

A Study of Neuropsychiatric complications in post stroke patients according to site of lesion

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Abstract

Background Psychiatric illnesses are very common in post stroke patients & found in about half of the patients; reason may be injury to the brain, stress, disability or any other. There is conflicting evidence on the hypothesis that the risk of depression after stroke is influenced by the location of the brain lesion.

Aim Our study was aimed to find out the Distribution of Neuropsychiatric complications in post stroke patients according to site of lesion.

Material and Methods After fulfilling inclusion & exclusion criteria 100 stroke patients were taken for the study. All these patients were evaluated on a specially designed proforma and C T scan (head) of every patient was done. Data so collected were subjected to the suitable statistical analysis.

Results Neuropsychiatric complications were found in 49% of post stroke patients. About two third of the depressive patients (61.8%) had left hemisphere lesion, opposite to that 62.5% of anxiety disorder patients had right hemisphere lesion, 61.1% of the patients who had both depression & anxiety disorders had right hemisphere lesion & 38.9% had left sided lesion, 57.2% of cognitive impaired patients had left hemisphere lesion, about three fourth (72.7%) of the patients suffering from anosognosia had right hemisphere lesion, 55.5% patients of psychosis had right hemisphere lesion whereas, two third of patients suffered from Apathy & mania had right hemisphere lesion. All the patients of catastrophic reaction had right sided lesion.

Conclusion About half of the post stroke patients had psychiatric illnesses, in which depressive disorders were most common followed by anxiety disorders & cognitive impairment.

Keywords: Stroke, Anosognosia, Catastrophic reaction

Introduction

Over the past few years, there has been a growing interest in psychiatric sequelae of stroke. The prevalence of depression after stroke have ranged from 14 to 60% depending on factors such as populations sampled, time of assessment after stroke, and diagnostic instruments used. Other common psychiatric disorders such as anxiety disorders have rarely been studied in this population. Clinically, anxiety can be potentially serious and disabling with manifold adverse consequences on a patient's daily functioning, interpersonal relationships, and quality of life. Considerable symptom overlap exists between anxiety and depressive disorders. Community studies have shown a high co morbidity of anxiety disorders with major depression.¹

Various biological and psychosocial mechanisms have provided evidence that the etiology of post-stroke depression is multifactorial.^{2,3,4} Although there is no consensus about the relationship between lesion location and post-stroke depression, some studies using computed tomography, magnetic resonance imaging (MRI)^{2,4} and PET imaging of cortical 5HT_{2A} serotonin receptors⁵ have suggested that post-stroke depression is associated with the proximity of the lesion to the frontal lobe and with left hemisphere stroke. In addition, studies in major depressive disorder with PET, and with catecholamine depletion, have found abnormal

prefrontal function, more commonly in the left than in the right hemisphere.

Recent studies have concluded that neuropsychiatry complications (i.e., emotional, behavioural, and cognitive disorders) may have a negative effect not only on the social functioning and overall quality of life of stroke survivors, but also on the recovery of their motor functioning as well.^{6,7} From a clinical perspective, knowing which patients are at increased risk of developing post-stroke depression may ameliorate the prevention, detection, and early treatment of depression, consequently reducing its the negative impact on the recovery of stroke patients.

Material & Methods

The aim of the study was to find out the occurrence of various psychiatric disorders in post stroke patients and the distribution of Neuropsychiatric complications in post stroke patients according to site of lesion.

Sample A consecutive series of first-ever stroke patients with single small lesions on CT scan were examined for the presence of post stroke psychiatric illnesses. Initially 134 stroke patients were enrolled in the study, finally 100 cases of established diagnosis of stroke who were well enough to complete the assessment constituted the sample of study (34 patients were unwilling & uncooperative for

Psychiatric evaluation).

Inclusion Criteria

Subject's with stroke for the first time. Subject's who had given written informed consent and who were stable enough to complete the assessment.

Exclusion Criteria

Patients who had any other major medical or surgical illness.

Patients who were unwilling & uncooperative for Psychiatric evaluation. The patients with stroke due to trauma were also excluded from the study.

Results and Discussion

Psychiatric morbidity was found in 49% of post stroke patients. Commonest psychiatric morbidity was depression it was found (34%). similar study's were found in the post stroke patients 38% of had depression (major or minor).⁸ Whereas two study reported that the prevalence of major depression as 25% at the acute stage and approximately the same at 3 months (31%).⁹ and 14% of post stroke patients had symptom clusters of major depression, 18% had symptom clusters of dysthymic or minor depression, and 68% did not meet the DSM III diagnostic criteria for depression.¹⁰ other morbidity of patients followed by generalized anxiety disorder (24%), cognitive

Observations

Table 1

Distribution of psychiatric disorders in post stroke patients

S.No.	Type of psychiatric morbidity	Study group N=100
1	Depressive disorders	34(34%)
2	Anxiety Disorders	24(24%)
3	Both Depressive & Anxiety Disorders	18(18%)
4	Cognitive impairment	21(21%)
5	Anosognosia	11(11%)
6	Psychosis (NOS)	9(9%)
7	Apathy	6(6%)
8	Mania	3(3%)
9	Catastrophic reaction	2(2%)
10	Total psychiatric illnesses	49(49%)

Method

A cross sectional study was conducted on 100 study subjects who fulfilled the inclusion & exclusion criteria were evaluated in detail by using especially designed semi structured proforma which included personal identification and socio-demographic data, Historical data, including complaints, details of stroke like site, nature or type (Ischemic or Hemorrhagic), severity (number & extent of lesions), duration after stroke, associated physical illness, drug abuse, h/o psychiatric illness & Mental Status Examination. Patients were also assessed on HAM A, HAM D, HMSE as per the need.

Data so collected were displayed in tabulated form and were analyzed using suitable statistical analysis and conclusions were drawn.

impairment (21%), anosognosia (11%), psychosis (9%), apathy (6%), mania (3%) & 2% of the patients were found to be suffering from catastrophic reaction in our study.

Table 2 Showing distribution of psychiatric illness in post stroke patients according to right & left hemisphere lesion (based on CT finding). About two third of the depressive patients (61.8%) had left hemisphere lesion whereas right hemisphere lesion was found in only 38.2% of depressive patients, opposite to that 62.5% of anxiety disorder patients had right hemisphere lesion & 37.25% had left hemisphere lesion, 61.1% of the patients who had both depression & anxiety disorders had right hemisphere lesion & 38.9% had left sided lesion, 57.2% of cognitive impaired patients had left hemisphere lesion, about three fourth (72.7%) of the

patients suffering from anosognosia had right hemisphere lesion & 27.3% had left hemisphere lesion, 55.5% patients of psychosis had right hemisphere lesion whereas 44.5% had left hemisphere lesion, two third of patients suffered from Apathy & mania had right hemisphere lesion & one third of the patients had left hemisphere lesion. All the patients of catastrophic reaction had right sided lesion. Our study match with a study¹¹ they found that lesions involving left prefrontal or basal ganglia structures were compared with other left hemisphere lesions and all right hemisphere lesions for that forty-one patients were examined. Patients with lesions involving left hemisphere prefrontal or basal ganglia

plus depression was associated with left hemispheric lesion, whereas anxiety alone was associated with right hemispheric lesion. Cerebral atrophy was associated with both depression and anxiety disorder late but not early after stroke.¹² in another study it was reported that ¹³ 2 patients who developed a neglect syndrome, anosognosia, and major depression immediately after a right hemisphere cardiovascular lesion. And it was found in the Ninety-three patients with acute stroke lesions restricted to the right hemisphere were examined for the presence of mood changes. While 46 patients showed no mood changes, 19 were unduly cheerful, 17 had developed major depression, and 11 had

Table2
Distribution of psychiatric illness in post stroke patients according to right & left hemisphere lesion (based on CTscan)

S.N.	Type of psychiatric illness	Right hemisphere lesion	Left hemisphere Lesion
1	Depression(n=34)	13(38.2%)	21(61.8%)
2	Anxiety disorders(n=24)	15(62.5%)	9(37.25%)
3	Both Depression & Anxiety disorders(n=18)	11(61.1%)	7(38.9%)
4	Cognitive impairment(n=21)	9(42.8%)	12(57.2%)
5	Anosognosia (n=11)	8(72.7%)	3(27.3%)
6	Psychosis(n=9)	5(55.5%)	4(44.5%)
7	Apathy	4(66.6%)	2(33.3%)
8	Mania(n=3)	2(66.6%)	1(33.3%)
9	Catastrophic reaction	2(100%)	—

structures had a higher frequency of depressive disorder (9/12; 75%) than other left hemisphere lesions (1/12; 8%) or those with right hemisphere lesions (5/17; 29%), $P = 0.002$. it was also found that the severity of depression was significantly increased in patients with left anterior lesions as opposed to any other lesion location. In addition, the severity of depression correlated significantly with proximity of the lesion on CT scan to the frontal pole in the left anterior group. The right hemisphere lesion group showed the reverse trend, patients with right posterior lesions were more depressed than patients with right anterior lesions, who were unduly cheerful and apathetic.⁴ the acute stage after stroke, GAD

developed minor depression. Although there were no significant between-groups differences in other demographic variables, neurological deficits, activities of daily living, cognitive impairment, or quality of social support, patients with major depression had a significantly higher frequency of familial history of psychiatric disorder and lesions of the parietal cortex than patients with either no mood change or major depression following left-hemisphere lesions. On the other hand, undue cheerfulness was significantly associated with lesions of the right frontal operculum. These findings suggest that major depression following right-hemisphere lesions may have a different aetiology

and mechanism than major depression following left frontal or basal ganglia lesions.¹⁴

changes after right-hemisphere lesions. Br J Psychiatry 1989; 155:7985

Conclusion

Depression was the most common psychiatric illness which was found in one third of the patients, followed by anxiety disorders (1/4th) & cognitive impairment (1/5th). About two third of the depressive patients (61.8%) had left hemisphere lesion, opposite to that 62.5% of anxiety disorder patients had right hemisphere lesion, 61.1% of the patients who had both depression & anxiety disorders had right hemisphere lesion, 57.2% of cognitive impaired patients had left hemisphere lesion, about three fourth(72.7%) of the patients suffering from anosognosia had right hemisphere, 55.5% patients of psychosis had right hemisphere lesion, two third of patients suffering from mania & apathy had right hemisphere lesion. Both the patients of Catastrophic reaction had right sided lesion.

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