

Research Paper:

Socioeconomic Factors Associated With Mortality Rate Caused by Severe Stroke



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ABSTRACT

Background Stroke is one of the most important causes of disability-adjusted life years lost. Low socioeconomic status is associated with increased stroke-related morbidity and mortality.

Objective This study aimed to investigate in-hospital mortality rate caused by severe cases of ischemic and hemorrhagic stroke and its relationship with patients' socioeconomic status.

Materials and Methods This comparative analytical study with a cross-sectional design was conducted from April 2018 to March 2019 on 384 patients diagnosed with severe stroke admitted to the neurology department of Poursina Hospital in Rasht, Iran, who were selected using a purposive sampling method. They completed a demographic checklist and the Socio-Economic Status Questionnaire. Data analysis was carried out in SPSS V. 21 software.

Results It was reported a stroke death rate of 59.9%, of which 75.7% occurred in the hospital. Stroke-related mortality rate had a significant relationship with age ($P=0.021$), gender ($P=0.047$), not owning a home ($P<0.001$) and socioeconomic status ($P<0.001$).

Conclusion Some demographic factors including old age, male gender, not owning a home, and low socioeconomic status increase the risk of stroke-related mortality.

Extended Abstract

1. Introduction

Stroke is one of the leading causes of death in the world [1]. The mortality rate caused by stroke can be discussed based on different risk factors [2]. Epidemiological studies have shown that social factors play an effective role in stroke deaths. Factors such as inequality in receiving preventive measures including routine medical visits, screening, treatment, and acute phase intervention facilities can explain the higher rate of stroke death in low-income countries [3].

The previous studies have suggested that social and economic factors play a crucial role in stroke deaths [4]. Accordingly, this study aims to investigate the relationships between some of the socioeconomic factors and the deaths caused by severe stroke.

2. Materials and Methods

This is a comparative, analytical study with a cross-sectional design conducted from April 2018 to March 2019. Participants were 384 patients diagnosed with ischemic and hemorrhagic stroke and hospitalized in the neurology department of Poursina Hospital in Rasht, Iran, who were

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selected using a purposive sampling method. The inclusion criteria were: Diagnosis of severe stroke (NIH Stroke Scale score >20) by a neurologist and hospitalization in the neurology department according to the patients' medical records, while exclusion criteria were: Unwillingness or inability to continue participation in the study, and being transferred to other medical centers during the study. Moreover, the patients with a history of hospitalization due to underlying neurological problems were excluded from the study. After providing the patients with the necessary explanations and obtaining their informed consent, they completed a demographic checklist and Socio-Economic Status Questionnaire (SESQ) developed by Ghodrathnama et al. [5]. If the patients could not fill in the questionnaire due to illiteracy or physical disability, the questionnaires were completed by the researchers on behalf of them. In case of mental disability or a decrease in consciousness, the questionnaires were completed by the patients' companions or family members. The patients were followed up until discharge and the death cases were recorded. The ratio of the number of deaths to the total number of patients was calculated to determine the percentage of stroke-related mortality. Then, the patients were divided into two groups. Data analysis was performed in SPSS V. 21 software. The patients' demographic characteristics were presented by using frequency and percentage statistics.

3. Results

There were 324 (84.4%) male patients, and most of them (n=144, 37.5%) were at the age of 70-80 years, and were married (n=371, 96.6%). The total number of stroke deaths was 230 (59.9%); of this, 174 (75.7%) occurred in the hospital and the remaining cases occurred one month after discharge. There were 323 cases of ischemic stroke, and the remaining was hemorrhagic stroke. Regarding the type of stroke, results reported a total mortality rate of 59.9% (95% CI: 54.9-64.7). In the ischemic stroke patients, this rate was 59.1% (95% CI: 53.7-64.4), while in the hemorrhagic stroke patients, it was 63.9% (95% CI: 51.5-75.1). The data showed a total ischemic stroke rate of 84.1% (95% CI: 80.2-87.5) and a hemorrhagic stroke rate of 15.9% (95% CI: 12.5-19.8). There was a significant relationship between the death rate caused by severe stroke and factors of age (P=0.021), gender (P=0.047), not owning a home (P<0.001), and socioeconomic status (P<0.001).

4. Conclusion

The results suggested a stroke death rate of 59.9%. Several demographic factors such as higher age, male gender, not owning a home, and poor socioeconomic status can

increase the risk of stroke death. The results of the present study are consistent with the findings of Fonarow et al. [18], Bautista et al. [20], and Blum et al. [21]. Low socioeconomic status can reduce the patients' access to medical and rehabilitation services; hence, it can affect the mortality rate and complications caused by stroke. This study investigated the patients with severe stroke in the neurology department of a hospital only; therefore, the generalization of the results should be carried out with caution. It is recommended to investigate the mortality rate and its relationship with socioeconomic status in patients with mild stroke and in other medical centers.

Ethical Considerations

Compliance with ethical guidelines

This study ethically was approved by Guilan University of Medical Sciences (Code: IR.GUMS.REC.1397.238).

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Authors' contributions

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Conflicts of interest

The authors declared no conflict of interest.

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