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Research Article

Clinical Evaluation and Outcomes of Stroke Patients with Carotid Artery Stenosis in Aden Hospital

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Abstract

Stroke is the second leading cause of death and a major contributor to disability worldwide. The prevalence of stroke is highest in developing countries, with ischemic stroke being the most common type. Considerable progress has been made in our understanding of the pathophysiology of stroke and the underlying mechanisms leading to ischemic insult. Stroke therapy primarily focuses on restoring blood flow to the brain and treating stroke-induced neurological damage. The present study was designed to evaluate the relationship between stroke and carotid artery stenosis. The study population consisted of 148 stroke patients being studied during period from January 2023 to June 2023 in Aden's general and private hospitals, for this purpose, a questionnaire containing eight sections and 46 statements was used. The study showed the predominance was males predominate (71.6%), with patient to an older age group. Hypertension was the most prevalent risk factor (76.4%), followed by hyperlipidemia (75.0%), smoking (65.5%), and hyperuricemia 65.5% of patients had. This studying showed that all patient receives the medical management, including antiplatelets and statins (100%).

1. Introduction

Yemen, like many developing nations, faces a high burden of stroke and cardiovascular diseases, which are increasingly recognized as major health challenges. In a context where non-communicable diseases (NCDs), including stroke, are on the rise, studying the relationship between carotid artery stenosis and stroke can provide critical data on the prevalence, risk factors, and outcomes in Yemeni patients. Understanding the context of this issue can aid in improving national stroke prevention programs and interventions, which remain in many developing countries [1].

Yemen's healthcare system faces significant challenges due to ongoing conflict, economic instability, and limited healthcare resources. Understanding how stroke patients with carotid artery stenosis are managed in this environment can provide valuable insights into the barriers to effective healthcare delivery, such as inadequate healthcare staffing, shortage of medical supplies, and lack of continuous care. This study could emphasize the need for improved training for healthcare professionals, better healthcare policies, and collaborative efforts to strengthen the management of vascular diseases in Yemen [2].

The current study on stroke patients with carotid artery stenosis in Aden, Yemen holds substantial importance because it will provide critical evidence to improve both the clinical management and public health approach to stroke and its associated risk factors in a resource-constrained setting. By focusing on local needs, available resources, and patient outcomes, this research can directly influence stroke prevention policies, enhance healthcare accessibility, and ultimately reduce the burden of stroke in Yemen.

2. Subjects and Methods

2.1. Study population and Setting:

This cross-sectional study was carried out enrolled patients with stroke (n= 148) at Five general and private hospitals (Al-Gamhoria Teaching Hospital, Al-Sadaqa Teaching Hospital, Raidan, Al-Wali and Al-Naqib Private Hospitals). Information was collected after obtaining inform of consent by questionnaire that included socio-demographic data,

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including: sex, age, educational level, job and residence and medical history, stroke history and clinical presentation, stroke type, carotid artery stenosis evaluation by Doppler study, treatment history, follow-up and outcome and current disability level.

2.2. Statistical analysis:

The collected data was coded and entered into database file. After complete entry, data were transferred to IBM SPSS statistics version 28.0. The Chi-square test for categorical variables was used to find significant associations between patient's characteristics and Statistical tests were conducted at the $P < 0.05$ significance level.

3. Results

3.1. Patients disposition

In this study, a total of (148) stroke patient, 106 (71.6%) males and 42 (28.4%) females were enrolled during a period of January 2023 to June 2023 in Aden hospitals. As regards age distributed the highest was observed in the age group of (70 years and above) and the lowest at the age group 30-39, 20-29 and 40-49 respectively.

The mean age was (50.35) year ± 0.807. Sixty-one (61.5%) of stroke patients were not working while (38.5) were working.

3.2. Distribution of stroke patients by risks factors:

The distribution of risk factors, the hypertension was 113 (76.4%) followed by hyperlipidemia which comprised 75.0%, history of transient ischemic attack 73.0%, then hyperuricemia and smoking with same percentage 65.5%, while diabetes and family history of stroke or carotid artery disease with low percentage (31.1%) and (25.7%).

3.3. Distribution of stroke patients according to Treatment History

Regarding the distribution of stroke patients according to treatment history, table 2 showed 100% of the treatments for stroke or carotid artery disease were medical management only such as antiplatelets, statins with full percentage of study's population (100.0%).

Table1: Distribution of stroke patients by risks factors

Risks Factors	№	%
Hypertension	113	76.4
Diabetes	46	31.1
Hyperlipidemia	111	75.0
Hyperuricemia	97	65.5
Smoking	97	65.5
Heart Disease	68	45.9
Family History of stroke or carotid artery disease	38	25.7
History of transient ischemic attack	108	73.0
Note: Percentages calculated in relation to the total population of the stroke patients (148).		

Table2: Distribution of stroke patients according to treatment history

Treatments for stroke or carotid artery disease	№	%
Thrombolysis (tPA)	0	0.0
Mechanical thrombectomy	0	0.0
Carotid Endarterectomy (CEA)	0	0.0
Carotid Artery Stenting (CAS)	0	0.0
Medical management only (e.g., antiplatelets, statins)	148	100
Other treatments	0	0.0
Total	148	100

Table3: Distribution of stroke patients according to current disability

Disability Level (Modified Rankin Scale)	№	%
No symptoms	12	8.1
No significant disability	8	5.4
Slight disability (can walk without assistance)	33	22.3
Moderate disability (requires some assistance with daily activities)	30	20.3
Severe disability (requires full assistance with daily activities)	42	28.4
Dead	23	15.5
Total	148	100

3.4. Distribution of stroke patients according to Current Disability Level:

Concerning distribution of stroke patients according to current disability level, table 7 showed the disability level (Modified Rankin Scale) were distributed as follows: severe disability (28.4%), slight disability (22.3%), moderate disability (20.3%) death (15.5%), (8.1%) no symptoms and no significant disability (5.4%).

4. Discussion

This study revealed that the predominance of males (71.6%) among stroke patients is consistent with findings from global studies [3,4]. Our study demonstrated that hypertension was the most prevalent risk factor (76.4%), this finding aligns with studies from sub-Saharan Africa and the Middle East, where hypertension prevalence among stroke patients exceeds 70% [5,6]. Only 31.1% of patients had diabetes, a lower prevalence than reported in other studies from Africa and the Middle East, where rates often exceed 40% [7].

Hyperlipidemia (75.0%) and smoking (65.5%) also featured prominently, echoing findings from Asia and Arab regions where these factors significantly elevate stroke risk [8,9]. High prevalence of hyperuricemia, with 65.5% of the sample affected, which is consistent with previous studies that report a notable association between elevated uric acid levels and an increased risk of stroke [10,11].

Concerning the treatment patterns and outcomes, the results in this study showed that the medical management, including antiplatelets and statins (100%) was the most common treatment modality, reflecting standard practices worldwide [12].

Finally, the distribution of disability levels according to the Modified Rankin Scale revealed that the majority of patients suffered from varying degrees of disability. Specifically, 28.4% of patients had severe disability, 22.3% had slight disability, and 20.3% had moderate disability, while 15.5% were deceased. These results emphasize the long-term impact of stroke on patients' functional independence. [13,14].

Conclusion

In the current study, the following facts can be concluded: the hypertension, hyperlipidemia, history of transient ischemic attack, hyperuricemia, smoking and heart disease are risk factor of stroke with more predominate in age group 70 and more. Regarding the clinical implications, this study underscores the urgent need for targeted public health interventions to address modifiable risk factors such as hypertension, smoking, hyperlipidemia and hyperuricemia.

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بحث علمي

التقييم السريري ونتائج مرضى السكتة الدماغية الذين يعانون من تضيق الشريان السباتي في مستشفيات عدن

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الملخص

تعد السكتة الدماغية السبب الثاني للوفاة والمساهم الرئيسي في الإعاقة على مستوى العالم. تُعد معدلات الإصابة بالسكتة الدماغية الأعلى في الدول النامية، حيث يُعتبر النوع الأكثر شيوعًا هو السكتة الدماغية الإقفارية. بالرغم من تحقق تقدم كبير في فهم الفسيولوجيا المرضية للسكتة الدماغية والآليات التي تؤدي إلى الإصابة بها. إلا أن علاجات السكتة الدماغية ترتكز بشكل أساسي على استعادة تدفق الدم إلى الدماغ ومعالجة الأضرار العصبية الناجمة عنها، وتم تصميم هذه الدراسة لتقييم العلاقة بين السكتة الدماغية وتضيق الشريان السباتي حيث شملت عينة الدراسة من (148) مريضًا بالسكتة الدماغية تمت دراستهم خلال الفترة الممتدة من يناير 2023 إلى يونيو 2023 في مستشفيات عدن الحكومية والخاصة، ولهذا الغرض تم استخدام استبيان يحوي على ثمانية أقسام، و46 عبارة. أظهرت نتائج الدراسة أن الغالبية كانوا من الذكور (71.6%)، وينتمون إلى الفئة العمرية الأكبر سنًا. حيث كان ارتفاع ضغط الدم هو الأكثر شيوعًا (76.4%)، يليه فرط شحميات الدم (75.0%)، والتدخين (65.5%)، كما أن 65.5% من المرضى كانوا يعانون من فرط حمض اليوريك في الدم. وأظهرت الدراسة أن العلاج الطبي، بما في ذلك مضادات الصفيحات والستاتينات، تم استخدامه بنسبة (100%).

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