Prevalence of Anxiety and Depressive Symptoms in Patients Following Acute First Episode Stroke in a Tertiary Care Centre

Anoop Vincent[1], Vishnu.T.C[2]

[1]Associate Professor, Department of Psychiatry, Sree Narayana Institute of Medical sciences, Chalakka, Kunnukara, Kerala, India.
[2]Consultant Psychiatrist, Nair Hospital, Maradu, Kochi, Kerala, India.

ABSTRACT

Background: Stroke is a leading cause for disability, dementia and death.5 It is a predisposing factor for epilepsy, falls and is also a leading cause of functional impairments, the present study was conducted to find the prevalence of anxiety and depressive symptoms in patients in acute first episode stroke. **Methods:** 100 consecutive patients (male- 69, female- 31) with first episode stroke who satisfied the inclusion and exclusion criteria was done within the first week of occurrence of stroke after admission to the tertiary care teaching hospital in central Kerala. Patients were then screened for depressive and anxiety symptoms using HADS and the scores were duly noted on the Depression and Anxiety subscales respectively. **Results:** Both anxiety and depressive symptoms shows that 24% of the study sample was free from any post stroke anxiety or depressive symptoms which give us a combined 76% prevalence of depressive and anxiety symptoms in the immediate post stroke period. Also, 17% of patients were noted to have co-morbid anxiety and depressive symptoms. Anxiety was found to be slightly more prevalent in younger stroke survivors of ≤ 60 years (51.3%) when compared to older stroke survivors (50.8%). But this observed difference was not found to be statistically significant. **Conclusion:** Post stroke psychiatric distress has been found to have an adverse impact on functional outcome of the patient in the existing literature, and it is therefore necessary to identify the distress at the earliest and initiate measures to help the patient attain maximum functional recovery.

Keywords: Anxiety, Stroke, psychiatric Distress.

INTRODUCTION

World Health Organisation (WHO) defines stroke as "rapidly developing clinical signs of focal disturbance of cerebral function lasting more than 24 hours or leading to death, with no apparent cause other than that of vascular origin.[1-3] Stroke is divided into two broad categories based on its pathophysiology- Ischaemic strokes caused by occlusion of arteries supplying the brain which account for 50%– 85% of all strokes worldwide and Haemorrhagic strokes which are caused by bleeding from one of the brain's arteries which account for 8%-34% of all strokes worldwide.[4]

Stroke is a leading cause for disability, dementia and death.[5] It is a predisposing factor for epilepsy, falls and is also a leading cause of functional impairments, with 20% of survivors requiring institutional care and 15% - 30% being permanently disabled.[6] Depression is a common sequel of stroke. The association of depression with stroke has been recognized by clinicians for almost 100 years, but it is only within the past 30-35 years that systematic studies of depression following stroke have been conducted. It has also been the most common psychiatric symptom studied in the post stroke period.[7,8] That is not to say that depression is the sole symptom of psychiatric distress observed and studied in this population. Anxiety, apathy, fatigue, sleep disturbances etc. are some of the other symptoms commonly observed.[9]

Multiple factors have been mentioned as being responsible for the wide range of prevalence rates of post stroke depressive and anxiety symptoms.[10] Some of the factors affecting prevalence include the age of the patient at time of stroke, gender, type of stroke, laterality of stroke, past history of depression, socioeconomic status, social support, the time interval between stroke and evaluation, the type of study population (hospital vs community vs rehabilitation centre based), whether the study was assessing symptoms or a disorder, past history of cerebrovascular accident, stroke severity at onset, cognitive status etc.[11,12] The present study was conducted to find the prevalence of anxiety and depressive symptoms in patients in acute first episode stroke.

Name & Address of Corresponding Author
Dr. Anoop Vincent
Associate Professor,
Department of Psychiatry,
Sree Narayana Institute of Medical sciences,
Chalakka, Kunnukara, Kerala, India

MATERIALS AND METHODS

A cross sectional analysis of 100 consecutive patients (male- 69, female- 31) with first episode stroke who satisfied the inclusion and exclusion criteria was done within the first week of occurrence of stroke after admission to the tertiary care teaching hospital in central Kerala. MMSE was used to screen patients for cognitive deficits as part of the exclusion criteria. Inclusion criteria was patients above 18 years of age, an admission diagnosis of stroke which is clinically established and confirmed by CT or MRI scan. Exclusion criteria was patients with transient ischaemic attack or recurrence of strokes, patients with onset of stroke more than a week ago, patients with MMSE score less than or equal to 24, patients with acute physical complications or having gross impairment in comprehension and expression of speech and other deficits affecting participation and patients who are currently on any psychiatric medication.

The patients were studied from April 2019 to October 2019. Details of the selected patients were collected with the help of a Patient information sheet. Patients were then screened for depressive and anxiety symptoms using HADS and the scores were duly noted on the Depression and Anxiety subscales respectively. Hypothesis of association of various factors with the development of post stroke anxiety & depressive symptoms was statistically tested for their significance by applying the chi square test. The p-values of 0.05 was considered significant.

RESULTS

Table 1: Assessment of parameters

Parameters	Variables	Number	P-value
Type	Ischaemic	90	0.01
	Haemorrhagic	10	
Past History of Depression	Present	9	0.01
	Absent	91	
Socioeconomic class	Upper	23	0.05
	Upper Middle	38	
	Lower Middle	30	
	Upper Lower	7	
	Lower	2	
Socioeconomic class	Upper	23	0.12
	Upper Middle	38	
	Lower Middle / Upper Lower /Lower	39	
Anxiety symptoms	Normal	49	0.08
	Mild	22	
	Moderate	23	
	Severe	6	
Anxiety symptoms	Absent	49	0.91
	Present	51	
Depressive symptoms	Normal	58	0.05
	Mild	20	
	Moderate	18	
	Severe	4	

[Table 1 & Figure 1] shows that type was ischaemic in 90 and haemorrhagic in 10, past History of Depression was present in 9, socioeconomic class was upper in 23, upper Middle in 38, lower Middle in 30, upper Lower in 7 and lower in 2. Socioeconomic class was Upper in 23, upper Middle in 38, lower Middle / Upper Lower /Lower in 39, anxiety symptoms were mild in 22 and moderate in 23, anxiety symptoms were present in 49, depressive symptoms were normal in 58, mild in 20, moderate in 18 and severe in 4 cases. The difference was significant (P< 0.05).
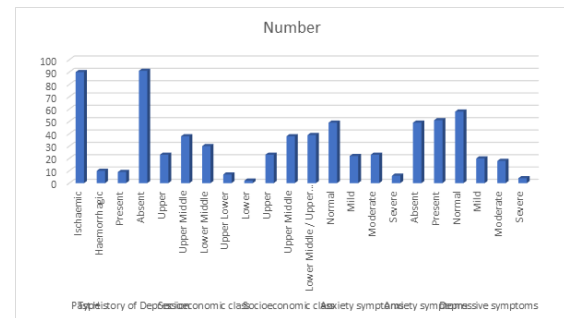
Figure 1: Assessment of parameters

Table 2: Distribution of anxiety and depressive symptoms

Parameters		Depressive symptoms	
		Absent	**Present**
Anxiety symptoms	Absent	24	25
	Present	34	17
Anxiety symptoms	Age	≤ 60 years	> 60 years
	Absent	19 (48.7%)	30 (49.2%)
	Present	20 (51.3%)	31 (50.8%)
Depressive symptoms		≤ 60 years	> 60 years
	Absent	24 (61.5%)	34 (55.7%)
	Present	15 (38.5%)	27 (44.3%)
Anxiety symptoms		Ischaemic	Haemorrhagic
	Absent	46 (51.1%)	3 (30%)
	Present	44 (48.9%)	7 (70%)
Depressive symptoms		Ischaemic	Haemorrhagic
	Absent	51 (56.7%)	7 (70%)
	Present	39 (43.3%)	3 (30%)

[Table 2] shows that both anxiety and depressive symptoms shows that 24% of the study sample was free from any post stroke anxiety or depressive symptoms which give us a combined 76% prevalence of depressive and anxiety symptoms in the immediate post stroke period. Also, 17% of patients were noted to have co-morbid anxiety and depressive symptoms.

Anxiety was found to be slightly more prevalent in younger stroke survivors of ≤ 60 years (51.3%) when compared to older stroke survivors (50.8%). But this observed difference was not found to be statistically significant.

There was a difference noted in the prevalence of depressive symptoms between the different age groups with 44.3% of subjects aged > 60 showing the presence of depressive symptoms whereas only 38.5% of subjects ≤ 60 years had depressive

symptoms. But this observed difference of a greater prevalence of depressive symptoms in the older stroke survivors was found to be statistically insignificant.

Depressive symptoms seemed to be more prevalent in patients with ischaemic stroke (43.3%) when compared to patients who had suffered a haemorrhagic stroke (30%). This difference, even though large did not prove to be statistically significant.

DISCUSSION

This study was undertaken in the background of the wide difference in the prevalence of post stroke depressive and anxiety symptoms which has been encountered in the existing literature. Also, the relation between post stroke psychiatric distresses has been extensively discussed in existing literature with varying and often conflicting conclusions emerging. Hence, the current study was done to assess the prevalence rates of depressive symptoms and anxiety symptoms in the acute post stroke period and to assess whether the age of the patient at onset of stroke, the gender, type and laterality of stroke, socioeconomic class and whether a past history of depressive illness has any relation to the development of anxiety or depressive symptoms post stroke. In our study, we observed that the prevalence of depressive symptoms in the week after first episode of stroke was 42%, and that of anxiety symptoms was 51%. These prevalence rates were among the higher values observed in existing literature.

The prevalence rate of depressive symptoms observed in this study was found to be less than the prevalence rate of 46% observed by Caeiro et al,[13] and 52% by Nys et al,[14] in studies carried out on stroke patients within almost the same interval following stroke as in this study. But other studies done during similar post stroke intervals provided mixed results. Fure et al,[16] using the same scale as in this study only observed a prevalence rate of 26.4% anxiety, 14% depressive symptoms and nearly 8% of patient with co-morbid symptoms.

The high prevalence of depressive symptoms observed in this study is also indirectly supported by the findings of a systematic review by Bhogal et al,[15] wherein it was observed that the highest rates of depression were noted in patients assessed within the first 28 days of stroke. The higher prevalence of anxiety symptoms compared to depressive symptoms in the acute post stroke period in our study was in agreement with previous observations made by Fure et al.[16]

We also observed that about 76% of our study population had psychiatric distress (either anxiety symptoms or depressive symptoms or both). This high prevalence of psychiatric distress after stroke was also correlated by observations from a study by Paradiso et al.[17]

In our study, we observed that there was no statistically observable difference between the two sexes when it came to prevalence of post stroke depressive symptoms. This observation was in concordance with observations made by Robinson and Price. Our observation of a lack of a correlation between the prevalence of post stroke anxiety symptoms and gender was supported by Castillo et al.[18]

In our study, we found no statistically significant difference between the laterality of the stroke and the presence of post stroke anxiety or depressive symptoms. This observation is in concordance with the observations made by various other authors. One of the first studies which corroborated this observation was by Ebrahim et al.[19]

In our study, despite a larger percentage of haemorrhagic stroke patients exhibiting anxiety symptoms compared to ischaemic stroke patients and a significantly smaller percentage of haemorrhagic stroke patients exhibiting depressive symptoms compared to ischaemic stroke patients, these observable differences did not amount to statistical significance, and we concluded that there is no relation between the type of stroke to the prevalence of anxiety or depressive symptoms occurring in the immediate post stroke period. Our observation is in concordance with similar observations made by Ng et al.[20]

The credits of this study are that it is one among the few studies done in India with the objective of assessing psychiatric distress occurring in the acute period after stroke. Also, rather than assessing depressive symptoms alone like many other studies, anxiety symptoms were also assessed as they have proven to be co-morbid with depression in the post stroke period and also impeding the process of functional recovery of the patient. HADS has been proven to be a valid measure of emotional distress, and its scores have been found to be unaffected by the presence of bodily illness.

CONCLUSION

Post stroke psychiatric distress has been found to have an adverse impact on functional outcome of the patient in the existing literature, and it is therefore necessary to identify the distress at the earliest and initiate measures to help the patient attain maximum functional recovery. There is no correlation between the development of anxiety and depressive symptoms in the acute post stroke period and age, gender, socioeconomic status, type of stroke suffered, laterality of stroke or past history of depression in the patient.

REFERENCES

1. Schwartz JA, Speed NM, Brunberg JA, Brewer TL, Brown M, Greden JF. Depression in stroke rehabilitation. Biol Psychiatry. 1993;33(10):694–699.

2. Williams LS, Ghose SS, Swindle RW. Depression and other mental health diagnoses increase mortality risk after ischemic stroke. Am J Psychiatry. 2004;161(6):1090–1095.

3. Jørgensen L, Engstad T, Jacobsen BK. Higher incidence of falls in long-term stroke survivors than in population controls: depressive symptoms predict falls after stroke. Stroke. 2002;33(2):542–547.

4. Sinyor D, Amato P, Kaloupek DG, Becker R, Goldenberg M, Coopersmith H. Post-stroke depression: relationships to functional impairment, coping strategies, and rehabilitation outcome. Stroke. 1986;17(6):1102–1107.

5. Gaete JM, Bogousslavsky J. Post-stroke depression. Expert Rev Neurother. 2008;8(1):75–92.

6. Paolucci S, Antonucci G, Grasso MG, Morelli D, Troisi E, Coiro P, De Angelis D, Rizzi F, Bragoni M. Post-stroke depression, antidepressant treatment and rehabilitation results. A case-control study. Cerebrovasc Dis. 2001;12(3):264–271.

7. Chemerinski E, Robinson RG, Kosier JT. Improved recovery in activities of daily living associated with remission of poststroke depression. Stroke. 2001;32(1):113–117.

8. Raju RS, Sarma PS, Pandian JD. Psychosocial problems, quality of life, and functional independence among Indian stroke survivors. Stroke. 2010;41(12):2932–2937.

9. Robinson RG, Starr LB, Kubos KL, Price TR. A two-year longitudinal study of post-stroke mood disorders: findings during the initial evaluation. Stroke. 1983;14(5):736–741.

10. Watkins CL, Lightbody CE, Sutton CJ, Holcroft L, Jack CIA, Dickinson HA, van den Broek MD, Leathley MJ. Evaluation of a single-item screening tool for depression after stroke: a cohort study. Clin Rehabil. 2007;21(9):846–852.

11. Sato R, Bryan RN, Fried LP. Neuroanatomic and functional correlates of depressed mood: the Cardiovascular Health Study. Am J Epidemiol. 1999;150(9):919–929.

12. Kellermann M, Fekete I, Gesztelyi R, Csiba L, Kollár J, Sikula J, Bereczki D. Screening for depressive symptoms in the acute phase of stroke. Gen Hosp Psychiatry. 1999;21(2):116–121.

13. Caeiro L, Ferro JM, Santos CO, Figueira ML. Depression in acute stroke. J Psychiatry Neurosci. 2006;31(6):377–383.

14. Nys GMS, van Zandvoort MJE, van der Worp HB, de Haan EHF, de Kort PLM, Kappelle LJ. Early depressive symptoms after stroke: neuropsychological correlates and lesion characteristics. J Neurol Sci. 2005;228(1):27–33.

15. Bhogal SK, Teasell R, Foley N, Speechley M. Lesion location and poststroke depression: systematic review of the methodological limitations in the literature. Stroke. 2004;35(3):794–802.

16. Fure B, Wyller TB, Engedal K, Thommessen B. Emotional symptoms in acute ischemic stroke. Int J Geriatr Psychiatry. 2006;21(4):382–387.

17. Paradiso S, Robinson RG. Gender differences in poststroke depression. J Neuropsychiatry Clin Neurosci. 1998;10(1):41–47.

18. Castillo CS, Starkstein SE, Fedoroff JP, Price TR, Robinson RG. Generalized anxiety disorder after stroke. J Nerv Ment Dis. 1993;181(2):100–106.

19. Ebrahim S, Barer D, Nouri F. Affective illness after stroke. Br J Psychiatry. 1987;151:52–56.

20. Ng KC, Chan KL, Straughan PT. A study of post-stroke depression in a rehabilitative center. Acta Psychiatr Scand. 1995;92(1):75–79.