

## Original Article

## The Evaluation of Relation between Age, Sex and Length of Hospitalization with Recurrent Stroke

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### ABSTRACT

**Introduction:** Stroke is sixth leading cause of death in the world. Economically taking care of stroke patients and rehabilitating costs more than those with acute and complicated diseases. Today, recurrent stroke is one of the leading causes of death in those survived stroke previously. Diagnosing the causes of early recurrence would help us promoting secondary prevention and accurately selecting the high risk patients in stroke recurrence. **Methodology:** In this article, as a cross-sectional descriptive one, is tried to study, extract the demographic data and length of hospitalization of about 600 stroke patients hospitalized in Tabriz Imam Reza Hospital during 2016. Eventually, abstracted data analyzed by spss15.0.0. **Result:** In this study 617 stroke patients, 403 men and 214 women, were examined. The age average was 62.63 and the average number of hospital days was 19.10. Among 617 patients studied, 22(19men and 3 women) had recurrent stroke. Average age of these patients was 61 and the average of hospital days was 14. **Conclusion:** Generally, It is worth mentioning that because of data distortion in patients with recurrent stroke, it was impossible to compare those patients with the primitive society.

### INTRODUCTION

Stroke is caused by insufficient blood supply to brain because of either vessel rupture or vessel obstruction by thrombosis. Etiologically, it is classified to 2 types as “ischemic” and “hemorrhagic” ones. Some of most frequent symptoms of stroke are acute weakness, facial and carpal anesthesia, confusion, speech and comprehension problems. As WHO classification, stroke is one of the incommunicable diseases that cause 40 million deaths annually (70% of universal mortality) of that amount 80% is in less developed and undeveloped countries. Stroke is the second cause of disability in Europe and the sixth cause around the world, while the first is dedicated to IHD. Economically, taking care of stroke patients and rehabilitating costs more than in those with acute and complicated diseases (1).

Nowadays, recurrence of stroke is one of the leading causes of mortality in survived patients. Early recurrence in isch-

emic stroke within the first two weeks after stroke is due to cardiogenic emboly and increases 1% per day. Frequency and the time of early recurrence, especially in known particular subtypes of stroke, would help understanding nature and risk factors which influence approaching to stroke patients (2). According to Sacco's study, diagnosing the causes of early recurrence would help us promoting secondary prevention and accurately selecting the high risk patients in stroke recurrence (3). The risk of recurrence for patients' survived stroke is about 11.1% during one, 26.4% during five and 39.2% during ten years after the stroke (4). In recent decades in western countries as in Sweden, is tried to consider risk factors of stroke to decrease recurrence and the mortality followed by it (5). In a descriptive study was shown there is a period time (about 36 months) between first stroke and first recurrence which is lesser in younger patients with hemorrhagic stroke (6).

There is little population dependent studies, however, all the results showed the abounded incidence and severity in senile population. Possibility of stroke incidence in men is more than women, however, in patients older than 85 more incidences are dedicated to women. Several studies have found that women who survived stroke have less favorable outcomes than men. Women are less likely to discharge home and are more likely to have activity limitations in follow-up. Women may experience more mental impairments, depression, and fatigue and have a lower overall quality of life than men after stroke (7). Women are less likely to have stroke during life but because of much higher incidence at older ages in women, they are more likely to die. Therefore, women have more mortality rate than men after stroke (8). The aim of this study is to evaluate the relation between age, sex and length of hospitalization with recurrent stroke.

## METHODOLOGY

In this study, as a cross sectional descriptive one, we collected data of patients with acute stroke hospitalized in Imam Reza Neurology Ward during 2016. According to lack of data about length of hospitalization and stroke recurrence, we selected the maximum sample size by their hospital codes in a simple random method (about 600 patients). By the way, we selected 617 patients randomly and extracted the demographic data and length of hospitalization from patient's files and obtained recurrence during one year by patient's hospital codes or by asking by a phone call. Finally all the data were analyzed by SPSS 15.0.0..

## RESULTS

In this study 617 stroke patients were examined. The average age was  $63.62 \pm 14.73$ , the maximum was 95, the minimum was 36 years old and there were 403 men and 214 women. As the results, there was a significant relationship between age and length of hospitalization, by the way, older patients had more days hospitalized after stroke. In this study, 22 patients of 617 had recurrent stroke (about 3.5%). Oldest patient was 87 and the youngest was 43 years old. The average age was  $61 \pm 13.84$  and they were consisting of 19 men and 3 women. The average of hospital days in those with recurrences was  $7.37 \pm 6.17$ , the least was 1 day and the most was 38 days. There wasn't a significant relationship between age and length of hospitalization; however, there was a significant relationship between age and sex. So women had more recurrence in older ages than men. Because of data distortion in patients with recurrent stroke, it was impossible to compare these patients with the primitive society.

## DISCUSSION

In this study the average hospital days were  $16.44 \pm 10.19$  as the same of Roquer's study which was  $15.4 \pm 14.5$  for women and  $13.5 \pm 11.5$  for men. Also in Roquer's study women were more likely to have long hospitalization than

men. Average age of stroke patients hospitalized in Tabriz Imam Reza Hospital during 2016 was  $63.62 \pm 14.73$  and it was so similar to Baggio's study in Brazil during 2014 with  $62.8 \pm 14.7$  years old (9). Roquer's study on sex differences and the average age in first ever stroke patients showed women were about 6 years older than men, however, in older ages, stroke probability increases both in men and women. Consistent with their studies, there was sex differences in stroke risk factors. Important risk factors were AF and cardio embolic diseases in women, while it was smoking and alcohol consumption in men. There wasn't any significant sex differences in DM, cardiogenic diseases and hypercholesterolemia (8). Contrary to Roquer's study, showing higher mortality rate in women (12.1% in women against 10 % in men), Kapral's study showed that there wasn't any sex differences in mortality rates and life quality in 6 months after stroke (10).

In our study 22 people had recurrent stroke during the first year after first stroke among 617 people (about 3.5 %). Consistent with our study, Nedeltchev showed 3% recurrence among young patients (11). While in Ley's study it was about 1.4% recurrence among young patients during the first year and 1% during the later years (12). There are several studies about recurrence probability. Erikson's study showed 12.5% recurrences in first year, 38.7% in first five years and 53.7% in first 10 years after stroke (13). As in two other studies done by Erikson, stroke recurrence was 13% and 14% in first year and 30% and 37% in first five years (14). In Kaplan-Meier's study recurrence was 2.7% during the first month, 5.5% during the first 6 months and about 5.9% during the first year (13). Recurrence increases 1.027 times by every 1 year aging.

According to Aperlos's study, age, cardiac diseases and post stroke brain damages have significant influence on mortality and recurrence while DM and hyperglycemia didn't have any significant influence on stroke recurrence (5).

## CONCLUSION

In our study, we found that older patients had more hospital days and in those with recurrent stroke, in older ages women had more recurrence than men. Because of data distortion in patients with recurrent stroke, it was impossible to compare these patients with the primitive society (617 patients with first ever stroke).

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