Research Article

Epidemiological Study of Cerebrovascular Stroke in Minia Governorate (The Aural Community)

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Abstracts
Introduction: The term cerebrovascular disease (CVD) includes all disorders in which an area of the brain is temporarily or permanently affected by ischemia or hemorrhage, with one or more of the cerebral blood vessels affected by disease. **Aim of the work: The main aims of the current study are:** (1) To determine the point prevalence of cerebrovascular stroke in the rural community of Minia governorate. (2) To determine the correlation between cerebrovascular stroke and various risk factors (e.g.: hypertension, diabetes, smoking, alcohol consumption, previous stroke, cardiac disease, and positive family history, etc.). **Patients and Methods:** Research design and settings: This was a community based door- to- door descriptive cross sectional study conducted on the inhabitants of Elborgaya village: one of Minia governorate villages. **Results:** I -Demographic data The overall population involved in this study was 10,169 persons; all were inhabitant of Elborgaya rural region of Minia governorate. **Discussion:** The main aims of the current study were: 1-to determine the point prevalence of cerebrovascular stroke in the rural community of Minia governorate. 2- To determine the correlation between cerebrovascular stroke and various risk factors (e.g.: hypertension, diabetes, smoking, alcohol consumption, previous stroke, cardiac disease, and positive family history of stroke, etc.). **Recommendations:** 1- There is a need for high-quality epidemiological studies with large samples of populations in Egypt to monitor stroke prevalence and incidence and to allow meaningful comparisons globally. 2- Public health education and prevention efforts in Egypt will be enhanced with well-designed population-based studies.
Keywords: cerebrovascular disease, ischemia or hemorrhage, risk factors

Introduction

The term cerebrovascular disease (CVD) includes all disorders in which an area of the brain is temporarily or permanently affected by ischemia or hemorrhage, with one or more of the cerebral blood vessels affected by disease. Stroke is a generic term referring to a group of disorders that include cerebral infarction, cerebral hemorrhage, and subarachnoid hemorrhage, and that describes the abrupt and sudden nature of onset (Strong et al., 2007). Stroke is the third leading cause of death in the world with highest mortality in low- and middle-income countries (Feigin et al., 2009). Also, Stroke is a major cause of adult disability, both in term of its initially debilitating symptoms and, in many cases, because of the severe long-term impairment in activities such as walking and speech (Wolfe and Rudd, 2007; Di Carlo, 2009) Between 1990 and 2020, stroke prevalence in developing countries is expected to increase by 120% for women and 137% for men compared with an increase of 30-60% in developed countries (Johnston et al, 2009). The prevalence and incidence of stroke vary from community to community and from time to time worldwide. Current knowledge about the risk factors and epidemiology of stroke is mostly based on North American or European studies, with few data from developing countries. Accurate estimates of prevalence are poor. Many have relied on hospital-based studies which suffer from the problem that an estimated one third of stroke patients are not admitted to hospital (lacy et al., 2001). A literature review reported that the incidence of stroke in five European countries and the USA ranges from 114 cases per 100,000 persons per year in France for first-ever stroke to 350 cases per 100,000 person per year in Germany for all strokes; prevalence estimates ranged from 1.5% in Italy to 3% in the UK and USA (Zhang et al.,

2012). A systematic review recorded that population-base studies from South Asia have stroke prevalence in the range of 45-471 per 100,000 (Kulshreshtha et al., 2010).

There are two community-based studies from Arabic countries: in Tunisia prevalence was 42 per 100,000 population and age adjusted prevalence was 68 per 100,000 (Attia et al., 1993); in Saudi Arabia the reported prevalence was 186 per 100,000 populations (Alrajeh et al. 1994). In Egypt, stroke prevalence in Sohag was 508/100,000 (Kandil and El Tellawy, 2006); in Assiut was 963/100,000 (Khedr et al., 2013); in Qena was 922/100,000 (Khedr et al., 2014) and in Al Kharga district, New Valley and Al Quseir city was 850/100,000 (EL Tallawy et al., 2015). Accurate knowledge of stroke risk factors and prevalence from community-based studies is important to develop public health interventions that reduce the stroke burden in such regions. So, the current study was set out in an attempt to figure out the prevalence of cerebrovascular stroke in a rural community in Minia governorate. Aim of the work The main aims of the current study are: (1) To determine the point prevalence of cerebrovascular stroke in the rural community of Minia governorate. (2) To determine the correlation between cerebrovascular stroke and various risk factors (e.g.: hypertension, diabetes, smoking, alcohol consumption, previous stroke, cardiac disease, and positive family history, etc.).

Research design and settings: This was a community based door- to- door descriptive cross sectional study conducted on the inhabitants of Elborgaya village: one of Minia governorate villages

Sampling
Selection of the population sample
Elborgaya was chosen as the site of the study for the following reasons:
1- Elborgaya is statistically representative to rural areas of Minia governorate.
2- Being near to Minia city, facilitated transportation for both the patients and the doctor.
3- The availability of connections and support, through the staff members of the primary care unit which is important issue especially because we had to visit people at their homes in, a more or less, conservative community. Description of

the village The current study was conducted on the inhabitants of Elborgaya village -one of Minia governorate villages-

The village lies 7 kilometer to the north of Minia city. Elborgaya village is formed of four areas which are considered by the villagers as four separate villages. The village had a population of 28,680
(according to the census office 2/2016) The main village which is the site of the random sample is divided into multiple squares .Each square is formed of houses that are organized in rows and separated by small roads. There are no clear numbers for the houses or the small roads separating them. Addresses are usually known by description for example the south part of the village, beside the mosque and that is why a simple random sample was appropriate for the setting. The predominant occupation is farming and manual working.

Results
I- Demographic data
The overall population involved in this study was 10,169 persons; all were inhabitant of Elborgaya rural region of Minia governorate. Age and sex distribution of the whole sample are illustrated in Table 3 and **Figure 5,** those aged less than 35 years (where no CVS cases were recorded) were 73.85% of screened population, while those aged more than 35 years were 26.15%. Males constituted 51.45% and females 48.55% with a male to female ratio 1.1:1

The number of CVS cases was 15, of which 10 cases (66.67%) were males and 5 cases (33.33%) were females, with the mean age of the prevalent cases 58.4±9.7 years**.**

The crude prevalence rate of CVS was 1.48/1,000 population. The highest age specific prevalence (19.44/1,000) was recorded among 55-64 years group followed by >75years group with age specific prevalence 11.63/1,000 population**.** The crude prevalence rate of CVS among males (1.98/1,000) was higher than that among females (1.01/1,000) and the difference was statistically insignificant**.**

Ischemic stroke cases were 14 cases and represented 93.33% of the prevalent cases, while hemorrhagic stroke was only one case and represented 6.67% of the prevalent cases**.**

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Ten patients (66.67%) of prevalent cases were illiterate, while literate cases were 5 (33.33%), 11 patients (73.33%) were married and manual workers were 6 (40%) of cases.

In 12 cases (80% of prevalent cases), CVS occurred at 6 am to 6 pm while in only 3 patients (20%) was recorded between 6 pm and 6 am and the difference was statistically significant (p value 0.02).

Table: Time of stroke onset among patient group

Circadian rhythm	Sex		Total	P
	Male No=10	**Female No=5**		
6:01 a.m. - 12:00 p.m.	5(50%)	3(60%)	8(53.3%)	
12:01p.m. - 6:00 p.m.	2(20%)	2(40%)	4(26.6%)	
6:01p.m. - 12:00 a.m.	1(10%)	0	1(6.6%)	0.5
12:01 a.m. - 6:00 a.m.	2(20%)	0	2(13.3%)	
Total	10(100%)	5(100%)	15(100%)	

Discussion

The main aims of the current study were:

1-to determine the point prevalence of cerebrovascular stroke in the rural community of Minia governorate.

2- To determine the correlation between cerebrovascular stroke and various risk factors (e.g.: hypertension, diabetes, smoking, alcohol consumption, previous stroke, cardiac disease, and positive family history of stroke, etc.).

Discussion will be presented under the following items:

I. Discussion of the methodology: A- Setting of the Study B- Study design and sampling C- Tools of the study

II. Discussion of the results:
- 1- Demographic data (prevalence of cerebrovascular stroke, age and Sex, education, marital state, occupation and time onset of CVS)
- 2- Risk factors (hypertension, diabetes, cardiac disease smoking, recurrent stroke and dyslipidemia)

III. Limitations of the study.

Recommendations

1- There is a need for high-quality epidemiological studies with large samples of populations in Egypt to monitor stroke prevalence and incidence and to allow meaningful comparisons globally.

3- Public health education and prevention efforts in Egypt will be enhanced with well-designed population-based studies.

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