



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1251150>Available online at: <http://www.iajps.com>

Research Article

**CEREBROVASCULAR ACCIDENTS: CAUSE OF MOVEMENT
DISORDERS IN PATIENTS**¹Dr. Shehla Bashir, ²Dr Asmarah Nadeem, ²Dr Bushra Arooj¹Mohi ud Din Islamic Medical College, Mirpur, AJK²Lahore General Hospital**Abstract:**

Objective: To determine number of patients suffering movements disorders after recovery from a cerebrovascular accident in Pakistan.

Methodology: It is a cross sectional study, conducted at teaching hospitals of Rawalpindi and Islamabad, Pakistan from august 2015 to March 2016. Study sample was 387 stroke patients belonging to age more than 18 years. The inclusion criteria were age more than 18 years, stroke for the first time in life, at least 3 months prior to enrollment, either hemorrhagic or ischemic. Data collection was done on a questionnaire after taking informed written consent from all participants. SPSS 20 version was made in use to analyse data.

Results: Male to female ratio was 51.6% to 48.4%, respectively. Age stratification was 33% individuals from 46 to 55 years. 25% individuals developed stroke after stress 19% individuals had spasticity while other stress disorders were noticed in 6% individuals. Out of these, 16 had hemi-dystonia, 10 had impaired coordination, 3 had distal dystonia. Frequency was higher in individuals with stroke for more than a year or two. 37 had dyslexia, 27 developed spastic dystonia, 10 had other types of dystonia.

Conclusion: In comparison to results obtained from previous investigations, the movement disorders rate amongst patients of cerebrovascular accidents (CVA) was low. The disorder might appear shortly after CVA or might take time to appear. Spastic dystonia was most common, remaining were less frequent. The time usually taken in appearance was 1 to 2 years after CVA.

Keywords: Cerebrovascular accidents (CVA), dystonia, stroke, movement disorders.

Corresponding author:**Dr. Shehla Bashir,**Mohi ud Din Islamic Medical College,
Mirpur, AJK

QR code



Please cite this article in press Shehla Bashir et al., *Cerebrovascular Accidents: Cause of Movement Disorders in Patients*, Indo Am. J. P. Sci, 2018; 05(05).

INTRODUCTION:

Stroke is one of the most common complication associated with certain diseases like, hypertension, diabetes mellitus, coagulation disorder, ischemic heart disease, DVT, thromboembolism. It is of two types, hemorrhagic stroke and ischemic stroke. Hemorrhagic stroke most commonly occurs in hypertensive patients. Ischemic stroke commonly occurs in diabetic individuals. The manifestations after stroke depend upon the cerebral vessel involved and area of brain affected. This study aims to determine the frequency of dystonia or movement disorders after stroke. Patients in this regard were followed up for several years in order to determine the dystonia rate after stroke and its relation with time since stroke.

Shoaib N, et al. conducted a similar study on Pakistani population and concluded that dystonia rate is higher in individuals who had stroke more than 2 years before being enrolled in study [1]. According to Holland MT, et al. by keeping in view the frequency of post stroke pain and dystonia In CVA patients, the treatment strategies for recovery of such patients were tested. Deep brain stimulation was used to bring the patients' misery down. The results were quite satisfactory [2].

Physiotherapies and limbs exercises are frequently advised to post stroke individuals. The task specific exercises and trainings for eight weeks were done on post stroke patients and a remarkable improvement in

limb function was noticed [3]. Similarly botulinum neurotoxin regimens were also studied on post stroke individuals suffering from spasticity or focal dystonia [4].

Many scientists are working on treatment options available in order to treat this disability, by keeping in view the frequency and the stress associated with post stroke patients due to disabilities and complications occurring in them.

MATERIALS AND METHODS:

WHO sample size calculator was used and 387 CVA patients were included in study. The inclusion criteria was patients with age more than 18 years, had first CVA attack, duration of stroke at least 3 months prior to enrollment, either hemorrhagic or ischemic in nature. Individuals with stress disorders either idiopathic or specific, functional disorders, stress disorders occurred as a result of any non-stroke disease, post-traumatic stress disorder, parkinson's disease were excluded from the study. Data collection was done from teaching hospitals of Rawalpindi and Islamabad, Pakistan during August 2015 to March 2016.

The detailed clinical history and past history of patients and demographic profile was collected on a pre-designed questionnaire. All patients were evaluated by neurologist. SPSS version 20 was utilised for data analysis. Study variables were explained in form of graphs, tables and frequencies.

Table: 1 Stroke and dystonia types.

Dystonia	Ischemic stroke	%	Hemorrhagic stroke	%
Spastic	51	13.2	17	4.4
Hemidystonia	6	1.6	10	2.6
Focal	2	1.0	6	1.6
Segmental	4	0.5	1	0.3

RESULTS:

200 males and 187 females were studied in whole study population, male to female ratio was 51.6% to 48.4%. Most individuals belonged to age group 46 to 55 years. 68% had ischemic stroke while 32% had hemorrhagic stroke. 47.2% individuals had right sided hemiplegia while remaining 52.8% individuals suffered left sided hemiplegia. 35% individuals had a year old attack of CVA while 36% individuals had stroke for almost 2 to 4 years before being included in study. 97 (25%) patients had dystonia. 19% individuals amongst these had spastic dystonia, followed by other types of stress disorders, i.e. 29 patients, 6%. Amongst these 29 patients, 16 had hemi-dystonia, 10 had coordination disorder and 3 had distal dystonia.

Out of 121 hemorrhagic stroke patients, 17 developed spastic dysplasia, 10 with hemidystonia, 6 had coordination disorders, 1 had hyperbolic disorder. Out of 266 ischemic stroke patients, 51 had spastic dysplasia, 6 hemidystonia, 4 having coordination disorder and 2 with distal dystonia.

The duration of stroke was compared with post stroke movement disorders frequency, 2 patients developed spastic dystonia while 3 suffered other type during less than 1 year post stroke time. 27 patients suffered spastic tension, 10 had advanced stress disorder after stroke. Following 2 to 4 years post stroke duration, 24 patients suffered spastic dystonia, 5 had postoperative tachycardia, not related to stroke.

Table: 2 Relation of dystonia with post stroke time.

Dystonia	<1 years	1 to 2 years	2 to 4 years	4 to 6 years	>6 years.
Hemi	2	6	4	1	3
Spastic	2	27	24	11	4
Focal	1	3	1	3	2
Segmental	0	1	0	2	0

DISCUSSION:

On the basis of previous research data available on the understudy topic, it has been noticed that post stroke dystonia is quite common complication in individuals with CVA. By keeping in view the results obtained from many studies, scientists are now looking for treatment options for this disability.

Cerebellum is considered the target for therapy in dystonia patients.[6] Deep brain stimulations by giving frequencies of 131 Hz, 3.3 volts amplitude, 120, 210 and 450 microseconds pulse width. In generalized dystonia wider pulse width is used while in focal dystonia shorter pulse width is used. In certain types of dystonias the clinical outcomes are far better with specific pulse width [5].

Post stroke spasticity and neural circuits were compared in a few stroke individuals. 71 patients were studied, Hmax/Mmax of forearm flexors and reciprocal inhibition between flexors and extensors of forearm muscles was compared. Electrophysiological parameters and clinical variables were compared. The only association found with post stroke spasticity was RI-3. [9,10].

Stroke is one of the most common complication associated with certain diseases like, hypertension, diabetes mellitus, coagulation disorder, ischemic heart disease, DVT, thromboembolism. It is of two types, hemorrhagic stroke and ischemic stroke.[7] Hemorrhagic stroke most commonly occurs in hypertensive patients. Ischemic stroke commonly occurs in diabetic individuals. The manifestations after stroke depend upon the cerebral vessel involved and area of brain affected.[8] This study aims to determine the frequency of dystonia or movement disorders after stroke. Patients in this regard were followed up for several years in order to determine the dystonia rate after stroke and its relation with time since stroke.

CONCLUSION:

In comparison to results obtained from previous investigations, the movement disorders rate amongst patients of cerebrovascular accidents (CVA) was low. The disorder might appear shortly after CVA or might take time to appear. Spastic dystonia was most

common, remaining were less frequent. The time usually taken in appearance was 1 to 2 years after CVA.

REFERENCES:

- 1- Shuaib N, Khan NA, Akhtar T, Amir S. Dystonia frequency among post-stroke patients in Pakistan. *IJABR* 2018; 9(1): 419-423.
- 2- Holland MT, Zanaty M, Li L, Thomsen T, Beeghley JH, Jeremy DW, et al. Successful deep brain stimulation for central post stroke pain and dystonia in a single operation. *Journal of Clinical Neuroscience* 2018; 50: 190-193.
- 3- Umar M, Masood T, Badshah M. Effect of botulinum toxin A and task specific training in upper limb function in post stroke focal dystonia. *J Pak Med Ass* 2018; 68 (4): 526-529.
- 4- Wissel J. Towards flexible and tailored botulinum toxins during regimens for focal dystonia and spasticity – insights from recent studies. *Toxicol* 2018; 147: 100- 106.
- 5- Magown P, Andrade RA, Sorceanu A, Kiss ZHT. Deep brain stimulation parameters for dystonia: a systematic review. *Parkinsonism and Related Disorders* 2018.
- 6- Franca C, De Andrade DC, Teixeira MJ, Cury RG. Cerebellum as a possible target for neuromodulation after stroke. *Brain Stimulation* 2018.
- 7- Bang MH, Hong J, Kim HS. Seven cases of successful remission after trial of metoclopramide on orofacial dyskinesia of stroke patients: a case series. *Stroke Neurorehabilitation*. 2018
- 8- Mysliwiec V, Brock MS, Thomas AL, Creamer JL. The extreme nocturnal manifestation of trauma: trauma associated sleep disorder. *Sleep and Combat Related Post Traumatic Stress Disorder* 2018; 215-225.
- 9- Okuyama K, Kawakami M, Hiramoto M, Muraoka K, Fujiwara T, Liu M. Relationship between spasticity and spinal neural circuits in patients with chronic hemiparetic stroke. *Experimental Brain Research* 2018; 236 (1): 207-213.
- 10- Tamburini P, Mazzoli D, Stagni R. Towards an objective assessment of motor function in sub acute stroke patients: relationship between clinical rating scales and instrumental gait stability indexes. *Gait and Posture* 2018; 59: 58- 64.