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Stroke Patients Characteristics and Physical Health Status in the Gaza Strip- Cross Sectional Descriptive Study.

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Abstract

Background: Globally, stroke is one of the leading causes of morbidity and mortality and is the leading cause of disability. Due to the burden and rapid consequences of this harsh health problem in the future in parallel with diminished care to the stroke patients in Palestine, it would be of very significant to study and investigate the stroke prevention methods and strategies. This hospital based cross sectional descriptive based study was carried out with main aim to assess the stroke patients' characteristics and their current status of post stroke suffer.

Keywords: *Stroke characteristics; Patient status; Physical health; Physiotherapy; Rehabilitation; Hemiplegia; Paraplegia; Risk factors*

Abbreviations: CVD: Cerebrovascular disease; CT: Computed tomography; CVA: Cerebrovascular accidents; ADL: Activity of daily living; TIA: Transient Ischæmic Attack

Introduction

CVA or stroke is one of the leading causes of mortality and morbidity worldwide. Nearly 20 million people each year will suffer from CVA (Dalal et al. 2007). Every year approximately 795,000 people experience a new or recurrent stroke and approximately 610,000 are first attacks while 185,000 are recurrent attacks (Lloyd-jones, et al, 2010). Post-stroke muscle fatigue significantly impacts stroke survivor's rehabilitation, morbidity and quality of life (Tremayne J. et al., 2020). Every six seconds, a stroke kills someone (World Stroke Organization, 2012).

It has been said that no single medical measure could make as much as contribution to the quality of life in old age as prevention of cerebro-vascular disease (Sorganvi et al, 2014). An agreement of the etiological factors that lead to the onset of Cerebro-vascular disease (CVD) is needed in society to evaluate the potential for Cerebro-Vascular Accident prevention procedures (Garraway, 2011). The term CVD covers all disorders that an area of the brain, is either temporarily or permanently affected by ischemia or hemorrhage, with one or more of the cerebral blood vessels affected by the disease. It is a generic term referring to a group of disorders that comprise cerebral infarction, cerebral hemorrhage, and subarachnoid

bleeding that characterizes the abrupt and sudden nature of onset (Strong, Mathers and Bonita, 2007). The clinical syndrome of stroke is characterized by an acute loss of focal brain function lasting more than 24 hours and, in some cases may lead to death. It is thought to be due to either inadequate blood supply to a part of the brain as a result of low blood flow, thrombosis or embolism associated with cardiovascular diseases or spontaneous hemorrhage into the brain substance (Sacco et al., 2013) (Ntanda PM, 2011).

CVA is the primary reason of impairment with 20% of survivors needing institutional care after 3 months and 15% - 30% being permanently disabled (Adams et al. 2008). A life-changing event not just impresses people that may be disabled, but their families and their health care provider. It is known as a multi-factorial condition. Several risk factors have been demonstrated, to be linked with CVA are age, gender, hypertension, serum, cholesterol, smoking, diabetes mellitus, stress, obesity, physical inactivity and dietary ingredients (World Health Organization-WHO, 1996). Most of the stroke patients need physiotherapy as a result of physical disability after stroke (Umair A, et al, 2008). The majority of the stroke patients require physiotherapy intervention as a result of physical disability post stroke. Multiple treatment approaches are available to physiotherapists working with stroke patients and these approaches have been in constant evolution since their inception. Stroke leads to physical problems, mainly paralysis, sensory, cognitive, and perceptual and communication problems. Physical inactivity among stroke patients is high in the acute and chronic stage. The adherence of them towards exercises and rehabilitation therapy decreased after discharge which lead to poor outcomes of recovery (Tabah F, et al, 2020).

Cessation of rehabilitation and physical activity sessions for stroke patients including physiotherapy and occupational therapy cause wide range of physical and clinical deteriorations like spasms, muscle fatigue, hypertension, elevating level of blood sugar. Physiotherapy considered a major component of rehabilitation for stroke patients and has been shown to have a positive effect on outcome. Admission stroke severity is an important clinical predictor of stroke outcomes, pre-stroke physical activity contributes to stroke prevention and also associated with stroke severity reduction (Hung S. et al, 2021).

In the Gaza Strip (GS) with more than 1.7 million inhabitants (Ministry of Health-MOH, 2013) is undergoing remarkable economic and demographic changes in recent years, resulting in a transition from poverty and nutritional deficiency diseases towards lifestyle related CVA and CVD. Despite rapid economic boom, a large segment of the Palestinian population still lives in poverty, given the anticipated increase in the burden of stroke in coming years. CVD is the second leading cause of death in the general population with a prevalence of (8.8%), in addition, it is the second leading cause of death (14.1%) at people of age under 60 years, the fifth in males (7.5%) and the third in females (10.2%) (MOH, 2013). With a rapid increase in the burden of stroke in coming years and limited availability of stroke care in GS, it would be better to study on population-based stroke prevention strategies, because preventive methods will reduce the stroke incidence and complications. So, in view of the increasing incidence, high health care costs and the potential for prevention of stroke, this current study was undertaken to identify the outcome of post stroke characteristics and stroke patient's physical status caused by stroke.

Aim of the study

The aim of this study is to high light the main Palestinian stroke patient's characteristics and their possible physical health regressions and deteriorations caused after stroke injury.

Results

From the total of 110 cases, 38.2% are males and 61.8% females. 88.2% of them above the age of 50, with a mean of age 65.80. The majority of the cases live in Gaza city with 34.5%. Ischæmic stroke found in 81.8% of the cases while hemorrhagic in 18.2% of the cases. 50% of the cases experienced the stroke for the first time, 23.6% for the second time and 26.4 for more than twice. 39.1% experienced TIA prior to the stroke. 80.9% of the patients still have functional disability. 29% of the cases have right side hemiplegia, 39% have left side hemiplegia, 5.4% cases have quadriplegia and 4.5% cases have paraplegia. Only 61.8% of the cases received rehabilitation services. 25.5% of the cases have their speech affected.

Materials and Method

This study was carried out at the main five ministry of health hospitals at the Gaza strip from May to November 2014. The method of choosing the cases was randomly taken from the proved CT scan stroke patients admitted to the five hospitals for treatment. The patients categorized as hemorrhagic or infarction stroke based on CT scan findings. The patients of past history of stroke are included in this study. 110 of CT scan proven stroke cases who admitted to the main five hospitals were interviewed and assessed according to

their stroke consequences and implications related to their injury. A cross sectional descriptive study was carried out to investigate these patients' current stroke characteristics.

Sample size: Epidemiological information program (Epi-info) was used to calculate the sample size. The prevalence of hypertension in the general population is 17%, with allowable error 5% with 80% the power of the study, the sample size calculates is 95. Hence a total of 110 cases chosen for this study for more representation.

Ethical and administrative consideration: An administrative approval was obtained from the general directorate of the hospitals to conduct this study. Each patient was provided with full explanatory of verbal instructions for the purpose of the study. Assurance regarding the confidentiality of information, instructions about how to respond to the questionnaire in addition to the voluntary nature of participation of the study. Honesty was maintained throughout reporting and analysis of the data with respect to confidentiality and to the results obtained.

Results and Discussion

Table 1 show the distribution of the cases according to the Gender, age and locality. 61.8% of the cases were females and 38.2% were males. 88.2% of the cases above the age of 51 with the 65.80 mean age. The high percentage of the cases were in Gaza city with 34.5% and the least is on Rafah with 8.2% of the cases.

		Respondents (N = 110)	
Variables	**Categories**	**Cases (110)**	
Demographic characteristics		No	%
Gender	Male	42	38.2
	Female	68	61.8
Age group	Mean ±SD	65.80± 12.74	
	20-50 years	13	11.8
	51-70 years	52	47.3
	> 71 years	45	40.9

Table 1: *Distribution of stroke patients according to demographic characteristics.*

As the table 1 shows, the number of the females are more than the males, which mean in our sample that females may experience stroke more than males. This mean that in the Palestinian community, the females may encounter the stroke more than the males which need further investigation into this phenomenon to confirm if there is any certain underlying reason behind this problem. The majority of the cases are above the age of 50 years old, this mean that the possibility and the dander of having the stroke are more above the age of 50 years of age. The individual who reach the age of 50 or more should take the risk factors seriously and work to avoid falling in stroke by control all underlying risk factors, like controlling the levels of blood pressure, blood sugar and begin smoke cessation, regular physical activity and heart check, which will at least protect from falling in severe or moderate strokes.

CVA Type

As the table 2 shows, the study sample constitutes 110 stroke patients, by interviewing these cases, we obtained these results: 81.8% of cases experienced ischemic type of stroke (N=90), while 18.2% have hemorrhagic type (N=20). The figure is around the majority of stroke populations around the world.

		CVA patients (n=110)	
Variables	**Categories**	**No**	**%**
CVA type	Ischemic	90	81.8
	Hemorrhagic	20	18.2
Recurrence	First time	55	50.0
	Two times	26	23.6
	More than two	29	26.4
Previous TIA	Yes	43	39.1
	No	67	60.9
	Total	110	100

Table 2: *Distribution of stroke patients according to stroke characteristics.*

Abbreviations: *CVA; Cerebro-vascular accident. TIA; Transient ischemic attack.*

Recurrence

Fifty-five (55%) percent of the sample cases experience recurrence of stroke more than one time, 55% of the cases have stroke for the first time (N=55), 23.6% had experienced twice strokes previously (N=26), while 26.4% dad experienced more than 2 strokes previously (N=19).

Previous TIA

39.1% of the study sample have previous TIA (N=43), some of them experienced 3 TIA, s previously, some of them their TIA reach the number of 5, while 60.9% (N=67) of the stroke patients did not experienced previous TIA before their actual stroke occurrence.

According to the results in table 2, the majority of the stroke cases experienced ischemic stroke which related to known risk factors causing stroke like hypertension, diabetes mellites, smoking, heart diseases, sedentary life and other factors. The interesting point is that the majority of these factors are avoidable and modifiable ones which can be changed and avoided by proper regular behavior. Our sample suffered from one or more of the previous factors for long time and not worked to avoid any of them, and later on leading to stroke. If they worked to modify or change their life style, they were able to avoid falling in such harsh long-term health problem. The recurrence of previous stroke means that the risk factors they have are present for long time, that mean these patients ignore their risk factors for long period of time causing more than one stroke. 26 patients out of 110 have 2 stokes and 29 of them have 3 stokes or more previously, they prove that they are at risk for long period and they ignored their risk factors that have the potential of causing the stroke. The previous TIA, are the important warning sign that mean that the risk factors are present and the actual stroke may occur in any time if not properly managed. 43 patients out of 110 have previous TIA which warned them of imminent stroke will occurred soon.

Outcome after the latest CVA

Stroke patients experience changes after their stroke injury, they may either improved or have functional disability (Table 3). Out of 110 proven stroke cases; 80.9% (N=89) of the study sample experienced functional disability, while 19.1% (N=21) cases have good levels of improvement after their injury, but still have weakness in their body parts and limbs.

		CVA patients (n=110)	
Variables	**Categories**		
CVA Prognosis (Outcome)		No	%
Outcome after CVA	Improved	21	19.1
	Functional disability	89	80.9
Rehabilitation status	Yes	68	61.8
	No	42	38.2
Speech status	Affected	28	25.5
	Not-affected	82	74.5
	Total	110	100

Table 3: *Distribution of stroke patients according to post stroke consequences.*

Abbreviations: *CVA; Cerebro-vascular disease.*

The functional body parts affected

Hemiplegia: Right side hemiplegia occurred in 32 of the cases that means both the right upper limb and right lower limbs are affected and their muscle power is severely affected, while the left side of their body is intact. Left side hemiplegia occurred in 43 cases, that means both left upper limb and left lower limb are affected by stroke and their muscle power are severely affected, while the right side of their body is intact.

Quadriplegia: Out of the 110 cases, six stroke patients had quadriplegic manifestations. This means the four limbs are affected by the stroke, which means paralysis or severe muscle weakness occurred in both the upper and lower limbs.

Monoplegia: Out of 110 stroke cases; three cases suffer from monoplegia. They have muscle weakness in one limb of the four body limbs, and the other three limbs of their body are intact.

Paraplegia: Out of the 110 proven stroke patients; five patient experienced paraplegic manifestations of the stroke consequences. That means the lower limbs of their body are affected while the upper parts are intact.

Improved cases: Out of 110 cases, 19.1% of the cases (N=21) have minor physical weaknesses in some of their body parts ranging from hemiparesis to monoparesis. These patients can walk, stand, do the majority of ADL activities with some degrees of difficulty with some dependency or need minor assistance from their carers.

Rehabilitation intervention

61.8% of the study sample (N=68) received physical rehabilitation directly after their injury, while 38.2% of them (N=42) didn't received rehabilitation care (physiotherapy, occupational therapy) after their injury. Ignorance of rehabilitation sessions are of great complications to the stroke patients who required such intervention.

Speech status

Speech affected in 25.5% of this study sample (N=28), while 74.5% their speech ability remains intact and without any affection (N=82). Patients who have aphasia may have lack of communication with their therapists or their family members and cares which aggravate the rehabilitation process. Aphasic stroke patients have no ability to express or give the feedback about their problems, sometimes even the pain.

From the results obtained and shown in table 3; only 21 cases out of 110 cases improved while 89 still have functional disability. The 21 improved patients still have minimal functional disabilities and not completely recovered. This figure mean that the highest percentage of our sample is having physical problems and difficulties, which hindering them from having normal daily activity life. 42 stroke patients out of 110 did not follow rehabilitation program while 68 stroke patients follow the rehabilitation program. The patients whom not followed the rehabilitation program like physiotherapy and occupational therapy; experienced more regression in their status than the rehabilitated patients. The rehabilitation has very positive effects on the stroke patients if done properly and regularly. In general; the difficulties present in these patients are of great adverse effects on them which hindering them from practicing their normal life, causing also other regressions like social, psychological and mental effects as noted in our sample which need further investigation into these effects to determine the intensity and possible dangers.

Discussion

This study determined Palestinian stroke patients' characteristics and possible post-stroke physical health status. 61.8% of the cases were females and 38.2% were males. 88.2% of the cases above the age of 51 with the 65.80 mean age. The highest percentage of the cases were in Gaza city with 34.5% and the least is on Rafah with 8.2% of the cases. Ischemic stroke found in 81.8% of the patients and hemorrhagic stroke found in 18.2% of the cases.

Fifty percent (50%) of the cases have stroke for the first time (N=55). Fifty percent (50%) percent of the sample cases experience recurrence of stroke more than one time (N=55); which mean, 23.6% had experienced twice strokes previously (N=26), while 26.4% had experienced more than 2 strokes previously (N=29).

39.1% of the study sample have previous TIA (N=43), some of them experienced 3 TIA, s previously, some of them their TIA reach even the number of 5, while 60.9% (N=67) of the stroke patients did not experienced any previous TIA before their actual stroke occurrence.

Out of 110 proven stroke cases; 80.9% (N=89) of the study sample experienced functional disability. Only 19% of the cases are improved, but not fully recovered (N=21), they have minor physical weaknesses in some of their body parts. These patients can walk, stand, do the majority of ADL activities with some degrees of difficulty with some dependency or need minor assistance from their carers. 61.8% of the study sample (N=68) received physical rehabilitation directly after their injury, while 38.2% of them (N=42) didn't received rehabilitation care (physiotherapy, occupational therapy) after their injury. 29% of the cases have right side hemiplegia (N=32), 39% have left side hemiplegia (N=43), 5.4% cases have quadriplegia (N=6) and 4.5% cases have paraplegia (N=5). 25.5% of the cases have their speech affected, sample (N=28), while 74.5% their speech ability remains intact and without any affection (N=82) this problem causes more difficulty in communication between the patients and their surroundings including health professionals.

With all of the previous deficits in addition to ignorance of the physical rehabilitation interventions are of great complications to the stroke patients who required such intervention. Speech affected in 25.5% of study. Patients who have aphasia may have lack of communication with their therapists or their family members and cares which aggravate the rehabilitation process. Aphasic stroke patients have no ability to express or give the feedback about their problems, sometimes even the pain. 80.9% of the stroke patients have functional disability. 38.2% of the stroke patients did not received any physical rehabilitation sessions after their injury, this issue will aggravate their stroke and physical status more adversely with time if no proper interventions applied.

Some of them experienced transient ischæmic attack for many times and some of their TIA,s reached even 5 TIA,s, which means the risk factors or underlying causes is still present for long time before the actual stroke occurred. Some of the stroke patients experienced stroke for more than one stroke previously which mean that some risk factors or low level of physical activity are still the cause. These 2 issues prove that these patients are not comply with the advices given by the medical and rehabilitation teams. The advices include but not limited to having well balanced intake of both sugar and salt intake in their diet, satisfiable having regular level of physical activity, trying to avoid any stress, smoking cessation and other important advices. Even the improved cases still have some levels of disability which need certain levels of assistance that mean these cases still dependent in some of their ADL activities. The results obtained from this study confirmed that these patients have many risk factors for long period before the stroke occurrence which mean they were have the opportunity to work against these risk factors to avoid their complications.

Conclusions

This study determined the stroke patients' characteristics and post-stroke physical health status. This study found that the stroke patients undergoing different physical and clinical deteriorations and complications after stroke, depending on their post and pre-stroke risk factors and status, compliance with health advices and rehabilitation intervention status. Some of the stroke patients neglect their risk factors which they have before the stroke occurrence, which later on lead to stroke, causing massive change in their life. Health awareness programs regarding the importance of avoiding the stroke is of very crucial issue in the human life. The most important quality in the human life is to avoid injury by stroke. Working on the present risk factors and compliance with health advices like physical activity, well balanced amount of diet including both sugar and salt, smoking cessation, avoiding stress are very crucial favtors. Having well societies free from stroke must be a slogan for every nation. Stroke and stroke neglected complications put huge social, personal, medical, psychological and financial burdens on both the individuals, their carers and their community services. This problem must be taken more seriously especially in the undeveloped communities which have low level of health care.

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