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"POST-STROKE MOOD DISORDERS -A HOSPITAL BASED CROSS-SECTIONAL OBSERVATIONAL STUDY ON SOCIODEMOGRAPHIC, DIAGNOSTIC AND ANATOMICAL PATTERNS"

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Abstract

Background: A number of patients developed psychiatric problems of diverse nature after stroke. Most of studies have focused on post-stroke depression and thus the hospital prevalence for individual mood disorders have not been explored yet. The goal of current study is to investigate hospital prevalence, sociodemographic patterns and anatomical distribution of mood disorders following stroke.

Method: The study was conducted on ninety patients developing mood disorders after stroke. Detailed socio-demographic characteristics, clinical profile along with psychiatric assessment were recorded in proforma specially designed for the study and analyzed using SSPS v26.

Results: Most of subjects (31,51.6%) were in the age range of 61-80 years. There was male preponderance (21,35%). Most patients were residing at rural areas (54, 90%) and were belonging to lower middle socio-economic status (28, 46%). Majority of subjects were unemployed (29,48.3%). Maximum subjects developed post-stroke depression (40, 66.6%) followed by mixed anxiety and depression (14, 23.3%). Rest of patients suffered from dysthymia (5,8.3%) and manic disorder (1,1.6%).

Conclusions: The post-stroke mood disorders are, generally, unrecognized and untreated, which has adverse impact on process of stroke rehabilitation. Better awareness and comprehension of the post-stroke mood disorders may aid in the early detection and management of them. A detailed psychiatric evaluation is mandatory in all patients of stroke to rule out psychiatric illness.

Keywords: Clinical profile, Depression, Mood disorder, Sociodemographic

INTRODUCTION-

WHO stroke definition is "A focal (or at times global) neurological impairment of sudden onset and lasting more than 24 hours (or leading to death) and of presumed vascular origin". The definition excludes (TIA), subdural hemorrhage, epidural hemorrhage, poisoning, and symptoms caused by trauma are also excluded.[1]One of the leading causes of morbidity and death worldwide is stroke. According to WHO estimates, 15 million people worldwide receive a stroke diagnosis each year.[2]The risk of hypertension, diabetes mellitus, dyslipidemia, and other conditions that raise the incidence of stroke has considerably grown due to emerging lifestyle disorders, extreme stress, food habits, and overcompetitiveness.[3]

Various neurological and behavioral residual impairments are present in stroke patients. The primary focus of treatment for neurological disabilities is frequently maintained and properly controlled. Conversely, any remaining behavioral impairments are usually disregarded and written off as the psychological fallout from the stroke. A substantial greater percentage of behavioral disabilities is seen in stroke patients[4]. Comparative studies on disability due to stroke and other devastating illnesses show a significant higher percentage of behavioral disabilities in stroke[5]. implying that these alterations in behavior are not just psychological but are related to the neuroanatomical and neurophysiologic alteration in brain after stroke. Neuroimaging provides us with ample evidence in favor of a biological substratum of mood symptoms following stroke syndrome.[6] As a result, there has been a resurgence of interest in proper identification of various organic mood disorders, their underlying mechanisms, anatomical and clinical correlations and overall management using various pharmacological agents.

Mood symptoms play an important role in overall disability and quality of life in stroke syndrome. Very often due to overlapping of mood disorders, the cognitive deficit following stroke syndrome appears more apparent than the real magnitude of the illness.[7]So early identification of mood disorders following stroke can achieve better results. Most of previous studies have focused on post-stroke depression only and thus the hospital prevalence for individual mood disorders have not been explored yet. The goal of current study is to investigate hospital prevalence, sociodemographic patterns and anatomical distribution of mood disorders following stroke.

METHOD:

This observational cross-sectional study, which was carried out in the Departments of Psychiatry and Medicine at a tertiary care center of Madhya Pradesh from January 2023 – June 2023, included sixty patients who fulfilled the study criteria.

Inclusion criteria- Patients with definite history of recent onset stroke (>2 weeks), with first episode of mood disorder, and those who gave informed consent were included in the study.

Exclusion criteria- Individuals having a past history psychiatric illness, neurological diseases, drug dependence, severe medical illnesses, altered sensorium, aphasia, unconsciousness, and major cognitive problems were eliminated.

Using a semi-structured proforma, the full medical and psychiatric histories of sixty patients who were enrolled in the study were completed. Cognitive function was assessed by using Mini Mental Status Examination[8]. CT scan and MRI were done in each patient to locate the site of lesion. Localization was also broadly based on the site of lesion - cortical, sub-cortical, cerebellum and brain stem.

Statistical analysis–Statistical analysis was done using SPSS software v26. The results were subjected to statistical analysis using student's t-test (continuous variables) and chi-squared test (categorical variables) to achieve significant of various clinical variable($p=<0.05$).

RESULTS:

In the above-mentioned study, 60 diagnosed cases of post-stroke mood disorder following the inclusion criteria were enrolled in to the study.

Patient's socio-demographic variables (age, sex, socio-economic status, occupation, domicile, family type, and education) were studied. Table 1 shows most of our post-stroke subjects (51.6%) were in the age range of 61-80 years. There was preponderance of male patients (35%). Most of the patients were from rural areas (90%) and belonging to lower middle socio-economic status (46%). Maximum were educated up to middle school (35,58.33%) and were unemployed (29,48.3%).

Table 1: Socio-demographic variables in terms of frequency and percentage (N=60)

Variables	Patients (N=60)	
	Number	%
Age (in years)		
20-40	5	8.3
41-60	14	23.3
61-80	31	51.6
>80	10	16.6
Gender		
Male	38	63.3
Female	22	36.6
Marital Status		
Married	51	85
Unmarried	2	3.3
Widow/separated	7	11.6
Domicile		
Rural	54	90
Urban	6	10
Occupation		
Unemployed	29	48.3
Skilled worker	12	20.0
Unskilled worker	10	16.6
Shop owner/ clerical/ Farmer	9	15
Professional	0	0
Education		
Illiterate	7	11.6
Primary to middle school	28	46.6
High to higher school	19	31.6
Graduates and above	6	10
Socio-economic Status		
Upper	0	0
Upper middle	6	10
Lower middle	28	46
Upper lower	24	40
Lower	2	3.3
Family type		
Extended/joint	46	76.6
Nuclear	14	23.3

Maximum subjects developed post-stroke depression (40, 66.6%) followed by mixed anxiety and depression (14, 23.3%). Rest of patients suffered from dysthymia (5,8.3%), manic disorder (1,1.6%) [Table 2]

Table 2: Diagnostic categorization

Mood Disorder Type	Number (N=60)	Percentage (%)
1. Post-stroke Depression	40	66.6%
3. Post-stroke Mixed Anxiety & Depression	14	23.3%
4. Post-stroke Mania	1	1.6%
7. Post-stroke Dysthymia	5	8.3%
5. Post-stroke Hypomania	0	0
6. Post-stroke Cyclothymia	0	0
Total	60	100%

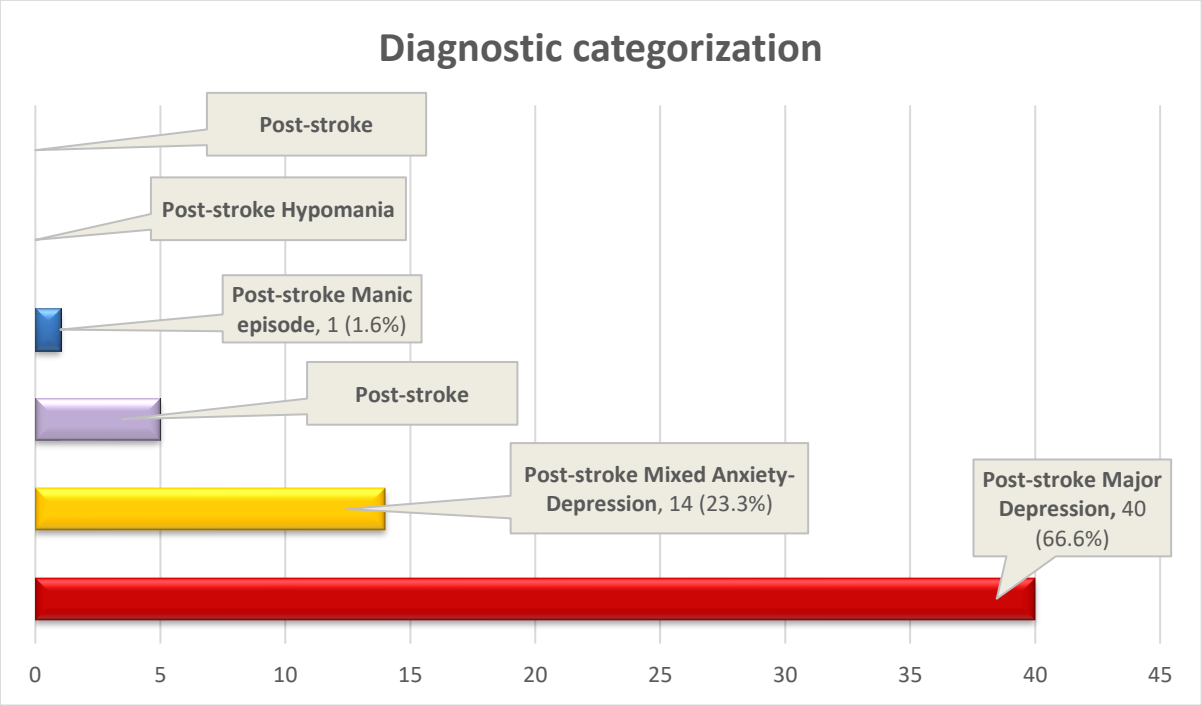

Table no 3(a) and 3(b) revealed that out of 60 patients, 40(66.6%) had left hemispheric lesions while 20(33.3%) had right hemispheric lesions, both cortical and subcortical lesions had equal distribution 30(50%). In right hemispheric lesions, 13(65%) of patients had major depression, while mixed anxiety and depression were present in 5(25%) patients. In left hemispheric lesions, 27(67.5%) had major depression and9(22.5%) patients had mixed anxiety and depression.

Table 3 (a) Post-stroke mood disorder: hemispheric distribution

S. No.	Mood Disorder	Right hemispheric lesions N=20	Left hemispheric lesions N=40	Total N=60
1	Post-stroke Depression (40)	13(65%)	27(67.5%)	40
2	Post-stroke Mixed Anxiety and Depressive disorder (14)	5(25%)	9(22.5%)	14
3	Post stroke Mania (1)	1(5%)	0	1
4	Post-stroke Dysthymia (5)	1(5%)	4(10%)	5
5	Post-stroke Cyclothymia (0)	0	0	0
6	Post-stroke Hypomania (0)	0	0	0
	Total	20	40	60

Table 3 (b): Post-stroke mood disorders: Cortical-Subcortical location of lesion

S. No.	Mood Disorder	Right hemispheric lesions N=20		Left hemispheric lesions N=40		Total
		Cortical n=14	Subcortical n= 6	Cortical n= 16	Subcortical n=24	
1	Post-Stroke Depression	7(50%)	6(100%)	7(31.8%)	20(83.3%)	40
3	Post-stroke Mixed Anxiety and Depressive disorder	5 (25 %)	0 (0%)	9(40.9%)	0 (0%)	14
4	Post-stroke Mania	1 (7.4 %)	0 (0%)	0 (0%)	0 (0%)	1
5	Post-stroke Dysthymia	1 (7.4%)	0 (0%)	0 (0%)	4(16.6%)	5
6	Post-stroke Cyclothymia	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0
7	Post-stroke Hypomania	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0
	Total	14	6	16	24	60

DISCUSSION:

Mood disorders are more common in stroke patients than in the general population.[9, 10]The current study was intended to know socio-demographic patterns and hospital prevalence of post-stroke mood disorders. The results cannot be extrapolated to a broader population because the study was conducted in a single center.

Socio-Demographic Variables-

Age-

The majority of patients were in the age group of 61-80 years (31,51.6%) followed by above 41-60 years group (14,23.3%). 10(16.6%) patients developed post-stroke mood disorder in more than 80 years of age group. Only 5(8.3%) patients were in the young age group. The present study supports the notion that stroke is a disease of mainly older age group and is well consistent with results of other researchers.[9, 11] (table 1)

Gender-

There were 38 (63.3%) males and 22 (36.6%) females. Previous research has indicated that women have a 30% lower average incidence of stroke than men, which lends credence to this sex preference.[12]The observed disparity may be explained by distinct hormonal profiles, which may include variations in the impact of estrogen and other risk factors. Men in their fifties and sixties made up the bulk of post-stroke depression patients. Therefore, it can be said that men are more likely than women to experience sadness because of their higher responsibility for their families, their financial situation, and their increased awareness of their disabilities.

Marital Status-

The majority of the patients in the present study were married (51, 85%), while 7(11.6%) patients were widow/separated and 2(3.3%) patients were unmarried in present study. Other researchers also concluded similar results[13].

Domicile-

The majority of our patients hailed from rural areas (54, 90%) while 10% were from urban areas (table 1). This is due to rural dominance in this subcontinent and is a confounding variable to indicate a high incidence of stroke in rural areas.

Occupation-
The majority of patients were unemployed (29,48.3%) followed by a skilled worker 12(20%). 10(16.6%) of patients were Unskilled and 9(15%) farmer (table 1). In our study, most patients were unemployed. The possible reason could be that the majority belonged to the sixty plus age group and people in this age group usually retire from their jobs. Also, many people cease working due to aging factors and physical morbidities.

Education-
Majority of our patients were educated up to middle class (35, 58.33%), followed by high to higher school (19,31.6%). Only 6(10%) patients were graduates or more[13]. Vincent et al also had similar findings.

Family type-
Majority of our patient's 46(76.6%) lives in joint families, while 14(23.3%) patients lived in nuclear family. This could be due to social structuring of our country. Other researchers had similar finding in their studies[13]

Socioeconomic status-
The majority of subjects belonged to lower-middle socioeconomic status (28,46%) followed by upper-lower class (24,40%) (table 1). This simply seems to be due to the socioeconomic structure of the community in this region and hence increased affinity of a stroke cannot be linked only to the middle class.[12]

Post-Stroke Mood Disorders

Post stroke depression- In the present study, the incidence of major depression following stroke syndrome was 66.6%. (table 2). Robinson (2010) reported post-stroke depression in about 40% patients. In various other studies, the incidence of post-stroke depression ranged from 29 % to 63%.[9,14]According to Robinson et al., the lesion site has a more significant role in the etiopathogenesis of post-stroke depression than do different environmental factors.[10,14] According to the study's findings, patients with left hemisphere lesions have a greater incidence of major depression than those with right hemisphere lesions, with 40 cases (66.6%) and 20 cases (33.3%), respectively (table 3). Our results demonstrated that most depression was localized in the left hemisphere and validated the concept of cerebral laterality. (Pooja Rajashekaran 2013).[15]

Mixed anxiety and depressive disorder- In this study, 14(23.3%) patients presented with mixed anxiety and depression disorder (table 2). The majority of these patients were in their fifth and sixth decades. Table 4 of this study revealed that the patients with left-cortical lesions have a higher incidence (9,40.9%) of mixed anxiety and depressive disorder than left subcortical.5(25%) patients from right side lesion had such presentation, and is in confirmatory with the earlier results of Sergio (1990), and Jong S. Kim (2016) who reported higher incidence of depression plus anxiety remains in left cortical lesions.[16,17]

Dysthymia– In present study, 5 (8.3%) patients had persistent low mood but without 2-year duration criteria, predominantly related with left hemispheric lesion (4, 10%), especially lesion at subcortical areas (4, 16.6%). P Burvill et al and Mitchell AJ had similar findings.[18,19]

Post Stroke Mania- In this study, 1 (1.6%) patient had developed manic-like presentation following stroke. In this patient lesion was present in the right cortical area. Evidence also states that secondary mania following a stroke syndrome is related to damage in the right hemispheric area.[20]

CONCLUSION-

Most post-stroke mood symptoms remain undiagnosed and untreated, which can worsen the rehabilitation process after a stroke or raise patient morbidity and death, making them more susceptible to another one. The site of a stroke and its subsequent psychiatric manifestations are the most significant determinants in the etiopathogenesis of these conditions. As well as interruption of biogenic amine pathways are the most crucial factor in the etiopathogenesis of various mood symptoms following a stroke syndrome. The majority of post-stroke mood disorders had a favorable therapeutic response with psychiatric intervention. Even with the "post-stroke psychiatric syndrome," people ignore it and don't seek psychiatric consultation because of their superficial assessment. Holistic psychiatric care is further hampered by the societal stigma associated with seeking psychiatric consultation, which affects both doctors and family members. Therefore, in order to improve outcomes, we advise that stroke syndrome be understood within the framework of a biopsychosocial model and that a comprehensive strategy encompassing both psychiatric and physical therapy be implemented.

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