

ORIGINAL PAPER

Falls in Hospitalized Acute Stroke Patients

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The aim of this study was to analyze the fall frequency and some of its characteristics in hospitalized acute stroke patients. **Patients and methods:** It was analyzed 1809 acute stroke patients hospitalized at the Department of Neurology in period of one year. A fall was defined as any unplanned «touch to the floor» of any part of a patient's body, excluding the feet. **Results:** Out of 1809 acute stroke patients, 1544 (85.35%) had cerebral infarction (CI) and 265 (14.65%) intracerebral hemorrhage (IH). In group of patients that fell (61/3.3%), 49 (80.33%) had infarction and 12 (19.67%) (p=0.25) had hemorrhage. Out of 61 patients that fell, 42 (68.86%) suffered from impaired spatial orientation and 47 (77.05) were aphasic. The neurological deficit, impairments of spatial orientation and presents of aphasia were highly correlated with falls (p<0.001). The most frequent falls occurred by night night (38 or 62.29%) and in the first five days of hospitalization (44 or 72%). In most cases (52%) the falls caused minor injuries like contusion and lacerations of skin and did not require special medical treatment. **Conclusion:** Hospitalized acute stroke patients have no high risk of falling (3.3%), and the incidence of serious injury is low. The falls are more frequent in the first five days of hospitalization (72%) and occur mostly during the night (62.29%). Severity of neurological deficit, impaired spatial orientation and aphasia are highly correlated with falls. **Key words: acute stroke. Falls.**

tion) and the consequences of the fall (severity of injuries). A fall was defined as any unplanned «touch to the floor» of any part of a patients body, excluding the feet. Patients with a subarachnoid hemorrhage were excluded in the study.

4. RESULTS AND DISCUSSION

Out of 1809 acute stroke patients, 1544 (85.35%) had cerebral infarction (CI), 265 (14.65%) intracerebral hemorrhage (IH) (Table 1), and 61 (3.3%) experienced at least one fall during their hospital stay.

Different studies showed considerable variation in the risk of falling among clinical departments. Tutuarima et al (5) found that 14% of stroke patients fell at least once during their hospital admission with 8.9/1000 falls per day and the daily incidence was 6.2/1000 patients for first fall and 17.9/1000 patients for second falls.

Furthermore, a fall incidence was reported of 5.2/1000 and 6.6/1000 patients per day on two neuroscience (both neurology and neurosurgery) wards, whereas the overall in-hospital fall incidence at these institutions was 3.1/1000 and 4.7/1000 patients per day, respectively (1).

In group of 61 all patients in our study, intracerebral infarction had 49 (80.33%) and intracerebral hemorrhage 12 (19.67%) (Figure 1); 34 were male (55.74%) and 27 female (44.26%), with mean age 67.28 (± 9.39) years (Table 2).

There was no significant difference in comparison of total and group of patients that fell according to type of stroke (p=0.25). Among 61 fall patients, 42 (68.86%) suffered from impaired spatial orientation and 47 (77.05) were aphasic. The degree of neurological def-

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1. INTRODUCTION

Stroke patients have a high risk of falling, and falls are a cause of increasing morbidity and mortality for patients with cerebrovascular disease, and ranked as fourth among all general medical complications (1, 2, 3). Studies on falls in stroke patients are rare and originate from settings such as acute care settings, rehabilitation facilities, and the community (1, 4).

2. AIM OF THE STUDY

The aim of this study was to analyze the incidence of falls and some of its characteristics in hospitalized acute stroke patients.

3. PATIENTS AND METHODS

It was analyzed 1809 acute stroke patients hospitalized at the Division of cerebrovascular diseases – Department of Neurology, University Clinical Center Tuzla, Bosnia and Herzegovina with average hospital stay of 12 days in period of one year. The characteristics of 61 patients who fell (male 34/55.74%, and female 27/44.26%) were analyzed from medical and nursing records including: sex, type of stroke (infarction or hemorrhage) confirmed by CT scan, assessment of neurological deficit (hemiplegia or hemiparesis), impairments of spatial orientation, presents of aphasia, data about the circumstances (time of day, day of hospitaliza-

icit, impairments of spatial orientation as well as presents of aphasia were highly correlated with falls ($p < 0.001$).

Impaired mobility and confusional state were reported as risk factors for falls in hospitalized patients (6), but this could not be confirmed in other studies (1).

The most frequent falls occurred during the night (38 or 62.29%) and in the first five days of hospitalization (44 or 72%) (Figure 2). In most of cases (52%) the falls caused minor injuries like contusio and laceratio of skin and did not require specific medical treatment.

In study of Tutuarima et al (1) falls occurred during the day in 45% of cases, in the patient's room (51%), and during visits to the toilet or bathroom (20%). Approximately 25% falls caused slight to severe injuries. Hematoma or open wounds occurred in 8%, and hip fractures in 2%. The frequency of remaining injuries were low and did not require specific medical treatment or nursing attention.

Total fall frequency in our study is lower comparing to other studies (1, 3, 4, 5, 7). Mackintosh et al (7) reported that 46% of patients fell, with most falls occurring in the two months after discharge from rehabilitation. Sze et al. (8)

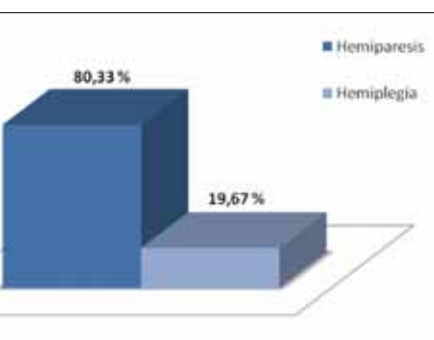


FIGURE 1. Distribution of fall patients according to neurological deficit

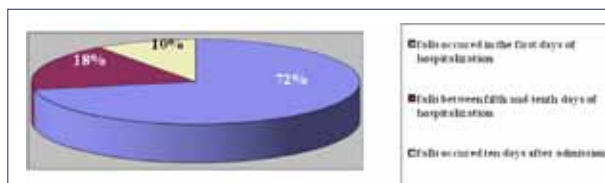


FIGURE 2. Distribution of falls according to time of onset

reported 11.5% falls among stroke patients and Teasel et al. (9) 37%. These studies were done during neurological rehabilitation and that probably caused high fall frequency, while our study was focused on the first days after stroke. In our study 59 (96.72%) patients that fell had bed frame or side rails, so we presume fall frequency would be higher if we did not use beds with side rails prevention.

5. CONCLUSION

Hospitalized acute stroke patients (at the Department of Neurology University Clinical center Tuzla) have no high risk of falling (3.3%), and the frequency of serious injuries is minor low. The falls are mostly in the first days of hospitalization (72%) and more frequent during the night (62,29%). Severity

of neurological deficit, impaired spatial orientation and aphasia are highly correlated with falls.

Conflict of interest: none declared.

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