

Screening of Post Stroke Depression at Discharge Using Hospital Anxiety Depression Scale

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Abstract

Introduction: Stroke is a major life changing and chronic disabling event in a person's life. Depression is a common mental disorder which allows a greater awareness of one's losses. The National Clinical Guidelines for Stroke states that the patients should be screened for depression and anxiety within the first month of stroke. The current study focuses on screening for the estimation of proportion of depression and anxiety at the time of discharge in patients with Stroke. **Methodology:** After the baseline assessment and screening, 89 subjects were included in the studies which were admitted in tertiary health care center from 16 March 2020 to 18 September 2021, after first incident of ischemic stroke. **Results:** All the subjects were screened by hospital anxiety depression scale. Majority of the targeted population (82%) suffered from depression and/or anxiety. Among the depressed subjects, they ranged from normal to abnormal values, where 22.47% belonged to normal category, 33.70% in borderline category and 48.82% in abnormal levels for depression and in anxious subjects, it accounted for 20.22%, 26.96% and 52.80% respectively. Moreover, females were profoundly affected in either borderline or abnormal criteria of depression in the age groups of 18-38 years and 39-59 years. **Discussion:** In addition to being distressing in itself, depression after stroke depicts adverse outcomes that include lack of engagement in rehabilitation activities, longer duration of hospital stays, poor functional recovery, increased recurrence of stroke, and early mortality thereby resulting in a larger population among the targeted population for borderline or abnormal criteria for depression and anxiety on the hospital anxiety and depression scale. **Conclusion:** Depression and anxiety are present in majority of the stroke survivors leading to chronic disability. Young and middle aged females depicted higher levels of post stroke depression and anxiety.

Keywords: Stroke; Depression; Anxiety; Hospital anxiety and depression scale; Mental health; Rehabilitation

Introduction

Stroke (Cerebrovascular Accident (CVA)) being the fourth leading causative factor of death and also a leading cause of long-term disability is the sudden loss of neurological function caused by an interruption to the blood flow of the brain where varying amount of impairments of the sensory, motor, cognitive, perceptual and language functions are seen, which when persisting for more than 24 hours are classified as stroke. The motor deficits are marked by hemiplegia (paralysis) or hemiparesis (weakness), typically on the contralateral side of the body. [1-3]

Depression is a common mental disorder which occurs as denial minimizes, allowing a greater awareness of one's losses. It is a reactive response of bereavement for impending death, suffering, or the loss of body function which is in the case of stroke. Globally, it is estimated that 5.0% of adults suffer from depression. While anxiety disorders are less visible than depression and bipolar disorders, they can be just as disabling and prevalent. Depression accounts for more than 50% of the variance in the Quality of Life in Parkinson's disease. Depression is also evidently manifested in osteoarthritis, subjects with diabetes and mothers in perinatal period. [4,5] A systemic review that included 51 studies concluded that post stroke depression

occurs in about one third of stroke survivors and is continually corresponded with physical disability, stroke severity and cognitive impairment. A cohort study reported about over 40% population suffering from clinically significant anxiety or depression where HADS (Hospital Anxiety and Depression Scale) proved to be a good indicator. Limited evidence about the prevalence and impact of anxiety or depression after stroke is available. [6-9]

Moreover, the national clinical guidelines for stroke states that the subjects with stroke should ideally be screened for depression and anxiety within the first month of stroke. [10] Therefore, early screening is required if psychological consequences of stroke, such as post stroke depression and anxiety are to be identified and managed accordingly with psychological care and physiotherapy exercises. The early most screening can be done when the patient is being discharged from the hospital. Depression being prevalent, it is also a disabling condition in

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older persons (>60 years) which surges the risk of mortality leading to negative influences on quality of life. Literature review comments a significant association between severity of depression and poor quality of life in older subjects with stroke. [11,12] Depression worsens the course of post-stroke neurological disorders, enhances the physical helplessness of patients, further reduces their quality of life, significantly decreasing the effectiveness of therapeutic and rehabilitation measures and increasing the risk of death.

A study documented the effects of comprehensive rehabilitation training on anxiety and depression in post-stroke patients and concluded that comprehensive rehabilitation training could decrease anxiety and depression and therefore, early screening of the subjects *i.e.*, at the time of discharge from the hospital is necessary to plan further plan of care for symptoms if any. [13]

The current physiotherapy treatment plan focuses on the physical manifestations of stroke that may divert attention from the potentially greater problems related to disturbances of their mood and behavior that can impede patients from optimum recovery and readjustment to life after stroke. Mental health is as important to the overall well-being as is physical health. Unfortunately, however, mental health is given less importance than physical health in most parts of the world and also the other potential reason being that health professionals may prioritize physical illness over psychosocial care. Therefore, the present study aims to screen depression and anxiety at the time of discharge in patients with stroke. [14-18]

Methodology

106 subjects were screened according to inclusion and exclusion

criteria out of which 89 subjects were included in the study who were of the age of more than 18 years including both males and females. Only subjects with their first unilateral cerebrovascular accident and sufficient Mini Mental Examination score (>20) were included in the study. Subjects with recent injuries to the affected side extremity or with any other co-morbid neurological conditions except for stroke were excluded from the study. [19-21]

The study procedure was initiated after the approval of Institutional Ethical Committee. The purpose and the objectives of the study were explained to the subjects and written informed consent was taken from the subject or their caregiver. Baseline assessment including name, age, gender, hand dominance and the side affected was noted on the case record forms. The subject was then assessed for the outcome measure of the present study which is Hospital Anxiety and Depression scale at the time of their discharge from the hospital. The Hospital Anxiety and Depression Scale (HADS) has 2 sub scales-depression (HADS-D) and anxiety (HADS-A). The subject's responses were then rated on a 4-point Likert scale with scores ranging from 0-3, with higher scores indicating higher severity [Figures 1 and 2]. [22]

Outcome measure

Hospital anxiety and depression scale: The Hospital Anxiety and Depression scale (HADS) is a self-rating patient-reported outcome measure for both hospital and community settings. The scale is easy to administer and is reliable and validated in stroke population with sensitivity and specificity >0.80. [23,24]

Results

Results from the current study depict that 82% of the population



Figure 1: Written informed consent from the patient.



Figure 2: Assessing the patient according to the questions in the hospital anxiety and depression scale.

(stroke subjects) of the overall population (n=89) included in the study were either depressed or anxious with the prevalence rate of 92%. Among them, 77% of the post stroke subjects were found to be depressed and 79% of them were found to be anxious. Also, among the depressed population, the subjects ranged from normal to abnormal values with 22.4% being in normal ranges, 33.70% in borderline and 48.82% in abnormal criteria. Within the anxious population that accounted for 79%, 20.22% were in the normal criteria, 26.96% were in borderline and 52.80% in the abnormal group. [25] The females were found to be more affected than their male counterparts in either borderline or abnormal criteria of depression in the age groups of 18-38 years and 29-59 years. While the age group of >60 years had higher values for anxiety and depression. The distribution for the males with depression in normal borderline and abnormal was 21.87%, 34.37% and 43.75% while for anxiety it was 20.31%, 25%, 54.65% respectively. For the females, 24% of them were in the normal category, 32% were in the borderline category and 44% were in the abnormal category for depression. While for anxiety, 20% were in the normal category, 32% in the borderline category and 48% in the abnormal category. [26]

Discussion

This study on stroke subjects to determine the levels of depression and anxiety exhibits that 82% of the population suffered from depression and/or anxiety. These results from our study add on to the evidence on the existing literature for evident post stroke depression. In addition to being distressing in itself, depression after stroke has been shown to contribute

to other adverse outcomes that include lack of engagement in rehabilitation activities, longer duration of hospital stays, poor functional recovery, increased recurrence of stroke, and early mortality which could be the case in our study thereby resulting in a larger population of about 82% that scored for either borderline and abnormal criteria for depression and anxiety on the hospital anxiety and depression scale. A study reported that a lesion in the basal nuclei increased the probability of severe depression, where the patients with fewer lesions (1-2) had a greater chance of developing mild to moderate depression compared to the patients with 3-4 lesions. The study further concluded that a stroke lesion in the frontal lobe was twice as common in patients with severe depression and had lower score on the quality of life scale and higher scores for the Barthel Index, NIHSS and MMSE.

The pathophysiology of post-stroke depression which is multifactorial that includes both biological and psychosocial components could probably be the reason of such increased prevalence of post-stroke depression. Biological factors contributing to post-stroke depression include lesion location, genetic susceptibility, inflammation, neurogenesis in response to ischemia and others. Cerebellar micro bleeds are also associated with more severe forms of depression which may indicate impaired brain iron homeostasis or minor episodes of cerebrovascular extraversion, which may play a major role in depression etiology. Studies also state that post-stroke depression resulting from biological causes could potentially respond better to pharmacological therapy, whereas post-stroke

depression resulting from psychosocial causes could possibly respond more favorably to psychotherapy and social support interventions that are a big part of physiotherapy interventions including group therapy sessions and community rehabilitation of individuals who have suffered from a stroke. Stroke survivors are more vulnerable to post-stroke depression compared to physically ill patients with similar levels of disability, even quite a long time after the stroke, regardless of other risk factors. Early effective treatment of depression may have a positive effect not only on depressive symptoms but also on the rehabilitation outcome of stroke patients.

Stroke patients who have been diagnosed with post-stroke depression also suffer with higher mortality rates and show a minor improvement in rehabilitation programs in comparison to the non-depressed stroke patients. Therefore, they have worse functional outcome secondary to their functional impairment and consequently resulting in poorer quality of life. These functional impairments lead to altered functional outcomes in post stroke subjects, as these are a result of the care which includes mostly physical which is treated by physiotherapeutic interventions majorly focusing on the patient's physical ability and hence ignoring the mental state of the patient which also directly plays a major role in the functional outcomes of post-stroke depression subjects. The post-stroke depression conceivably influences the functional outcome by limiting participation in rehabilitation because the patient is already confined to the bed due to physical impairments caused by stroke and there upon adding the dependency of the subject on the caregiver, which ultimately results in directly decreasing the physical, social and cognitive function altogether or perhaps affecting the biological process of neuroplasticity.

To potentiate self-efficacy in the rehabilitation setting may help clinicians in obtaining better functional outcomes, including depression. Therefore, along with the physical capabilities the mental state and mood should also be assessed post stroke because if altered it might lead to severe distress not only to the affected individual but also his caregiver. This suggests that attention should be paid to addressing post-stroke depression in stroke patients in order to help them recover as much functional independence as possible. Therefore, a screening in combination with a multidirectional approach to the patient care involving a scheduled patient management plan and interventions, scheduled patient follow-ups and enhanced inter-professional communication would have better outcomes.

One of the secondary objective of our study was to find out the population that was at maximum risk of anxiety or depression on screening, and we reported that the age group of 18-38 years as well as 39-59 years had the maximum scores with women being at greater risks than men in both the young and middle age group population. This could be because this population is in their peak years for employment and parenting demands, and may therefore experience greater stress which in turn, might have increased their risks for depression. Also, experiencing such an "off-time" illness (*i.e.*, one that is typically associated with old age) in midlife also raises the possibility that health-related stress may be greater for young and middle age survivors. It is not possible for all stroke patients to return back to full

health. Although, most survivors receive interventions with motor functions, less often they receive assistance with mental health matters in their post-stroke life which if not addressed on time might become significant stressors in later part of life with significant problem from the perspective of these individuals, as well as their spouses, children, and other family members with whom they interact.

Another objective of this study was to find out which of the two genders (males/ females) were more affected either by depression or anxiety. The results of our study are consistent with the previous literature studies that the females are a greater risk than men for post stroke depression. Stroke can be considered a major stressor for the genders, challenging coping abilities and increasing the risk for depression. Although men and women might be perceptive to different kind of stressors, stroke is known to affect various different life domains (household along with social, personal and professional in contrast to professional and personal in men) which might explain the difference.

Conclusion

The results from the current study conclude that 82% of stroke subjects suffer from either depression or anxiety at the time of their discharge from the hospital with a prevalence rate of 92%. The population with depression was 77% and for the anxiety was 79%. Also, the females were found to be more affected than their male counterparts in either borderline or abnormal levels in the age group of 18-38 and 39-59 years. Therefore, the study further concludes that the females are more prone to post stroke depression or anxiety with the young and middle age group population being more affected with post stroke depression on the Hospital Anxiety Depression Scale than the older population.

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Competing Interests

No competing interests

Ethics Approval Statement Referring to Institute

Ethical approval was taken. Ethical number- MGM/ ECRHS/2020/13

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