ORIGINAL ARTICLE

Determination The Early Seizures in Stroke Patients

Muhammad Mossa[1], Rajesh Kumar[2], Muhammad Mohsin[3]

Author`s Affiliation

FCPS Neurology
Senior registrar
Neurology department LNH Karachi
Senior Medical Officer
Neurology department LNH Karachi

Author`s Contribution

[1]Conception, Synthesis, and Planning of the research
[2]Interpretation, analysis, and discussion
[3]Active participation in active methodology

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Address of Correspondence
Dr. Muhammad Mossa
Email: dr.moosaljr@gmail.com

ABSTRACT

Objective: To determine the frequency of early seizures in patients with strokes.

Study Design: Descriptive, Cross sectional study

Methodology: The data of 104 strokes patients, visiting neurology department of Sheikh Zayed Hospital, were collected after filling proforma and consent forms. All patients were assessed by the study neurologist to confirm the diagnosis and the etiological subtypes of stroke. Stroke patients were managed as per hospital protocol. The patients were followed for 7 days. Presence of early seizures was recorded as per operational definition. Patients with seizures were managed as per hospital protocol. Al the data was entered on pre-design proforma.

Results: In our study, out of 1-4 cases of stroke, 38.46%(n=40) were between 18-50 years of age while 61.54%(n=64) were between 51-75 years of age, Mean±SD was calculated as 52.75+9.22 years, 52.89%(n=55) were male and 47.11%(n=49) were females, 22.12%(n=23) were hemorrhage while 77.88%(n=81) had ischemic stroke, frequency of early seizures in patients with strokes was recorded in 6.73%(n=7).

Conclusion: We concluded that the frequency of early seizures is higher and considerable in patients with strokes; our data is primary in our population and needs some other trials to validate these findings.

Keywords: Stroke, early seizures.

Introduction

A stroke is the loss of brain function due to a disturbance in the blood supply to the brain. This disturbance is due to either ischemia or hemorrhage.[1] Ischemia is caused by either blockage of a blood vessel via thrombosis or arterial embolism, or by cerebral hypoperfusion.[2] Hemorrhagic stroke is caused by bleeding of blood vessels of the brain, either directly into the brain parenchyma or into the subarachnoid space surrounding brain tissue.[3-4]

As a result, the affected area of the brain cannot function normally, which might result in an inability to move one or more limbs on one side of the body, failure to understand or formulate speech, or a vision impairment of one side of the visual field.[5]

Seizures are episodes of abnormal excessive or synchronous neuronal activity in the brain.[6] The outward effect can vary from uncontrolled tonic-clonic seizure to as subtle as a momentary absence seizure. The syndrome of recurrent, unprovoked seizures is termed epilepsy, but seizures can also occur in people who do not have epilepsy. Additionally, there are a number of conditions that look like seizures but are not.

After a fist seizure, treatment is generally not needed unless specific problems are found on either electroencephalogram or imaging of the brain.[7] About 5-10% of all people will have an unprovoked seizure by the age of 80.[9] seizures affects about 1% of the population currently.[10] and affects about 4% of the population at some point in time.[7]

The most common type of seizures is convulsive (60%).[11] Two-thirds of these begin as focal seizures and become generalized while one third begin as generalized seizures.[11] The remaining 40% of seizures are non-convulsive, an example of which is absence seizures.[12]

One of the many sequels of stroke is the development of epileptic seizures. Among the elderly people in whom seizures occur as a new onset disorder, stroke is most often the underlying cause. Post stroke seizures can occur soon after the onset of ischemia or can be delayed.[13] Seizures can be precipitated by strokes by a number of mechanisms. Early onset seizures are considered to be provoked seizures.[13] Most

seizures occur between 6 months and 2 years after stroke, and are associated with a high recurrence rate.[14]

In a study, Beghi et al included both ischemic and hemorrhagic strokes in their analysis of 714 patients. Early seizures occurred in 6.3% of patients. Approximately three quarters of these early seizures occurred within in the first 24 hours. The incidence of early seizures was 12.5% for patients with ischemic and 16.2% for patients with hemorrhagic stroke. the incidence of acute symptomatic seizures is the highest reported in patients with first stroke with prospective follow-up. Hemorrhagic and ischemic were independent predictors of acute seizures.[15]

In another study, early seizures occurred in 58 (15.6%) of the 372 patients with stroke. ischemic stroke had discovered about 271 of 372 patients (72.8%), while 98 patients (26.3%) had hemorrhagic stroke. in the ischemic group, 194 patients (71.6%) had cerebral thrombosis and 70 (25.8%) had cerebral embolism. In the hemorrhagic stroke group, 50 (51.0%) had hypertensive intracerebral hemorrhage (ICH) and 25 (25.5%) had a stroke of unknown origin. Patients with hemorrhagic stroke was a significantly associated factor of seizure ($p=0.015$).[16]

In another study, Out of the 50 patients, there was 28 (56%) males and 22 (44%) females with the mean age of 56.86 ± 15.26 years. Early seizures i.e. within 2 weeks were seen in 29 (58%) patients. Generalized seizures were seen more frequently i.e. in 37 (74%) patients. Thirty-one (62%) subjects experienced more than 2 seizures. Forty (80%) had an ischemic stroke.[17]

The aim of this study is to evaluate the actual frequency of seizures in patients with strokes. Seizures is one of the potential complication of stroke. Early recognition of seizure in stroke and management is very important. This study will highlight frequency in local population as there is variability in the results published in the literature.

Methodology

The study was conducted in Neurology Department, Shaikh Zayed Hospital, Lahore. from 18-08-2015 to 17-02-2016

The Sample size of 104 is estimated by using 95% confidence level, 7% margin of error expected percentage i.e. 15.6% of early seizures in patients with stroke.[16]

Inclusion Criteria

- Patients of both genders.
- Patients of ages between 15-75 years.
- Patients with stroke diagnosed on neuro imaging (CT scar as per operational definition during last 24 hours.

Exclusion Criteria

- History of metabolic abnormalities (hyponaterimia <130 mEq/L, hypglyaecemia < 70 mg/dl)
- Suffered from the brainstem and cerebellar infarction (MRI Brain)
- History of seizure disorder (known epileptic)
- History of SOL Brian with new-onset CVA (on previous CT or MRI)
- History of previous stroke (recurrent stroke)

Data Collection: Data of 104 strokes patients, visiting neurology department of Sheikh Zayed Hospital, were collected after filling proforma and consent forms. All patients were assessed by the study neurologist to confirm the diagnosis and the aetiological subtypes of stroke. Stroke patients were managed as per hospital protocol.

The patients were followed for 7 days. Presence of early seizures was recorded as per operational definition. Patients with seizures were managed as per hospital protocol. Al the data was entered on pre-design proforma.

Data Analysis: Data was entered and analyzed by using statistical packages for social sciences (SPSS) version 22.0. Quantitative data like Age was presented by using Mean$\pm$S.D. Qualitative data like Gender, early seizures, types of stroke was presented by using frequency and percentage. Data was stratified for age, gender, types of stroke, family H/o seizures to deal with effect modifiers. Post-stratification Chi-square test was applied. P-value $\leq$ 0.05 was considered as significant.

Results

A total of 104 cases fulfilling the inclusion/exclusion criteria were enrolled to determine the frequency of early seizures in patients with strokes.

Age distribution of the patients was done showing that 38.46%(n=40) were between 18-50 years of age while 61.54%(n=64) were between 51-75 years of age, mean$\pm$sd was calculated as 52.75 ± 9.22 years. Gender distribution shows that 52.89% (n=55) were male and 47.11%(n=49) were females. (Table No. 1)

Table I: Age and Gender Distribution (n=104)

Age groups	No. of patients	%
18-50	40	38.46
51-75	64	61.54
Total	**104**	**100**
Gender		
Male	55	52.89
Female	49	47.11
Total	**104**	**100**
Age (Mean$\pm$SD)	**52.75$\pm$9.22**	

Types of stroke reveals that 22.12%(n=23) were hemorrhage while 77.88% (n=81) had ischemic stroke. (FIG:1)

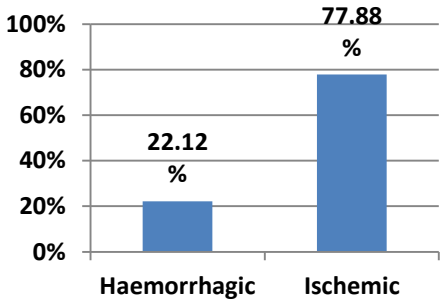

Figure:1. Types of stroke (n=104)

Frequency of early seizures in patients with strokes was recorded in 6.73%(n=7) while 93.27%(n=97) had no findings of the morbidity. (Table II)

Table II: Frequency of Early Seizures In Patients With Strokes (n=104)

Seizures	No. of patients	%
Yes	7	6.73
No	97	93.27
Total	**104**	**100**

The data was stratified for age, it shows that out of 7 cases of seizures 2 were between 18-50 years and 5 were between 51-75 years of age, p value was calculated as 0.45. (Table III)

The data was stratified for gender, it shows that out of 7 cases of seizures 3 were male and 4 were females, p value was calculated as 0.44. (Table III)

Table III: Stratification For Frequency of Seizues In Stroke Cases with Regards to Age (n=104)

Age Groups	Seizures		P value
	Yes	No	
18-50	2	38	0.45
51-75	5	59	
Total	7	97	
Gender			
Male	3	55	0.44
Female	4	49	
Total	7	97	
Type of stroke			
Hemorrhagic	4	23	0.05
Ischemic	3	81	
Total	7	97	

The data was stratified for type of stroke, it shows that out of 7 cases of seizures 4 were hemorrhage and 3 were ischemic, p value was calculated as 0.05. (Table III)

Discussion

Seizures are common during the early phase after a stroke and have been reported to occur between 2.5-5.7% within 14 days after a stroke. The effect of Early Seizure on prognosis is not known. If Early Seizure worsens prognosis, the prophylactic use of anticonvulsants in patients at risk is warranted.

The current study was designed to evaluate the actual frequency of seizures in patients with strokes. This study will highlight frequency in local population as there is variability in the results published in the literature. This study will reveal current results so that awareness should be stressed.

In our study, out of 1-4 cases of stroke, 38.46%(n=40) were between 18-50 years of age while 61.54%(n=64) were between 51-75 years of age, mean$\pm$sd was calculated as 52.75$\pm$9.22 years, 52.89%(n=55) were male and 47.11%(n=49) were females, 22.12%(n=23) were hemorrhage while 77.88%(n=81) had ischemic stroke, frequency of early seizures in patients with strokes was recorded in 6.73%(n=7).

The findings of our study regarding frequency of early seizures in stroke cases is in agreement with previous study showing that early phase after a stroke and have been reported to occur with a frequency of 2.5% to 5.7% within 14 days after a stroke.[18-21]

Some[22-24] but not all,[18] previous studies have indicated a relationship between infarct size and ES. Results obtained in this study confirm the existence of such a relationship, consistent with the observed higher initial stroke severity in patients with ES. Some previous studies,[18,22] but not others,[20,21] have indicated relationships between ES and ICH. In our study, out of 7 cases of seizures 4 were hemorrhage and 3 were ischemic, p value was calculated as 0.05.

Andrea Alberti and others assessed the rate of and the predictive factors for ES as well the effects of ES on the clinical outcome at hospital discharge in patients with first-ever stroke and recorded that thirty-one patients (4.8%) had ES. Seizures were significantly more common in patients with cortical involvement, severe and large stroke, and in patient with cortical hemorrhagic transformation of ischemic stroke. ES was not associated with an increase in adverse outcome (mortality and disability). After multivariate analysis, hemorrhagic transformation resulted as an independent predictive factor for ES (OR = 6.5; 95% CI: 1.95–22.61; p = 0.003).[25]

A recent study by Chraa Mohamed et al[26] assess the frequency and the predictive factors for early seizures as well the clinical outcome in patients with first-ever stroke and recorded that 47

patients (13%) had early seizure, and 8 had a status epilepticus. They were significantly more common in patients with cortical involvement, severe and large stroke, and in patient with cortical associated hemorrhage. ES were associated with an increase in adverse outcome (mortality and disability). In these patients hemorrhagic transformation is a predictive factor for ES. ES seem to be associated with a worse outcome after acute stroke, the reported incidence is slightly higher than our study.

In another study, early seizures occurred in 58 (15.6%) of the 372 patients with stroke. ischemic stroke had discovered about 271 of 372 patients (72.8%), while 98 patients (26.3%) had hemorrhagic stroke. in the ischemic group, 194 patients (71.6%) had cerebral thrombosis and 70 (25.8%) had cerebral embolism. In the hemorrhagic stroke group, 50 (51.0%) had hypertensive intracerebral hemorrhage (ICH) and 25 (25.5%) had a stroke of unknown origin. Patients with hemorrhagic stroke was a significantly associated factor of seizure ($p=0.015$).[16] These findings were also slightly higher than our study.

In summary, we are of the view that seizures are one of the potential complication of stroke. Early recognition of seizure in stroke and management is very important. This study highlighted frequency in local population as there is variability in the results published in the literature. This study also revealed current results and it is helpful for the awareness in patients and physicians as well.

Conclusion

We concluded that the frequency of early seizures is higher and considerable in patients with strokes, our data is primary in our population and needs some other trials to validate these findings.

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