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Systematic Review

The long-term effects of modifiable and unmodifiable risk factors of stroke

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ABSTRACT

Stroke is a major cerebrovascular disease causes high mortality and morbidity in people around the world. Stroke is the third leading cause of death and the leading cause of adult disability. The largest country in the middle East, the Kingdom of Saudi Arabia (KSA), has been occupying approximately four-fifths of the Arabian Peninsula supporting a population of more than 28 million. Stroke is getting to be a quickly expanding issue and is the leading cause of illness and deaths in Saudi Arabia. It is clear that researches and studies regarding the incidence, prevalence and their sociodemographic properties of stroke is still incomplete due to lack of present studies being conducted in these specified areas. This article aims to discuss the aspect of stroke in Saudi Arabia beside the effects of modifiable and the non-modifiable risk factors from the literature published.

Keywords: Stroke, Risk factors, Modifiable, Epidemiology

INTRODUCTION

WHO defines stroke as a condition by which poor blood can pump to the brain that causes cell death. It is an ill that affects the arteries that are found within the brain. It is the number five cause of death and a leading cause of disability in across the world. In other words, stroke is an abrupt interruption in the blood supply of the brain. Most strokes are caused by a sudden blockage of arteries leading to the brain (ischemic stroke). Other strokes are caused by bleeding into brain tissue when a blood vessel

bursts (hemorrhagic stroke). Stroke is also called a brain attack because stroke occurs rapidly and requires immediate treatment. When the symptoms of a stroke appear only a short time (less than an hour), this is called a transient ischemic attack (TIA) or mini-stroke.[1]

Stroke can be induced by a clot that obstructs the blood fl ow to the brain (called an ischemic stroke) or by rupturing a blood artery and stopping the flow of blood to the brain (called a haemorrhagic stroke). A TIA, or "mini stroke", is caused by a temporary clot.[2]

Strokes has been classified into two major categories: ischemic and hemorrhagic. First ischemic strokes, this type of strokes is caused by abrupt interruption of the blood supply to the brain. Second hemorrhagic strokes result from the breakage of a blood vessel or an abnormal vascular structure. It has been shown that nearly 87% of strokes are ischemic, the rest being hemorrhagic. Also, bleeding can develop inside areas of ischemia, and this condition called "hemorrhagic transformation." It is unknown how many hemorrhagic strokes actually start as ischemic strokes.[2,3]

Ischemic

In an ischemic stroke, as mentioned above, blood supply to one part of the brain is decreased, leading to dysfunction of that area. In fact, there are four reasons why this might occur; first, by thrombosis (blocking of a blood vessel by a locally blood clot), secondly, by embolism (blocking action due to an embolus from elsewhere in the body), next, systemic hypoperfusion (caused by general decrease in blood supply, e.g., in shock), finally, cerebral venous sinus thrombosis.

Haemorrhagic

There are two main types of haemorrhagic stroke: Firstly, intracerebral haemorrhage, which is essentially bleeding within the brain itself (when an artery within the brain bursts, flooding the encompassing tissue with blood), due to either intraparenchymal haemorrhage (bleeding within the brain tissue) or intraventricular haemorrhage (bleeding within the brain's ventricular system). Secondly, subarachnoid haemorrhage, which is essentially bleeding that happens exterior of the brain tissue but still inside the skull, and absolutely between the arachnoid mater and pia mater (the fragile deepest layer of the three layers of the meninges that encompass the brain.

Risk factors for stroke

A risk factor is something that increases chance of getting disease. The more risk factors for stroke that one has, greater chance of getting the disease. Some risk factors are called modifiable, because you can do something about them. There are other risk factors, called non-modifiable, which you can't change.[4,5]

Risk factors for stroke can be categorized as modifiable and non-modifiable

First non-modifiable risk factors for stroke, there are five non-modifiable risk factors for stroke. Having one or more wild chance components for stroke does not make an individual destined to have a stroke. With proper attention to controllable stroke risk factors, the risk for stroke can be reduced. Gender, age, race, history of prior stroke or TIA, and heredity, and heart disease.

Second: modifiable, or controllable, risk factors are mostly related to lifestyle choices, and they include high blood pressure (140/90 or above), atrial fibrillation (irregular rapid heartbeat), smoking, heart disease, diabetes, high cholesterol, excessive consumption of alcohol, illegal drug use, excess weight and lack of exercise.

It is clear that researches and studies regarding the incidence, prevalence and their sociodemographic properties of stroke is still incomplete due to lack of present studies being conducted in these specified areas. This article aims to discuss the aspect of stroke in Saudi Arabia beside the effects of modifiable and the non-modifiable risk factors from the literature published.

Due to that researches and studies regarding the incidence, prevalence and their sociodemographic properties of stroke is still incomplete, we assumed that the outcomes of poor studies and knowledge in stroke are continuously increasing the incidence of the stroke in Saudi Arabia.

In this study we aim to discuss the aspect of stroke in Saudi Arabia beside the effects of modifiable and the non-modifiable risk factors from the literature published.

METHODS

In this study used a standardized data extraction checklist and patient interview in order to collect data. Data was entered into Epi data version 3.1 and analyzed using SPSS version 20. Multivariable logistic regression was used to define the predictors of stroke subtypes.

A literature search was conducted with the assistance of a senior researcher. The archives of the national library of medicine (PubMed) including the Ovid Medline databases were searched. General search engines were also used to access non-peer reviewed professional and specialist guidelines and workshops on stroke websites. However, the search was limited to the English and Arabic languages. The articles were selected in this study were chosen by reviewing their titles and abstracts with additional references identified from the reference lists of selected articles.[6,7] The global onset of stroke has been high and rising, including the growing incidence, mortality, disability-adjusted life years (DALYs) and economic impact, and this is occurring specifically in the low- and middle-income countries. It has been shown that

in Saudi Arabia both the incidence and prevalence of strokes were low when compared with those recorded in the Western countries, which could be because of the predominance of the younger age groups in this region. That is to said, no nationwide has been shown recently on the same incidence and prevalence of strokes in Saudi Arabia. However, over the past decade there was one study which reported that the incidence rate for first-ever incidence of stroke in Saudi Arabia was 29.8/100,000/year. In their studies, they also reported that ischemic strokes (69%) predominated and sub-arachnoid hemorrhage (SAH) was extremely rare (1.4%). It has been shown that between 1982 and 1992, in a hospital that basically treated the Saudi Arabian national guard community which rated the crude annual incidence rate at 43.8 per 100,000. In this study the researchers stated that the most frequent stroke subtypes were the ischemic infarcts and it was about (79%), of which 46% were lacunar infarcts, followed by intracerebral hemorrhage (18.8%), and SAH (2.2%). ischemic strokes accounted for 76% of the cases, of which one-third were lacunar infarcts. Most of the hemorrhagic strokes were intra-cerebral hemorrhages (ICHs) and only 2% of all strokes were SAHs.[8,9]

Moreover, other results from other studies showed that the frequency of ischemic stroke was higher when compared with the other types which assured the preceded results. Also, about 200 Saudi stroke patients showed that cerebral infarction contained 87% of the strokes, subarachnoid hemorrhage 4.5%, cerebral hemorrhage 6.5% and venous infarction 2%. However, the vessel most frequently involved was a part of or the whole middle cerebral artery, which constituted 52% of the arterial infarcts. Lacunar infarcts were observed in 21% of the patients with arterial infarcts, hypertension was noted in 41% of the patients with arterial infarcts and 62% with cerebral hemorrhages. The highest incidence of hypertension was the risk factor among those with lacunar infarcts at 81%, ganglionic cerebral hemorrhages at 80% and infarcts of the deep branches of the middle cerebral artery (57%). Embolic infarcts due to rheumatic heart disease constituted 11% of all arterial infarcts.[10-11]

RESULTS

Socioeconomics A add up to of 30 clinics were welcomed to take part in this study, of which as it were three hospitals concurred to take an interest in accomplishing a reaction rate of 10%. In total, 33 stroke patients were admitted to these clinics. The sociodemographic characteristics of the patients are displayed in 8 (25.0%) patients were >80 a long time of age. The number of male patients were 22 (66.7%) whereas 21 (63.6%) among all the patients were proficient patients. Data around the number of stroke patients admitted to diverse units and put of indications Larger part of the patients, i.e., 27 (81.8%) were conceded to inside pharmaceutical, while 5 (15.2%) of them were conceded to surgery units and 1 (3.0%) of them to a neurosurgery unit. The put of event of stroke was obscure for more than half of the patients, i.e., 20 (60.6%). Current radio symptomatic modalities performed in stroke patient attractive reverberation imaging, attractive reverberation angiogram, and ultrasound were performed as it were in 7 (21.9%) patients, while computed tomography check and electrocardiogram were performed in 21 (65.6%) and 17 (53.1%) of the patients, respectively.[12-14]

In clinic administrations, tissue plasminogen activator, whereas 24 (72.7%) gotten inpatient recovery. 29 (87.9%) patients were seen by a physiotherapist, whereas as it were 6 (18.2%) members were seen by a stroke specialist. Medicines history appears the past medicines history of patients. The two most habitually endorsed drugs were ibuprofen 22 (66.7%) and simvastatin 20 (60.6%). The predominance of stroke among patients with the age bunches of 51-60, 61-70, and >80 a long time was higher in men compared to ladies with the same age gather.[15-16]

Table 1: Sociodemographic characteristics of participants.

Characteristics	N (%)
Age (years)	
≤50	6 (18.8)
51-60*	7 (21.9)
61-70	5 (15.6)
71-80	6 (18.8)
>80	8 (25.0)
Gender	
Male	22 (66.7)
Female	11 (33.3)
Education level	
Literate	21 (63.6)
Unknown	12 (36.4)
Monthly income (Saudi riyal)	
Unknown	21 (63.6)
<5000	8 (24.2)
5001-10,000	3 (9.1)
10,001-15,000	1 (3.0)
Area of resident	
Al Farooq	2 (6.1)
As Sulay	1 (3.0)
Manfuha	1 (3.0)
Qurtuba	1 (3.0)
Ar Rawabi	1 (3.0)
Dhahrat Laban	1 (3.0)
Footah	1 (3.0)
Al-Amal	1 (3.0)
Badia	2 (6.0)
Kharj	1 (3.0)
Manfoh	1 (3.0)
Rowda	1 (3.0)
Shamais	1 (3.0)
Swaiti	1 (3.0)
Unknown	17 (51.5)

*Age data were missing for one patient.

Table 2: Number of beds occupied by stroke patients in different units and places where symptoms occurred.

Variables	N (%)
Number of stroke patients admitted to different units	
Internal medicine	27 (81.8)
Surgery	5 (15.2)
Neurosurgery	1 (3.0)
Places where symptoms of stroke occurred	
Al Farooq	1 (3.0)
As Sulay	1 (3.0)
Manfuha	1 (3.0)
Ar Rawabi	1 (3.0)
Dhahrat Laban	1 (3.0)
Footah	1 (3.0)
Al-Amal	1 (3.0)
Badia	2 (6.1)
Kharj	1 (3.0)
Monfah	1 (3.0)
Swaiti	2 (6.1)
Unknown	20 60.6)

DISCUSSION

Stroke is increasingly developing as a major health issue, with the projection that mortality coming about from it'll about twofold by 2030, in this locale. On the other hand, a study detailed that a major rate of the patients had not indeed listened the term "stroke" within the inlet participation board (GCC) nations. Information with respect to stroke was poorest among the groups that had a place to the highest chance bracket for stroke.[14] Middle Easterner nations constitute populaces with a comparative way of life and eat less that will impact stroke chance, sort, and survival after stroke, as well as other highlights comparative to the Western and oriental populaces. The Kingdom of Saudi Arabia (KSA) is the greatest nation within the Middle Eastern Peninsula, expanding over a zone of 2,150,000 km^2 and gloating a populace of more than 28 million. Stroke is being watched as a quickly developing issue and a vital cause of ailment and passing in Saudi Arabia. Hence, it becomes one of the foremost basic social and financial therapeutic issues within the Kingdom. However, compared with the developing countries, the dearth of research currently accessible on the frequency and predominance as well as the socio-demographic properties of stroke certainly warrants concern, especially the need of fitting considers in this indicated zone. In this review, we examine the extend of different viewpoints of stroke in Saudi Arabia from the writing distributed.[15-19]

CONCLUSION

Advances in the knowledge about the risk factors of stroke is more important than ever and are saving the lives of people who would not have survived in the past. All play a part in improving outcomes through education, training, and knowledge almost the physical and mental impacts of stroke as well to keep up with the astounding advances within the emergency, intense, and long-term treatment of individuals who have had a stroke.

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