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A Study on the Assessment of Severity of Stroke Patients at an Indian Tertiary Care Hospital

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ABSTRACT

Aim: To assess the severity of stroke by using the NIH stroke scale among the ischemic and hemorrhagic stroke patients.

Materials and Methods: Patients who were newly diagnosed with stroke were included in the study. All the demographics of the patient were collected by using a data collection form and the severity of the stroke was assessed by using the NIHSS questionnaire. According to this questionnaire, the severity of the stroke was classified into minor (0-4), moderate (5-15), moderate to severe (16-20) and severe (21-42).

Results: Among the 150 patients involved in the study 107 (71.3%) were found to be males and 43 (28.7%) were found to be females. In this study, the patients with ischemic stroke were observed to be 97 (64.7%) where as the patients with hemorrhagic stroke were 53 (35.3%). Hypertension (40%) was the most common co-morbidity observed in this study The severity of the stroke in majority of the patients were observed to be severe (40.7%) followed by moderate severity (35.3%).

Conclusion: In this study, ischemic stroke was more prevalent when compared to hemorrhagic stroke. Hypertension is the most common co morbidity observed. According to the NIH stroke scale assessment, the severity of the most of the study participants was observed to be severe followed by moderate in this study. Clinical pharmacists should create awareness among the general public regarding the negative consequences of the stroke and also should suggest the life style modifications which may increase the quality of life of the stroke patients.

Introduction

Globally, stroke is a significant cause of morbidity & mortality which is characterized by improper blood flow to the brain that causes cell death [1]. In India, the incidence rate of stroke is between 145-154 per 1,00,000 individuals a year [2]. The two major types of stroke are ischemic (due to the lack of blood flow) and hemorrhagic (due to bleeding). To differentiate between the ischemic and hemorrhagic stroke, the diagnosis depends on the clinical features and also on the brain imaging. The signs and symptoms of stroke include inability to move or feel on one side of the body, dizziness, severe headache and difficulty in speaking & understanding [3].

Hypertension is the major risk factor for stroke [4,5]. Smoking, elevated cholesterol levels, obesity, diabetes mellitus, atrial fibrillation and a previous history of transient ischemic attack are the other risk factors of stroke [6,7]. Stroke can be diagnosed using several diagnostic procedures like neurological examination, MRI scan, CT scan and Doppler ultrasound [8-11]. For evaluating the location and severity of the stroke, a physical examination along with the medical history of the symptoms and a neurological status should be assessed by using the scale like National Institutes of Health Stroke Scale (NIHSS) [12]. In this study, the main aim was to assess the severity of stroke by using the NIH stroke scale among the ischemic and hemorrhagic stroke patients.

Materials and Methods

This was a prospective study conducted at Government General Hospital, Kakinada, East Godawari district of Andhra Pradesh. Patients who were newly diagnosed with stroke were included in the study. After getting the ethical clearance and with the prior permissions from the above mentioned hospital, data collection was done.

Patient demographics were collected by using a data collection form and the stroke severity was assessed by using the NIHSS questionnaire. The scale consists of various contents that include level of consciousness (LOC), LOC questions & commands, best gaze, visual fields, facial palsy, motor arm & leg, limb ataxia, sensory, best language, dysarthia, extinction & inattention.

According to this questionnaire, the stroke severity was classified into minor (0-4), moderate (5-15), moderate to severe (16-20) and severe (21-42) [13].

Results and Discussion

Table 1 represents the gender wise categorization of the study participants. Among the 150 patients, 107 (71.3%) were found to be males and 43 (28.7%) were found to be females. In this study, the patients with ischemic stroke were observed to be 97 (64.7%) where as the patients with hemorrhagic stroke were 53 (35.3%) (figure-1).

Table 1: Gender wise categorization of study participants

Gender	Ischemic (%)	Hemorrhagic (%)	Total (%)
Male	65 (67.1)	42 (79.2)	107 (71.3)
Female	32 (32.9)	11 (20.8)	43 (28.7)
Total	97 (100)	53 (100)	150 (100)

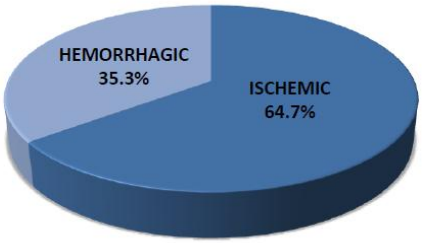

Figure 1: Incidence of Ischemic and Hemorrhagic stroke among the study participants

Table 2 represents the age wise categorization of the study participants. Majority of the study participants were observed in the age group 51-60 years (28.7%). Table 3 represents the age wise categorization of the study participants based on the type of stroke. Among the ischemic stroke patients, most of the patients were observed to be in the age group 61-70 years (28.9%) followed by the age group 51-60 years (22.7%) whereas in case of the patients with hemorrhagic stroke, most of the patients were found to be in the age group 51-60 years (39.6%) followed by the age group 41-50 years (24.5%).

Table 2: Age wise categorization of study participants

Age	Male (%)	Female (%)	Total (%)
31-40	11 (10.3)	2 (4.7)	13 (8.7)
41-50	25 (23.4)	5 (11.6)	30 (20)
51-60	33 (30.8)	10 (23.3)	43 (28.7)
61-70	21 (19.6)	14 (32.6)	35 (23.3)
71-80	14 (3.1)	9 (20.9)	23 (15.3)
81-90	3 (2.8)	3 (6.9)	6 (4)
Total	107 (100)	43 (100)	150 (100)

Table 3: Age wise categorization of study participants based on the type of stroke

Age	Ischemic stroke (%)	Hemorrhagic stroke (%)	Total (%)
31-40	9 (9.3)	4 (7.5)	13 (8.7)
41-50	17 (17.5)	13 (24.5)	30 (20)
51-60	22 (22.7)	21 (39.6)	43 (28.7)
61-70	28 (28.9)	7 (13.2)	35 (23.3)
71-80	17 (17.5)	6 (11.3)	23 (15.3)
81-90	4 (4.1)	2 (3.8)	6 (4)
Total	97 (100)	53 (100)	150 (100)

Hypertension (40%) was the most common co-morbidity observed in this study (figure-2). Most of the study participants were observed with smoking and alcoholism (30%) and only 28% of the overall study participants were found to be non-smokers and non-alcoholics (figure-3). Table 4 represents the gender wise categorization of the study participants based on the severity of stroke. In majority of the patients, the severity of stroke was observed to be severe (40.7%) followed by moderate (35.3%) (figure-4).

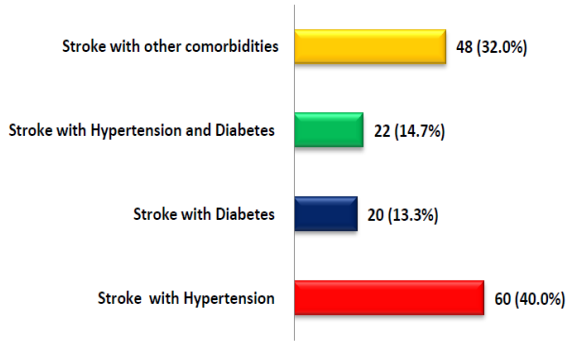

Figure 2: Co-morbidities of the study participants

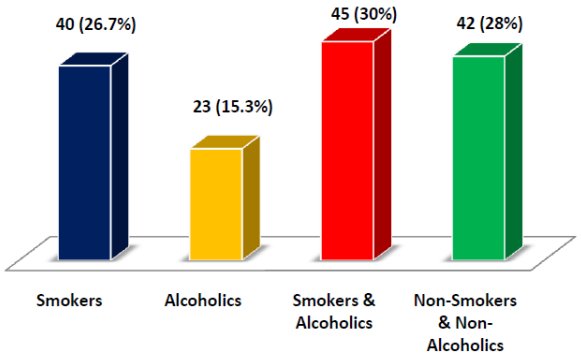

Figure 3: Social habits of the study participants

Table 4: Gender wise categorization of the study participants based on the severity of stroke

Gender	Minor (%)	Moderate (%)	Moderate to severe (%)	Severe (%)	Total (%)
Male	12 (92.3)	37 (69.8)	14 (60.9)	44 (72.1)	107 (71.3)
Female	1 (7.7)	16 (30.2)	9 (39.1)	17 (27.9)	43 (28.7)
Total	13 (100)	53 (100)	23 (100)	61 (100)	150 (100)

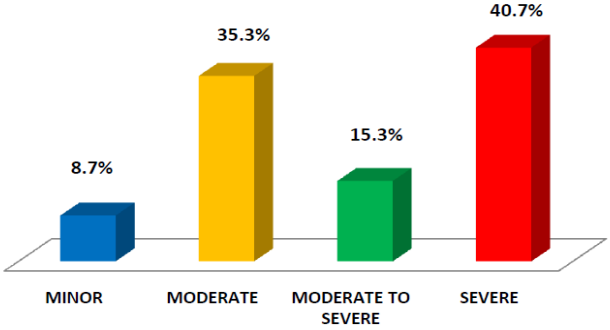

Figure 4: Severity of the stroke patients observed in the study

Conclusion

Males are more prone to have stroke when compared to females. In this study, ischemic stroke was more prevalent when compared to hemorrhagic stroke. As per the NIH stroke scale assessment, the severity of the most of the study participants was observed to be severe followed by moderate. Clinical pharmacists should create awareness among the general public regarding the negative consequences of the stroke and also should suggest the life style modifications which may increase the quality of life of the stroke patients.

Conflicts of Interest

Nil

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None

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