Falls in Hospitalized Acute Stroke Patients

Osman Sinanović¹, Begsana Raicevic¹, Maja Brkic¹, Ensala Hajdarbegovic¹, Sanela Zukić¹, Biljana Kojić¹, Kata Imamovic¹
Department of Neurology, University Clinical Center Tuzla, Bosnia and Herzegovina¹
Department of Psychiatry, University Clinical Center Tuzla, Bosnia and Herzegovina²

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.

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 hospitalization) 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. Tuturina 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-
ict, 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 (38 or 62.29%) and in the first five 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.**

**REFERENCES**