

Original Research Article

A cross sectional study of prevalence of depression among patients with cerebrovascular accident

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ABSTRACT

Background: Depression is one of the most common neuropsychiatric condition in patients with stroke. Early identification of depression for stroke patients can improve the outcome leading to better quality of life. Prevalence and determinants of post stroke depression are highly variable and there is paucity of data in Indian literature.

Methods: This cross-sectional study was conducted at neurology department of Saveetha Medical College, Chennai. All patients with history of stroke within past one month attending neurology department who fulfilled the inclusion criteria were taken up for the study after getting consent. Neurological examination and CT brain findings were noted with the site of lesion. All patients were evaluated for depression using ICD 10 criteria. MADRS score was used to assess the severity of depression. Chi square was used for statistical analysis.

Results: The mean age of subjects in the study was 56.54 ± 10.82 years. The prevalence of depression among patients with stroke in our study was 75.8%. Among classifying those with depression based on severity using MADRS score, 35% had mild depression and 65% had moderate depression. There was no severe depression in our sample. There was no statistically significant difference between prevalence of depression based on side of lesion.

Conclusions: In this study the prevalence of depression among patients with cerebrovascular accident was found to be 75.8%. From this study we learn that the prevalence of depression in patients with stroke is high and this shows that regular screening of patients with stroke for depression might help in earlier detection and management of depression.

Keywords: Cerebrovascular accident, Depression, Montgomery Asberg Depression Rating Scale, Post stroke depression, Prevalence of depression, Stroke

INTRODUCTION

Stroke is defined by WHO as a rapid development of clinical signs and symptoms and focal neurological disturbance lasting more than 24 hours or leading to death with no apparent cause other than vascular origin. Cerebrovascular accident is the medical terminology for stroke. Post stroke depression is one of the most common emotional disorders affecting stroke survivors.¹ This study aims to find the prevalence of depression in patients with stroke.

Post stroke depression warrants the attention of researchers and further clinical studies because unrecognized and untreated post stroke depression can result in increased use of health services and longer hospitalization. Post stroke depression causes significant morbidity in patients affected with stroke. There is impending need for earlier recognition, assessment and treatment, as the current treatment of post stroke depression is restrained by our incomplete knowledge of what causes stroke patient to become depressed.²

Aim of the study was to estimate the prevalence of depression among patients (31-59 years) within one month after stroke. Study also aimed to find the neuroanatomical correlation between the site and side of the stroke with the occurrence and severity of depression.

METHODS

This cross-sectional observational study was done in the Department of Neurology, Saveetha medical college, Chennai, Tamil Nadu, India.

Inclusion criteria

- All patients with history of stroke within 1 month, aged between 31 to 59
- Willing to give informed consent for study

Exclusion criteria

- Pre-existing psychiatric illness
- Morbidly ill
- Not willing to give informed consent

Study period was December 2018 to February 2019.

Study population and sample size estimation

All patients attending neurology OP within one month of stroke. Based on previous study by Jim Litton et al, we assumed the prevalence of significant post stroke depression was 47%. By keeping Power as 80%, alpha error as 5% we arrived at a sample size of 120.

All patients seen in neurology department with history of stroke in the past one month and who satisfied the inclusion criteria were taken up for the study. Informed consent was obtained from the patients or relatives. Upon enrolment into the study, semi structured data collection proforma was used to record the sociodemographic details. Neurological examination findings were correlated clinically with radiological findings by CT scan performed on the patient. All patients were evaluated for depression by using ICD 10 criteria by a psychiatrist. Severity of depression was assessed using MADRS scale (Montgomery Asberg Depression Rating Scale).

Statistical analysis

All data obtained was entered in MS excel. Data was analyzed at the end of the study using SPSS version 20. Chi square and independent t test were used to find out the prevalence of depression among patients with cardiovascular accident.

RESULTS

In this study out of the 120 patients enrolled, 75% were male and 25% were female with a mean age of 56.54±10.82 years. In the study sample of 120 patients,

59 patients had diabetes and 87 patients had hypertension with overlap of some patients. In this study, out of 120 patients, depression was found in 91 patients (Figure 1). Thus, the prevalence of depression in post stroke patients was 75.8%.

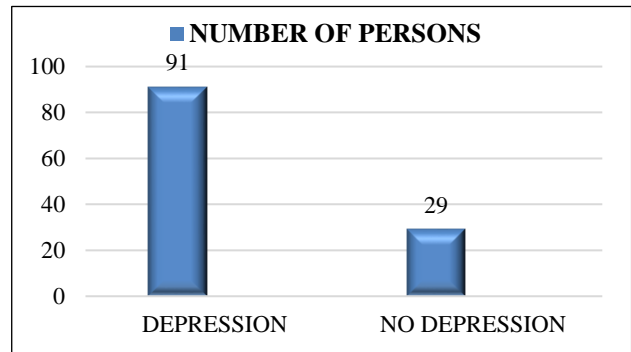


Figure 1: Number of patients with and without post stroke depression.

Table 1: Patients with depression classified according to severity.

Severity of depression	Number of patients	Percentage
Mild	32	35.2
Moderate	59	64.8
Severe	0	0

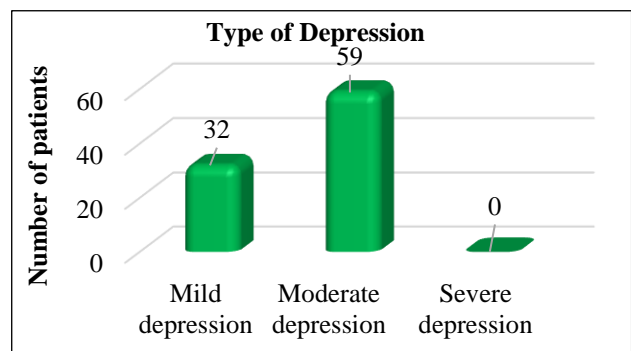


Figure 2: Number of patients classified according depression severity.

Table 2: Number of patients with depression with respect to hemisphere of lesion.

Hemisphere of lesion	Depression	No depression
Left	44	12
Right	47	17
X2 = 0.4295		
p = 0.53		
Statistically not significant		

Furthermore, the patients who were diagnosed with depression were classified as mild depression, moderate depression and severe depression based on MADRS

scores. The number of patients with mild depression and moderate depression was 32 and 59 respectively.

This reflects a percentage of 35% with mild depression and 65% with moderate depression among the patients with depression. There were no patients with severe depression in this study (Table 1) (Figure 2).

When the study was evaluated to assess the association of depression with hemisphere affected, it was found that there was no statistically significant difference between the occurrence of depression with respect to the hemispheres (Table 2). Based on the interpretation of CT scan, the association of depression in relation to the site was found to be more common to a left capsular bleed but it was not statistically significant (Table 3).

Table 3: CT findings and its correlation with post stroke depression.

Number of patients with depression depending on site of lesion in CT		
Site of lesion	Depression	No depression
Acute CVA/aortic stenosis (age related atherosclerosis)	8	1
Acute haemorrhage-right thalamo capsular region	7	0
Acute infarcts left ganglio capsular region	7	2
Chronic infarct in left cerebellar hemisphere	6	0
Chronic infarct, right ganglio capsular region	2	5
Chronic lacunae infarct in anterior limb of thalamus	6	1
Hypodensity in left internal capsule	3	5
Intra parenchymal haemorrhage involving brain stem	5	0
Intraparenchymal mass in left ganglia	3	6
Left capsular bleed	12	1
Left ganglio capsular haemorrhage	6	1
Right ganglio capsular	1	6
Right ganglio capsular bleed	6	1
Right MCA and ACA territories with mass effect	10	0
Right PICA	9	0
Total	91	29
Chi square for trend = 0.059		
p = 0.807		
Statistically not significant		

DISCUSSION

The study was conducted in Saveetha Medical College, Chennai. Previous studies showed that depression is the most common neuropsychiatric disturbances with a prevalence of almost 6 to 52% of acute stroke patients.

The prevalence of depression in this study was 75.8%.¹ In a study by Lara et al, the prevalence of acute depression was found to be 46%.² In another study by Vataja et al, it was found that 37.1% had stroke related depression.³ Pooja et al, reported the prevalence of depression to be 45.16%.⁴ Hence the rates of prevalence in post stroke depression varies from 25% to 79% which depends on the criteria selected in different study.⁵ This study reported a high prevalence of depression in patients with post stroke. A unique aspect of this study was that, it was done within one month after stroke by using MADRS score and prevalence was found to be 75.8%. In a study done in Portugal by Lara caeiro et al, post stroke depression was assessed using MADRS after 4 days of stroke, the prevalence of acute depression was found to be 46%.²

Pooja rajashekaran et al, studied post stroke depression who had history of recent onset of stroke (>2 weeks but <6 months) by using two standardized scales-subjective Beck depression inventory and objective Montgomery Asberg depression rating scale found the prevalence of major depression to be 45.16%.⁴ Few studies found relationship between stroke site and post stroke depression. Rajashekaran et al, in his study reported that there were strong association with left sided lesion, more specifically left sided cortical and sub cortical lesion.⁴ Sioben et al, reported that depression was significantly associated with right cerebral hemisphere lesion.⁶ In this study, there was no statistical difference in prevalence of depression depending on the hemisphere.

Even though MRI had more accuracy over CT brain, we have considered CT findings as most of the patient had CT report and was not affordable for MRI. Similarly, in a study done by Desmond et al, depression was associated with severe stroke particularly in vascular territories that supply limbic structures.⁷ But, in this study though depression was more associated with certain areas of lesions, it was not statistically significant.

An important limitation was that in this study various other risk factors of depression like structural brain asymmetries, lesion volume, female gender, family history of mood disorder, neuroticism trait, younger age, greater impairment in activities of daily life, impaired social support, and negative life events were not evaluated in detail since main objective was to find the prevalence of depression in stroke patients and not to assess the causative factors.

CONCLUSION

This study reports a high prevalence of depression in post stroke patients. From this it was concluded that prevalence of depression in stroke patients is very high especially within a month. Such a high prevalence implies that routine screening of depression in post stroke patients would help to identify a huge number of patients with depression. This can help in early management and hence reduce the morbidity and improve the quality of life.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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