73.92 \pm 9.36$ ) ( $p = 0.156$ ). Most patients (56.6%) were in the 60-74 years age group. Frequency of accidents was higher in summer (29.6%) and was the highest in September. Mean duration of hospitalization was  $5.05 \pm 6.96$  days (range: 1 hour-98 days). The longest duration of hospitalization was due to femur fracture. Mean frequency of revisits was not significantly different between women ( $1.34 \pm 0.84$ ) and men ( $1.48 \pm 1.43$ ) ( $p = 0.078$ ). Evaluation of falling locations revealed falling from the same level in 73.6% of cases, falling from a height in 23% of cases, objects falling on the patient in 2.7% of cases and other cases were undefined. 65.7% of females had fallen from the same level and 78.9% of males had experienced falling of objects ( $p < 0.001$ ). In assessing the type of fracture based on gender, fractures of femur (34.4%), forearm (34%), and shoulder (8.9%) in women and femur (48.3%), forearm (13.7%), and leg (10.6%) in men were the most common types, respectively ( $p < 0.001$ ). In total, 2.7% of falling cases had led to death. Comparison of mean age between those who survived ( $73.20 \pm 8.97$ ) and those who died ( $97.57 \pm 10.50$ ) showed a significant difference ( $p < 0.001$ ). Most patients that died were in the 75-89 years age group (50%) and male (53.6%). **Conclusion:** Based on the results of the present study, the highest frequency of falling in the elderly happened in married women with the mean age of 73 years, in summer (September), following same level falling between 1pm and 6 pm. The most common injury caused by falling in this population was fracture of upper and lower extremities and mortality rate due to falling was 2.7%.

**Key words:** Epidemiologic studies; accidental falls; patient outcome assessment frail elderly; emergency department

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