Study of prevalence risk factors, clinical pattern and outcome of acute cerebrovascular stroke patients admitted to AL-gamhouria teaching hospital

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Abstract

The aim of this paper is to study prevalence of brain stroke, major risk factors, clinical pattern, and outcome among Yemeni patients.

A prospective hospital-based study was conducted of 110patients admitted in AL-Gamhouria Teaching Hospital in Aden in the period from January 2016 to the end of August 2016, all cases admitted with stroke were diagnosed by history and clinical examination and were then confirmed by investigations including CT scan as included in the study.

The most common stroke pattern was ischemic (80%), hemorrhagic (20 %), and the most common sex in this study was males (52%), while females (48 %).

The major associated medical conditions were hypertension (41%) cardiac disease (5%) and diabetes mellitus (18 %) smoking history was positive in (11%). The most common neurologic deficits in our study patients were Hemiparesis/hemiplegia (90 %).

Patients died during the same hospitalization were (21%), while   (79%) remained alive.

Key words: stroke, major risk factors, Hemiparesis/hemiplegia.

Introduction

Stroke was defined by the World Health Organization (WHO) more than 40 years ago as "rapidly developing clinical signs of focal (or global) disturbance of cerebral function, lasting more than 24 hours or leading to death, with no apparent cause other than that of vascular origin. (1)

Stroke is of two types ischemic, and hemorrhagic, Hemorrhagic stroke has two, subtypes: intra-cerebral hemorrhage and subarachnoid hemorrhage.

Stroke is the second most frequent cause of death worldwide, a main cause of disability and a major cost factor for health care systems (2).

Objectives

To study prevalence of brain stroke, major risk factors, clinical pattern, and outcome among Yemeni patients.

Patients

This study included patients admitted to AL-gamhouria teaching hospital with acute cerebrovascular stroke, during eight months interval in the period from the beginning of January 2016 to the end of August 2016.

Patients who were presented to the emergency room with suspected stroke were evaluated by a neurologist at admission and were submitted to a standardized protocol.

Clinical presentation includes hemiparesis/hemiplegia, cranial nerve deficits and alteration of consciousness**,** and stroke risk factors (hypertension, smoking, diabetes, and heart diseases) were compiled.

After initial evaluation, patients were submitted to noncontract brain CT with 10-mm slice

Thickness and radiological findings (detectable brain infarct, intracerebral hemorrhage) were recoded, Patients were diagnosed as having ischemic stroke (IS), intracerebral hemorrhage (ICH).

. An informed consent was obtained from every patient included in the study or from the relatives.

Exclusion criteria:

1. Traumatic brain injury.
2. Subarachnoid hemorrhage.
3. Subdural and epidural hematoma.
4. without confirmed stroke.

Methods
   The following data were collected on admission from all patients included in the study:
1. Demographic data: including age and sex.
2. Complete history including history of Hypertension, Diabetes mellitus, smoking, heart disease.
3. Complete neurological examination.
4. Radiological investigation: noncontract computed tomography of brain with 10-mm slice
   thickness.

Statistical Analysis
Data into the computer was done ,followed by tabulation and analysis. Analysis was done using
SPSS-15 (Statistical package for Social Sciences Version).

Results
   The type of stroke is detailed in Table (1): from the table, it is revealed that the commonest type
is ischemic infarction (80 %).The sex distribution shows a predominance of male gender, (52%)
versus (48%) being female. The age distribution showed that the common affected age group is
between 41 and 60 years45 pt (41%),

Table (1): frequency of the types of stroke

Type of stroke	No of patient	%
Ischemic stroke	88	80%
Hemorrhagic	22	20 %

   Table (2) shows the frequency of stroke risk factors studied. Hypertension and Diabetes
Mellitus were positive in (41 %) and (18%) respectively

Table (2): the frequency of different   risk factors in stroke

Risk factors	No of patient	%
Hypertension	45	41
Heart disease	6	5
Diabetes Mellitus	20	18
Smoking	12	11

Table (3) shows the sex distribution; predominance of male gender, (52%) versus (48%) female is
noted.

Table (3): the sex distribution

Sex	No of patient	Percent %
Male	57	52
Female	53	48

 Table (4) shows the frequency distribution of different neurologic deficits identified in our study
patients.
Hemiparesis/hemiplegia was in 99(90%), cranial nerve deficits was in 64 (58%), and
consciousness alteration was present in 33 pt. (30%).

Table (4) the clinical pattern

The frequency distribution of different neurologic deficits identified in our study patients.

	Frequency	Percent (%)
Hemiparesis/hemiplegia	99	90 %
Cranial nerve deficits	64	58 %
Alteration of consciousness	33	30%

Table (5) shows the outcome of stroke

Outcome	Frequency	Percent (%)
Died	23	21 %
Alive	87	79 %

Discussion

   A total of 110 patients admitted to AL-Gamhouria Teaching Hospital were studied (52%), are males and (48%) are females with a male to female ratio of 1.1:1 This was not statistically significant; p=0.624./. These figures are similar to research done in Nigeria , showing (51.7%) were males and (48.3%) were females (12) but are not similar to figures reported from Brazil which contained a female predominance,(10) Female predominance was also maintained in all the age groups , in a Kenyan study (9) and Ethiopian study (4).

   The common affected age group was between 41 and 60 years45 pt. (41%) followed by age group between 61 and 80 (39%)42 pt ,a result similar to Musa et al article from Sudan (11).
The most common type of stroke in our study was the ischemic type, reported in (80 %) of the patients, these results are nearly similar to the 78.2% of Musa et al article from Sudan (6), and higher than the 50.3% from Ethiopia (6). The most common risk factors in our study are Hypertension, Diabetes Mellitus, Heart diseases, 41%, 18 %, 5 % respectively. These results are nearly similar to the 43.6%, 16.5% and, 4.3 % reported from Sudan (11); Smoking in our study was reported in 11%, more than the percentage reported in the study done in Sudan.

   Neurologic deficits was identified in our study patients; Hemiparesis/hemiplegia (90 %) 99, and cranial nerve deficits (58 %) 64,and alteration of consciousness was present in (30%) of patients 33.

   These results are nearly similar to the results done in Ethiopia (7) and higher than results from Gujarat, India, (5).

   A total of 23 patients (21%) died during the same hospitalization ,while 87(79%) patients remained alive, deadth cases in our study are similar to the result of ,(20.5%) reported from Iran(3) and higher than the (8.9%) died during hospitalization, in Brazilian study (8), and higher than the (12.0%) died in a northern Ethiopian study (13).

   The outcome measures were evaluated in patients with IS and ICH; 8 patients   (8 %) with IS and 15 patients (14%) with ICH ($P = 0.256$) .which is similar to the same Brazilian study (8).

   Our study has some limitations that deserve to be mentioned. We analyzed a small and a single center sample.

   Our results need confirmation in larger and metacentric studies involving different Yemeni regions with different socioeconomic levels

   Another limitation is that this study did not include follow-up of the patients and we evaluated only in-hospital outcomes, while most of the prognostic studies assess three-month outcome. Future outcome studies should address long-term outcome in patients with stroke in Yemen.

   One of the most sophisticated measures to reduce stroke case fatality and morbidity is stroke unit. It is an area inside of a hospital where physicians, nurses and other assisting personnel who

have high-quality training and experience in stroke management, provide care for patients. Management of acute stroke in this type of medical facility has been shown by several studies to reduce death and disability by approximately 20.0% and improve patients' chance of recovery and independent living.

One of the major limitations to the implementation of stroke units in Yemen is the technical and financial limitations. Other possible obstacles are a deficiency in health resources considering stroke as not being a prior health problem, and inadequate health personnel training.

Ethical Consideration

The data from the case records were handled with strong confidentiality. Neither the case records nor the data extracted were used for any other purpose; the study was started after permission from the hospital management to review records.

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دراسة تحليلية لانتشار وعوامل الخطورة والصورة النمطية السريرية وحصيلة مخرجات السكتة الدماغية الحادة في مستشفى الجمهورية التعليمي

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الملخص

دراسة انتشار السكتات الدماغية وعوامل الخطورة والصورة النمطية السريرية والنتيجة النهائية عند صفوف المرضى اليمنين.

دراسة مستقبلية شملت 110 من المرضى المرقدين في مستشفى الجمهورية, في الفترة ما بين يناير 2016 الى أغسطس 2016 تم تشخيص حالات السكتة الدماغية من خلال التاريخ المرضي والفحص السريري وتأكيده بالفحوصات التي شملت عمل الأشعة المقطعية

السكتات الدماغية الأكثر شيوعا كانت الجلطات الدماغية 80% وكان النزيف الدماغي 20% شكل المرضى الذكور 52 % الجنس الأكثر شيوعا بينما الاناث شكلت 48 % العوامل المساعدة مثل الضغط 41 % الأمراض القلبية 5 % السكري 18 % التدخين 11 % أكثر الإصابات العصبية شكان 21ئ الدراسة كان الشلل النصفي (الفالج) 90 %.

عدد المرضى الدين توفوا كان 21 % بينما الدين ظلوا على قيد الحياة 79 %.

الكلمات المفتاحية: السكتة الدماغية، عوامل الخطورة، الشلل النصفي الكامل\الشلل النصفي الجزئي.