

## Stroke Knowledge and Awareness among Hospital Workers in Fayoum University

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**Abstract:** Background: Stroke is a life-altering public health problem in Egypt, hospital workers are important source of knowledge on health issues towards stroke. We aim to assess knowledge of Fayoum University hospital workers about stroke. Methodology: A cross sectional hospital based survey conducted on (202) of Fayoum University hospital workers; divided into two groups: health care providers (HCPs) and non health care providers (NHCPs). The two groups interviewed using a structured questionnaire related to; knowledge of stroke in both adults and children. Results: The (HCPs) represented (65.8%) of the study sample, (93.6%) of our sample had knowledge about stroke while (30.7%) only knew that stroke might occur in the pediatric age group. The main source of information was through dealing with someone having stroke in both groups (34.6%, 21.7% respectively). The first action during a stroke attack was going to a hospital (85% of HCPs and 40.6% of NHCPs). Conclusion: Huge gap of knowledge about stroke symptoms was present between the HCPs and NHCPs indicating the urgent need for community awareness program of stroke.

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### 1. Introduction

Stroke is a devastating public health problem worldwide, considered as the third leading cause of death in developed countries; and the leading cause of disability among adults<sup>1</sup>. There is a stroke about every minute; and a person dies of stroke about every 3.5 minutes. Stroke affects about four out of 1000 people<sup>2</sup>. In Egypt, in a multicentre study, prevalence of stroke has been found to be 4.6/1000 in urban areas, 5.6/1000 in rural areas with a mean of 4.5/1000. The annual incidence was 2.1/1000/year<sup>3</sup>.

The burden is much higher in developing countries because of epidemiological and demographic transition<sup>4</sup>. Ignorance and poor control of stroke risk factors have been considered as important factor leading to increase prevalence of stroke amongst Africans<sup>5</sup>.

*Lecouturier et al., (2010)*<sup>6</sup> recommended that stroke should be treated as a medical emergency. *Jones et al., (2010)*<sup>7</sup> concluded that knowledge of stroke symptoms among general public and high risk people is generally poor. However, most of them recognized the need for an emergency response which were not translated into action.

In children, the recognition of stroke almost delayed because of low incidence of stroke and lack of specific assessment measures to this entity. The causes of pediatric stroke are significantly different from that of adult stroke. Nearly half of survivors of pediatric stroke may have neurological deficits affecting the functional status, and different neuro-cognitive domains. This will lead to reduced quality of life<sup>8,9</sup>.

Prevention and early intervention are the success keys in reducing death and disability from stroke.

Primary prevention established through a community-based education program raising the stroke knowledge<sup>10</sup>.

The success of primary preventive measures as reduction in the risk of stroke and increase in the speed of hospital presentation after the onset of stroke is influenced by level of knowledge of stroke in general population. So health care workers have a major role in providing stroke information to the public<sup>11</sup>.

### Aim of the work

To assess the knowledge of Fayoum University hospital workers about stroke regarding risk factors, warning symptoms and treatment choices. These factors lead to proper diagnosis and early treatment aiming to reduce the burden of stroke.

### 2. Subjects and Methods

A hospital based survey was conducted among Fayoum University hospital workers, which divided into two groups, 133 (65.8%) health care providers (HCPs) including 31 (15.3%) house officer's, 39 (19.3%) nurses, 45 (22.3%) clinical medical students, 7 (3.5%) pharmacists, and 11 (5.4%) laboratory scientists). The other group is 69 (34.2%) non-health care provider (NHCPs) gathering other categories of workers in the hospital according to their educational level as follow: 38 (18.8%) administrative, 8 (4%) record staff, 23 (11.4%) cleaning and security officers. The two groups interviewed using a pre-tested, structured closed questionnaire. There was an inclusion criterion of being a staff in Fayoum University hospital. While the exclusion criteria were either refusal to

participate in the study or being resident doctors who were more expert.

### Study Designs:

This is a cross-sectional, analytical, observational study applied on selected 202 hospital workers out of 600 working in Fayoum University hospital. The study participants selected by systematic random sampling.

### Study Instrument:

A total of (225) questionnaires were distributed among hospital worker. (202) complete, accurate questionnaire forms were available for analysis with a respondent rate of (89.7%). The questionnaire consisted of 26 questions, which divided into 4 sections. The first section included six questions related to socio-demographic status. The second section concerned with knowledge of stroke via 13 questions evaluating the causes, risk factors, and treatments' preference. Regarding awareness of participant to stroke in children five questions involved in the third section. The fourth section formed of two questions assessing the possible management of stroke in both adult and children.

### Ethical Consideration:

This study was reviewed and approved by the Faculty of Medicine Research Ethical Committee, and a waiver of consent form was approved, as we used an anonymous self-administered questionnaire with no private or sensitive information.

### Data entry and statistical analysis:

Data were collected, coded and analyzed using SPSS software version 18 under windows 7, simple descriptive analysis in the form of percentage distribution, means and standard deviations were done. Suitable inferential statistics were done to test the level of significance with a confidence level of 0.05.

### 3. Results:

The age of the respondent ranged from (18 to 55) years with a mean ( $\pm$ SD) of (27.43 $\pm$ 7.72 years). The female were 65.3% (N=132) and male were 34.7% (N=70). The health care providers (HCPs) represented 65.8% of the study sample, with high educational level constituting 80.2% (N=162), secondary education 16.3% (N=33), primary and preparatory education 3.5% (N=7) of the total sample.

### Stroke Knowledge:

Most of our sample 93.6% (N=189) knew about stroke while only 30.7% (N=62) of the sample knew that stroke might occur in pediatric age group; and 17.3% (N=35) knew the possible causes.

### Source of information:

The main source of information was through dealing with someone having stroke in both groups (34.6%, 21.7% respectively). The HCPs read and learn about stroke in school (23.3%, 21.1% respectively). While the NHCPs mainly taken the information from family (21.7%) and mass media (18.8%). Table (1).

### As regards causes of stroke in adults:

The common cause of stroke reported by study participants was hypertension, which represented (65.8%). In addition, the remaining chronic non-communicable diseases such as high cholesterol (54%), and diabetes (41.1%), plays an important role in developing stroke. While the lifestyle factors such as obesity (58.9%), stress (55.9%), and smoking (48.5%) represented almost 50% or more. A very low percent (5%) might believe in evil spirit, which correlated with the lowest percentage of the sample primary (2.5%) and preparatory educational level (1%). Figure (1).

### Symptoms of stroke in adults:

As regards awareness about symptoms of stroke in adult, the group of HCPs were almost double the percent of NHCPs with statistical significant difference and P- value less than 0.05 in all symptoms Table (2).

### Causes of stroke in children:

The HCPs were aware about the common causes of stroke in children but only few numbers of them had knowledge about causes concerning the diseases of inborn error of metabolisms (4.5 %). None of NHCPs knew about causes of stroke in children. There was a statistical significant difference between the two groups regarding all causes of stroke in children except diarrhea and inborn error of metabolism. Table (3).

### Symptoms of stroke in children:

Considering knowledge about symptoms of stroke in children, the HCPs were common with stroke symptoms especially headache, slurred speech, blurring vision while weakness in one side, convulsion and altered consciousness were present in the least percentage. None of NHCPs knew about symptoms of stroke in children. There was statistical significant difference between both groups P= less than 0.05). Table (4).

### Comparison between HCPs & NHCPs in action taking towards stroke attack:

85% (N=113) of HCPs and 40.6% (N=28) of NHCPs will go to the hospital as a first action. 74.4% (N=99) of HCPs and 46.4% (N=32) of NHCPs will call a specialist with a statistical significant difference between both groups (P=0.000). None of the HCPs and only one of NHCPs will take a drug at home. Only one

from both groups will call a religious person with no statistical difference between them. Table (5).

**Table (1): Sources of Information**

Sources of information	Health Care Providers N= 133		Non Health care providers N= 69		P value %
	N	%	N	%	
Seen someone with stroke	46	34.6	15	21.7	0.41
Read about stroke	31	23.3	5	7.2	0.003*
Learned in school	28	21.1	1	1.4	0.000*
Mass Media	21	15.8	13	18.8	0.358
Friends	8	6	11	15.9	0.023*
Family	8	6	15	21.7	0.001*

**Table (2) : Symptoms of stroke in adults**

Symptoms of stroke	Health Care Providers N= 133		Non Health care providers N= 69		P value
	N	%	N	%	
Altered consciousness	71	53.4	15	21.7	<b>0.000*</b>
Slurring of speech	60	45.1	20	29	<b>0.018*</b>
Fainting	58	43.6	11	15.9	<b>0.000*</b>
Headache	56	42.1	17	24.6	<b>0.012*</b>
Weakness in one side of the body	49	36.8	13	18.8	<b>0.006*</b>
Dizziness	40	30.1	11	15.9	<b>0.020*</b>

**Table (3): Causes of stroke in children**

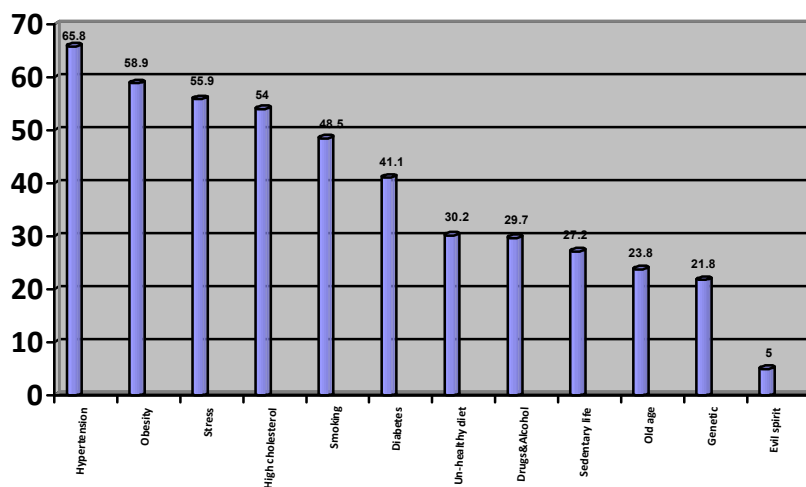
Know causes of stroke in children	Health Care providers N = 133		Non Health care providers N = 69		P value
	N	%	N	%	
Hereditary causes	44	33.1	0	0	<b>0.000*</b>
Blood diseases	32	24.1	0	0	<b>0.000*</b>
Congenital malformation of arteries	19	14.3	0	0	<b>0.000*</b>
Head trauma	14	10.5	0	0	<b>0.002*</b>
Infection	16	12	0	0	<b>0.001*</b>
Inborn error of metabolism	6	4.5	0	0	0.078
Diarrhea	3	2.3	0	0	0.283

**Table (4): Symptoms of stroke in children**

Know symptoms of stroke in children	Health Care providers N = 133		Non Health care providers N = 69		P value
	N	%	N	%	
Headache	19	14.3	0	0	<b>0.000*</b>
Slurring speech	18	13.5	0	0	<b>0.000*</b>
Blurring of vision	13	9.8	0	0	<b>0.004*</b>
Weakness in one side	10	7.5	0	0	<b>0.014*</b>
Convulsion	8	6	0	0	<b>0.033*</b>
Altered consciousness	4	3	0	0	0.185

**Table (5): Comparison between (HCPs) and (NHCPs) regarding action taking in response to stroke**

Action taking in response to stroke	Health Care providers N = 133		Non Health care providers N = 69		P value
	N	%	N	%	
Go to hospital	113	85	28	40.6	<b>0.000*</b>
Call specialist	99	74.4	32	46.4	<b>0.000*</b>
Take drug at home	0	0	1	1.4	0.342
Call religious person	1	0.8	1	0.5	0.568



**Figure (1): Causes of stroke**

#### 4. Discussion:

Health care workers considered an important source of information and have a pivotal role in educating the public about stroke<sup>12</sup>. In the current study, the health care providers represented 65.8% of the study sample, considering them the most important source of information among their community. The current study found that hypertension was perceived as the commonest cause of stroke which was in agreement with many other studies<sup>1,12,13,14</sup>. The recognition of hypertension as a risk factor for stroke will help in primary prevention of stroke in our community. Only, 41.1% knew that Diabetes Mellitus (DM) is a risk factor for stroke. The prevalence of DM is rising in most developing countries as a result of nutritional transition to western diets<sup>15</sup>. Interestingly, obesity (58.9%) and hypercholesterolemia (54%) were more recognized as risk factors for stroke compared to DM and all of them are less recognized than hypertension.<sup>16</sup> Finally, the evil spirit came the least factor (5%) for stroke occurrence in our studied group which is lower than previously obtained results<sup>1</sup> that reached 13.8%. This indicates that most of the population knows that stroke has realistic causes.

*Parahoo, et al., (2003)*<sup>17,18</sup> showed that people appeared knowledgeable about the risk factors of stroke but their recognition of the warning signs was poor. This was in agreement of our results in which the commonest symptom of stroke identified by the HCPs was altered level of consciousness while the NHCPs identified the slurring of speech as the commonest stroke symptom. On the other hand, weakness on one side of the body was less recognized as an important stroke symptom among

both groups. Other studies showed that weakness on one side of the body is the commonest stroke symptom<sup>12,14</sup>.

When it comes to the action taken towards a patient with stroke, the majority of the HCPs will transfer the patient to the hospital or call a specialist, while few NHCPs have chosen to call first a specialist or to take a stroke patient to the hospital. A good specialist will explain to the patient or his family that it was an emergency case ending to transfer the patient to the hospital. This seems logic for a hospital workers to think about going to the hospital or calling a specialist, however, the rapidity of the response will be tainted by the poor knowledge about the warning symptoms and signs of stroke.

Regarding the knowledge about stroke occurring in children, (30.7%) of the study sample knew that stroke might occur in children and only (17.3%) of them knew the possible causes. The recognition of stroke in children is often delayed due to the low incidence of stroke and lack of specific assessment measures in this age group<sup>8</sup>. HCPs were aware about common causes of stroke in children especially hereditary causes and blood diseases which were in agreement with<sup>19</sup> reviewing the association between inherited and acquired coagulation disorders and ischemic stroke. Regarding the awareness about the inborn error of metabolism as an important cause of stroke in children, few percent of HCPs in our study knew about it. The awareness for HCPs about this category of causes was very important because stroke could be recurrent. Concerning knowledge about stroke symptoms in children, the HCPs were aware with headache,

slurred speech, blurring vision while weakness in one side, convulsion or altered consciousness were the least recognized symptoms inspite of their importance for an early diagnosis. The early recognition of stroke symptoms and signs was very important for early management <sup>20</sup>.

### Conclusion:

There was a gap of knowledge about stroke symptoms between HCPs and NHCPs indicate an urgent need for educational programs about warning symptoms of stroke, integrated with awareness about the inborn error of metabolism as an important cause of stroke in children. The early recognition of stroke symptoms and signs will be very important for early management, thus, reducing the burden of stroke morbidity and mortality.

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