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Research Article

Clinical Profile of Patients with Cerebrovascular Accidents

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Abstract

Background: Stroke is the leading cause of mortality and disability across the world.

Objectives: The Objectives of the study were, to study the clinical profile of stroke, risk factors, and hospital outcomes among stroke patients attending a tertiary hospital in Sana'a city

Materials and Methods: A cross-sectional study was conducted in Al-Gomhouri Hospital from 2015 to 2018. Every patient enrolled in the study underwent a clinical examination, history of risk factors, and investigation. We followed all cases during their hospital stays.

Results: Of the total 117 stroke cases, the main clinical presentation was hemiplegia or hemiparesis accounting for 53%, While altered sensorium and speech disturbances occurred for 15%. The majority had an ischemic stroke (76.2%). And hemorrhagic stroke in 28.2%. The incidence of stroke was higher in the 51–60 years age group with male preponderance. (30%) of ischemic stroke patients had hypertension, currently cigarette smoking (31.6 %) Qat Showers (47.8%), a small percentage (7.7% and 13.6%) had DM, and had dyslipidemia respectively. The mortality rate was (12%), and complete recovery and partial recovery were found in (40.2% & 30% respectively. However, no recovery was detected in (17.1%).

Conclusion: Ischemic stroke is the most common type of stroke in the age group of the 5th–6th decade with male preponderance. hemiplegia & hemiparesis being the most common presentation. hypertension, smoking, and Qat showing were Preventable risk factors associated with poor prognosis.

Keywords: Cerebral vascular stroke (CVS); Risk factors; Outcome; Yemen

Introduction

Cerebrovascular Accident (CVA) or stroke is defined as the abrupt onset of a neurological deficit that is attributable to a focal vascular cause [1].

It is a leading cause of mortality, and morbidity and is considered to be a leading cause of long-term disability worldwide [2,3].

Cerebrovascular accidents include hemorrhagic stroke, ischemic stroke, and cerebrovascular anomalies such as intracranial aneurysms and Arteriovenous Malformations (AVMs). Ischemic and hemorrhagic stroke accounts for about 85% and 15%, respectively [4].

Stroke and its sequel are important issues for healthcare planners and medical services everywhere. The cost of treatment and long-term care are very high. The incidence of stroke is increasing due to the aging of the population in many countries [4].

Risk factors for CVA include non-modifiable factors such as age, sex, ethnicity, geography, and a family history of stroke [1,4].

Modifiable risk factors are smoking, alcohol consumption, drug abuse, arterial hypertension, diabetes mellitus, dyslipidemia, and heart disease [5,6]. Stork can be prevented by effective risk factor modification. measures that will reduce the incidence of stroke [1].

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Data regarding CVA in Yemen are scarce, this study is conducted to identify the risk factors and etiology in patients with CVA. This study has attempted to know the prognosis of CVA with reference to risk factors.

Materials and Methods

This retrospective cross-sectional observational study was carried out in AL-Gomhory Hospital in Sana'a among patients with Cerebrovascular Accident (CVA), who were admitted to the medical department during 20015- 20018

Study Protocol

ALL files of patients admitted to the department with suspected CVA were Reviewed. Every patient who fulfilled the following criteria was included in this study

Inclusion criteria

- Patients of either sex with CVA are admitted to the medical department with symptoms and signs of loss of focal or global cerebral function.
- Age greater than or equal to 30 years.
- Evidence of ischemia or hemorrhage on CT scan or MRI of brain.
- Patients with first episode of CVA.

Exclusion criteria

- Patients with a history of epilepsy, migraine, and head injury.
- Ischemia or hemorrhage on CT brain due to infection, connective tissue disorders, and tumors.
- Patients with Cortical venous thrombosis.
- Patients presented with transient ischemic attack.
- Patients with metabolic encephalopathy

Data Collection

The special sheet was designed to collect demographic data, clinical history, clinical examination, and investigations. Risk factors for CVA like hypertension, diabetes, dyslipidemia; family history of CVA was evaluated. All investigations of patients were reviewed and recorded such as CT scan of brain MRI brain, CT Angiography, Magnetic Resonance Angiography.

The other relevant investigations about their clinical status including biochemical and the factors profile of each patient such as; smoking, DM, lipid profile, and blood analysis were reviewed and recorded. The approval for the study was obtained from the hospital Ethics Committee.

Statistical Methods

The data was entered in Microsoft Excel and was analyzed using SPSS Package version (18) In descriptive statistics: results were expressed in percentages and proportions and were represented by using tables, bar diagrams, and pie charts. In analytical statistics: Two sample proportion tests using Z value were applied.

Results

The total number of patients who fulfilled the criteria of CVA in this study was 117 patients, 60 were males and 57 were females, and Male: Female ratio was 1.05:1.

Table 1: Age and six distributions of the patients presented with CVA.

Age group in years	Male	Female	Total	Percentage %
30 years	None	4	4	3.40%
31-40	3	4	7	6.00%
41-50	7	13	20	17.10%
51-60	23	15	38	32.50%
61-70	10	9	19	16.20%
71-80	12	10	22	18.80%
80 and (+)	5	2	7	6.00%
Total	60	57	117	100%

Table 2: Distribution of the patients according to residency.

Residency	No	%
Sana's	60	51.30%
Thamar	13	11.10%
Amran	18	15.50%
Al-Mahwe	5	4.20%
Ibb,	8	6.80%
Taiz	6	5.10%
Others	7	6.00%
Total	117	100%

The mean age of the patients was 55 for males and 56 for females' sex and age distribution of the patients is shown in Table (1). Most patients 38 (32.5%) presented with CVA were in the age group of 51-60 years. The age group 41-50 and age group 61-70 years represented (17% and 16.2%) respectively. No males were below 30 years, while females were 4 below 30 years. Most patients (51.3%) were from Sana'a, followed by Amran governorate which accounted for (15.5%). Thirty-nine patients came from Thamar, the other cases were from Al Mahweet, Ibb, and Taiz governorates which presented in (11.1%, 4.2%, 6.8%, 5.1%, 6.0%,) respectively. 7 cases came from 3 governorates (Al-Hudaidah 3 cases, Lahj 2 cases, and Mareb 2 cases) see table 2.

Clinical Presentation

The main clinical presentation was Motor weakness presented in 62(53%) patients, followed by headache. accounted for 20 (17%) cases, while altered sensorium and speech disturbances occurred in (15% &7%) respectively. Less common presentations were vomiting and convulsions see Figure 1.

Aetiology of Cerebrovascular Accident

The high frequency of CVA found in this study was Throm-

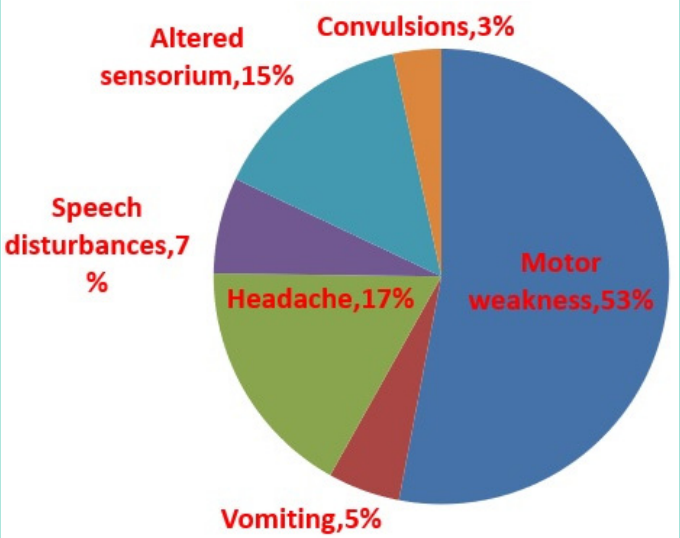

Figure 1: Clinical presentation of CVA Patients.

Table 3: Causes of cerebrovascular accidents among117 patients admitted into hospital.

Type of CVS	No	%	Male	Female
Thrombotic strokes	62	53.00%	37	25
Hemorrhagic	33	28.20%	15	18
Embolic	17	14.50%	9	8
Carotid stenosis	3	2.60%	3	0
Non specific	2	1.70%	1	1
Total	117	100%	65	52

Table 4: Risk factors associated with CVA patients.

Risk Factors	%	No. of Patients	
		Male	Female
Qat showing	47.80%	36	20
Yes 56			
No			
Hypertension	30.00%	20	15
Yes 35			
No			
Diabetes Mellitus	7.70%	6	3
Yes 9			
No			
Smoking	31.60%	27	10
Yes 37			
No			
Shama user	13.70%	16	0
Yes 16			
No			
Dyslipidemia	13.60%	11	5
Yes 16			
No			
Heart Disease	12.00%	10	4
Yes 14			
No			
Carotid Stenosis	2.60%	3	0
Yes 3			
No			
Family History of Stroke	1.70%	0	2
Yes 2			
No			

botic stroke accounted for 62 (53%) patients, males were more affected than females (37 versus 25) patients. The second event was haemorrhagic stroke presented in 33 (28.2%) patients among them 18 were females and 15 were males table 3). The other causes were embolic stroke and carotid stenosis represented in 14.5% & 2.6%) respectively. In 2 cases the etiology was not recognized.

Risk Factors Associated with CVA Patients

The most frequent risk factors associated with CVA patients in descending order were Qat chewing, smoking and hypertension accounted for (47.8%, 31.6% & 30%) respectively. The Second group of risk factors was Shama users, dyslipidemia, and heart diseases represented (13.7%, 13.7, &13.6% &12%) respectively. The other less frequent risk factors are illustrated in Table 3.

Hospital Outcome

Complete recovery was observed in 47 patients (40.2%) and 36 (30.7%) patients whose conditions were partially improved while 20 (17.15%) patients did not improve and 14 patients were expired (12.0%). there are no significant differences between males and females, regarding outcome with Chi-square 3.1 and P value 0.3193. Regarding the Correlation between risk factors and outcome We found that smoking was the risk factor that correlated significantly with the outcome of CVA correlation with a P value (0.007) followed by Qat Chewing and

Table 5: Hospital outcome of the patients with CVA.

Outcome	Patients		Total
	Males	Females	No (%)
Complete recovery	25 (38.5%)	22 (42.3%)	47 (40.2%)
Partial recovery	23 (35.3%)	13 (25.0%)	36 (30.7%)
Same Condition	12 (18.5%)	8 (15.4%)	20 (17.1%)
Death	5 (7.7%)	9 (17.3%)	14 (12.0 %)
Total	65 (100%)	52 (100%)	117 (100%)

Table 6: Correlation between risk factors and outcome of CVA patients.

Risk factors	Patients				Chi2 P Value
	Complete recovery	Partial recovery	Same condition	Death	
	No (%) 47	No (%) 36	No (%) 20	No (%) 14	
Qat showing	29 (51.8%)	15 (26.8%)	10 (17.9%)	2 (3.6%)	10.52 0.014
Yes 56					
No 61					
Hyperten-sion	20 (57.1%	8 (22.9%)	2 (5.7%)	5 (14.3%)	8.6 0.033
Yes 35					
No 82					
Diabetes Mellitus	3 (33.3%)	2 (22.2%)	2 (22.2%)	2 (22.2%)	1.35 0.716
Yes 9					
No 108					
Smoking	15 (40.5%)	18 (48.7%)	3 (8.1%)	1 (2.7%)	12.06 0.0071
Yes 37					
No 80					
Shama user	8 (50.0%)	6 (37.5%)	2 (12.5%)	0 (0.0%)	3.17 0.366
Yes 16					
No 101					
Dyslipid-emia	5 (31.25%)	4 (25.0%)	5 (31.25%)	2 (12.5%)	2.74 0.432
Yes 16					
No 101					
Heart Disease	8 (57.1%)	2 (12.3%)	2 (12.3%)	2 (12.3%)	2.69 0.442
Yes 14					
No 103					
Carotid Stenosis	0 (0.0%)	1 (33.3%)	2 (66.7%)	0 (0.0%)	6.04 0.109
Yes 3					
No 114					
Family History of Stroke	1 (50.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	0.88 0.829
Yes 2					
No 115					

HTN With p values (0.014 & 0.033) respectively, we did not find significant effect of Diabetes mellitus and dyslipidemia on CVA outcome the other risk factors are shown in table [6].

Discussion

In this study majority of patients presented with CVA were males. Males' preponderance than females was noted in the previous studies of stroke [5-8]. Most patients 70 (59.8%) in this study presented with CVA were in the age group of 51-60 years. While the minority of CVA was found in younger age (below 41 years). This finding points out that the occurrence of stroke is increasing with increased age [5-9].

Comparing our study to the studies from other countries CVA occurred one decade younger than CVA reported in other countries where the most common age of presentation of stroke was above 60 years [5-7]. However, a study from India found that the maximum number of cases was seen in 7th decade [9].

Regarding the main clinical presentation, we found that more than half of cases (53%) of CVA presented with motor weakness, while a minority (15%) presented with altered sensorium. Similar results were reported hemiplegia was the most common presenting feature [5-10]. indicated that the pyramidal tract was the most commonly involved area in CVA.

In this study, two-thirds (67.5%) of the stroke patients had ischemic stroke (thrombosis and emboli) and one-quarter of the patients had hemorrhagic stroke. Nearly similar results have been reported by other studies, but the percentages of hemorrhage in their studies were high compared to our study [5,7,10-15].

Regarding smoking, about one-third of the stroke patients in our study were associated with smoking. A similar finding was observed in studies from India [16,17]. Smoking is well-known as a risk factor for CVA [18].

In this study, patients with smoking as a risk factor had poor outcomes, similar findings were reported by several previous studies study [19,20].

Similarly, in this study, hypertension was associated with CVA in 31.2% of the patients and it was considered a prime risk factor for stroke which was reported in several studies [15-20], However, the much higher figure of association between hypertension and CVA was reported by Swetha and Singh [21]. In this study, we observed CAV, patients with hypertension as a risk factor had poor outcomes. A study by Tikrit reported that hypertension was the most common risk factor for in-hospital mortality rate [20].

Diabetes millets was associated with CVA only in 7% in our patients which was lower than studies done before from different countries [10,22,23]. This may be related to the low prevalence of diabetes mellitus in the general population in Yemen 24] However similar results were reported by Behera et al who reported that 6.96% of the stroke patients were diabetic [25.]

Dyslipidemia as a risk factor in CVA was noted in 13% of our cases of CVA which was lower than reported in other, studies [5,8,10].

Outcome and Mortality

In this study, Complete recovery was observed in 47 patients (40.2%) while 20 (17.15%) patients did not improve and 36 (30.7%) patients whose conditions were partially improved, and 14 patients were expired (12.0%). comparing these results with other results similar results were reported by Marwat *et al.*; [26] where he found 34% of patients had partial recovery however, the mortality rate was high in our cases (12% versus 9%). These differences may be related to the time of study in our cases the prognosis was studied after 3 weeks of admission while in Marwat *et al.; the* prognosis was studied one week after admission

Conclusion

Ischemic stroke is the most common type of stroke and occurs more frequently in the age group of the 5th–6th decade with male preponderance. Infarction or hemorrhage was the most common finding. Hemiplegia & hemiparesis are the most common presentations. Hypertension, smoking, and Qat which are Preventable risk factors were associated with poor prognosis in cases of CVA.

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