Assessment of Depression in Patients with Acute Stroke

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Objectives:
- To assess degree and severity of depression
- To describe the symptomatic profile of depression
- Analyse the relation between depression and demographic, predisposing and precipitating factors.

Materials and Methods: A cross-sectional study was done on 160 subjects chosen by random sampling technique from the Department of General Medicine of Saveetha Medical College and Hospital using Montgomery-Asberg Depression Rating Scale.

Results: 68% of the cases with acute stroke was assessed and found to have depression according to Montgomery-Asberg Depression Rating Scale.

Conclusion: Post-Stroke Depression is expected in patients diagnosed with acute stroke.

1. INTRODUCTION

Stroke is defined as an acute neurologic injury occurring as result of vascular pathology which manifest either as hemorrhage or infarction. Neuropsychiatric disorders can be associated with stroke, like, depression, anxiety disorder, psychosis, catastrophic reactions. Depression is more anticipated than the other neuropsychiatric disorders in patients with a recent episode of stroke. Post Stroke Depression (PSD) is an important entity to be assessed because it can lead to impaired recovery of cognitive function and daily activities and increases the risk of mortality. PSD was first studied by Martin Roth. Later, Folstein made a report that depression is more strongly associated with patients who had history of stroke than in patients with an equal degree of motor disability of orthopedic origin. PSD has been explained by four theories, although the pathophysiology behind PSD is complicated [1-2].

- Higher levels of glutamate lead to glutamate-mediated excitoneurotoxicity, particularly in the frontal cortex.
- Increased inflammatory process after stroke can lead to HPA axis dysregulation. This reduces the neurotrophic activity in the hippocampus and frontal cortex, also reduces the availability of serotonin in the frontal cortex.
- Impaired neurotrophic activity in the frontal cortex can lead to delayed development and maturation of neurons in that region.
- Ischemia of ascending monoaminergic neurons causes low levels of monoamines in the limbic system and frontal cortex.

2. METHODOLOGY

An observational study on 160 participants from the General Medicine Department in Saveetha Medical College and Hospital. Amongst the 160 subjects, 94 were male and 66 were female. The chosen subjects were from the age group, that ranged from 39 years -73 years of which 54 was the mean age. The subjects were divided into two groups with 80 subjects each. Patients diagnosed with acute stroke were the Cases and subjects without any history suggestive of stroke were the Control [3-4].

2.1 Inclusion Criteria Constituted

- Cases was the patients who were diagnosed with acute stroke according to

WHO definition of stroke with symptoms lasting for 24 hours or longer with no apparent cause other than a vascular pathology and confirmation of diagnosis by Cranial Magnetic Resonance Imaging.
- Subjects who were able to give informed written consent.

2.2 Exclusion Criteria Constituted Subjects with

- Difficulty or inability to communicate owing to altered level of consciousness
- Severe global dysphasia
- Severe cognitive impairment
- Severe hearing and visual impairment
- Co-morbidities(Liver or Renal failure)
- Past history suggestive of depression
- History of taking anti-depressant medications

A written informed consent was acquired from all the 160 participants prior to the start of the study. The study was conducted based on the Montgomery and Asberg Depression Rating Scale (MADRS). The MADRS scoring was done using a standard questionnaire based on the following symptoms of depression:

- Apparent Sadness
- Reported sadness
- Inner tension
- Reduced sleep
- Reduced appetite
- Concentration Difficulties
- Lassitude
- Inability to feel
- Pessimistic thoughts
- Suicidal thoughts

The scoring was done based on the standard cut-off points specific to MADRS:

- 0 to 6 – normal/symptom absent
- 7 to 19 – mild depression
- 20 to 34 – moderate depression
- >34 – severe depression

The data were analysed using the Statistical Package for Social Science version 17.0 software.

3. RESULTS

Amongst the 160 subjects that were chosen, 80 were cases and 80 were control. Cases are the

subjects with a diagnosis of stroke and Controls are the subjects who did not have stroke in the present and also in the past. Presence and Degree of depression in post stroke patients was able to be assessed effectively by comparing them with the control. Amongst the cases, 73% were male subjects and 27% were female subjects. 10%, 23% and 67% of cases were from the age group 40-50 years, 60-70 years and 50-60 years respectively. By scoring the patients using Montgomery-Asberg Depression Rating Scale, the prevalence and degree of depression was assessed in different age groups and gender. 68% of post stroke patients were found to be depressed and 32% of the cases did not have depressive symptoms. 31%, 35% and 2% of cases had mild, moderate and severe depression respectively [5-6].

	Cases	Control
PSD assessed within few days of stroke	38	0
PSD assessed within few months of stroke	16	0
Men	58	46
Women	22	34
Age =(40-50yrs)	8	28
(50-60yrs)	54	40
(60-70yrs)	18	12
Patients with MADRA score	23	80
(0-6)	27	0
(7-19)	28	0
(20-34)	2	0
(>35)		

4. DISCUSSION

Depression is a very common complication of stroke. One third of patients diagnosed with stroke are expected to develop depression within few days to months after the attack. In this study, the assessment was made as accurate as possible by excluding the patients with aphasia, visual and hearing impairment, past history suggestive of any neuropsychiatric disorders. Cases had only patients diagnosed with stroke that satisfied the WHO definition of stroke. With the use of MADRS scoring, prevalence and severity of acute stroke depression was able to be assessed. It also helped in defining the symptomatic profile of the patients. This study had controls, subjects who were relatively normal, without any clinical and radiological evidences suggestive of stroke. The results of the study becomes more relevant when the findings in the cases are compared with those in

the controls. PSD was found in 68% of the cases, in which more than half of the patients had mild to moderate depression. PSD appears to be more prevalent within few days of acquiring stroke than after few month of acquiring stroke, owing to the expected recovery from stroke over a period of few months. Different degrees of depression were seen more in the patients with a recent episode of stroke which accounts to 48% of the cases and 20% of cases was diagnosed with stroke few months back. Patients who were diagnosed with stroke included 73% male individuals and 23% female individuals. 90% of the cases in this study belonged to the age group 50-70 years. Male gender and elderly age group are predisposing factors for stroke. Amongst the cases, 69% of them had depressive symptoms of mild and moderate degree. The statistical values of this study implies that depression is prevalent in post-stroke patients, probably because of the theories behind PSD such as:

- HPA axis activation (increase in glucocorticoid levels)
- Immune dysfunction
- Neurotransmitter dysfunction
- Lesion location (left hemisphere and left frontal lobe)
- Decrease in neurogenesis and angiogenesis

It was evident that PSD can affect the recovery and patient's compliance to the therapy, or it can even lead to mortality. So, it makes it necessary to assess PSD in every patients with stroke to improve the effectiveness of treatment, prevents prolonged impairment of cognition and day to day activities. Patients can be given a good quality of life by anticipating depression in every stroke patient and giving adequate psychotherapy along with the treatment for stroke.

5. CONCLUSION

Depression can be expected in patients with acute stroke. Post stroke depression seems to strongly affect the recovery of cognitive functions and motor functions.

CONSENT AND ETHICAL APPROVAL

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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