Study of Frequency and Responsible Factors for Post Stroke Depression in Stroke Patients Coming to Mayo Hospital Lahore

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Post stroke depression develops as a complication after stroke and impedes the recovery process. Different factors responsible for the development of depression include severity of paralysis, low functional and socioeconomic status and duration of stroke. Our objective was to find out the frequency and responsible factors for PSD in patients presenting to Mayo Hospital Lahore. In a descriptive design 174 patients were studied in out door clinics of Mayo Hospital Lahore. Depression was diagnosed on the basis of DSM IV and severity of stroke was evaluated on the basis of Barthel Index. Results showed that 37.9 % of patients had post stroke depression and majority of patients with PSD came with in first 3 months after stroke. We also found that there is a linear relationship ($R^2 = 0.844$) between severity of stroke and PSD. Hence we concluded that PSD developed in almost one third of patients of stroke, is associated with duration and severity of stroke, developing more commonly with in first 3 months.
Key words: PSD, DSM IV, barthel index

PSD is a common psychiatric complication of stroke. Numerous studies show that untreated PSD impedes the rehabilitation and recovery process, jeopardizes quality of life, and increases mortality. Successful management of the PSD requires early recognition and initiation of appropriate treatment to facilitate an optimal level of functioning[1]. Incidence of PSD is stated 11-75% internationally. (10-27% major depression, 15-40% minor depression within 2 months after a stroke)[2] and prevalence of PSD has varied from 24% to 41%, major depression occurring in 12-31% of patients and minor depression in 9-29% of patients, depending on the time elapsed after stroke[3]. Frequency of PSD ranges from 25-30% in patients of stroke at three weeks[4]. Patients with diagnoses of either major or minor depression were 3.4 times more likely to have died at 10-year follow-up than were nondepressed patients[5,6,7,8,9]. About one third of survivors of ischemic stroke suffer from depression and have been linked to worse functional outcome, slower recovery, and worse quality of life[10,11,12]. Depression is also said to be more frequent in left hemisphere stroke, particularly those that occur closer to the frontal pole[13]. Factors responsible for PSD in stroke patients include severity of paralysis[14], functional status[14,15] and socioeconomic variables[16] and then this depression[14,17,18], lower functional status[17,18] and greater severity of paralysis[19] act as predictors of quality of life[(20)] and can lead to lower quality of life and satisfaction[14]. Depression after stroke continues to be largely unrecognized and frequently untreated.[21,22]. Untreated PSD can interfere with recovery and adversely affect functional and social outcomes[23]. This study was conducted to find out frequency of PSD in stroke patients and the factors responsible for PSD including duration and severity of stroke in patients coming to Mayo Hospital.

Material and methods:

A descriptive study was conducted in outdoor clinics of Mayo Hospital Lahore on patients of stroke from 1st June 2003 to 1st June 2005. A total number of 174 patients fulfilling the following criteria were included in this study.

- Patients between 35-75 years of age.
- Both male and female patients.
- All stroke patients whose duration of illness is 1 month to 1 year.

Exclusion criteria was;

- Patients with concomitant diseases like uncontrolled diabetes mellitus, hypertension, hepatic failure, renal failure, severe infections and bed sores.
- Patients taking drugs which can give rise to depression like steroids, reserpine, amantadine hydrochloride, methyl dopa, levo dopa, vincristine and vinblastine.
- Patients who were either lonely, whose spouse or a family member had died or had unsupportive family.
- If they had a major psychiatric disorder other than affective disorders (for example, schizophrenia or a current psychotic episode).
- If they had reported a depressive episode in the weeks before the time of the stroke.
- If they had a comorbid intracerebral disease.
- If the clinician judged that they were unable to understand the informed consent procedure (for example, because of severe aphasia or dementia) after evaluation by mini-mental state examination (MMSE).

History taking, clinical examination, neurological examination, psychiatric assessment and relevant investigations were done as required during acute stage of stroke (1 month to 1 year, as stated in selection criteria) before inclusion of patients in the study. For the diagnosis of depression we followed DSM IV[24] criteria. A scored questionnaire was designed including questions in local language (Urdu) signifying depression according to DSM IV in which patients scoring 6/11 and more were diagnosed to have depression. Stroke patients were divided into three categories mild, moderate and severe for disability and severity of stroke on the basis of Barthel

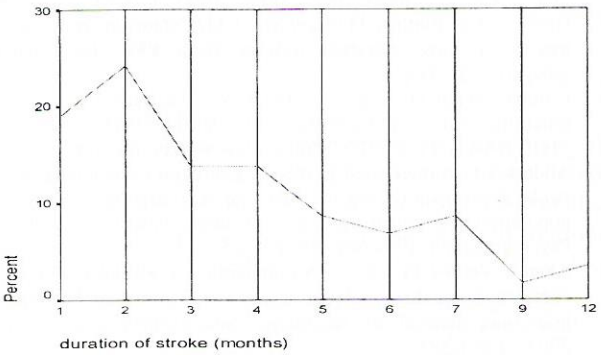
Index[25,26,27,28,29]. Patients who were independent for feeding, needed mild support for walking like stick or some verbal support and their bowel and bladder were intact were labelled to have mild disability or mild degree of stroke. Patients who needed some support for feeding, had intact speech, needed help to move and walk and had occasional accidents of bowel and bladder incontinence but otherwise continent were labelled to have moderate degree of stroke and patients who were bed ridden, on nasogastric tube feeding, uncontrolled bowel and bladder sphincters and some speech problems were labelled to have severe stroke. Data was collected on a pre designed proforma and then was analysed by computer programme SPSS 10.

Results:

Out of 174 patients there were 57 (32.8%) females and 117 (67.2%) males with a mean age of 60.48 ± 6.31 years and mean duration of stroke of 3.65 ± 2.57 months.

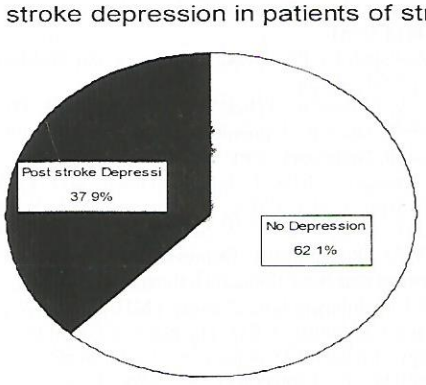
A major proportion of stroke patients (70.7%) included in this study presented during first four months after stroke (Fig.1). Fifty three percent had moderate degree of stroke, 44.8% had mild degree of stroke and only 1.7% had severe degree of stroke.

Fig. 1: Post stroke presentation



We found that 66 patients (37.9%) out of 174 patients had post stroke depression (figure 2) including 36 (54.5%) males and 30 (45.5%) females with a mean age of 60.68 ± 5.62 years and a mean duration of stroke 2.86 ± 1.67 months.

Fig 2:



Analysis of patients with PSD showed that majority of patients with depression came during first three months after stroke as evident from table 1.

Majority of patients (63.6%) with PSD had moderate degree of stroke and out of total 78 cases of mild stroke 21 (26.90%) developed PSD, out of total 93 cases of moderate stroke 42(45.16%) developed PSD where as all 3 (100%) cases of severe stroke developed PSD so there is a linear relationship (R^2 = 0.844) between severity of stroke and post stroke depression.

Table1 : Duration of stroke in patients with PSD

Duration of stroke (months)	Frequency	%age
1	12	18.2
2	24	36.4
3	12	18.2
4	6	9.1
5	6	9.1
6	3	4.5
7	3	4.5

Discussion

The frequency of depression in patients of stroke we found at Mayo Hospital Lahore is 37.9% which is comparable to other studies conducted at Aalborg Hospital, Denmark (41%)[30], Netherlands (37.8%)[31], Louisville (36.4%)[32] but is much higher than that found at Chinese University of Hong Kong where frequency of PSD was 16.4%[33].

It is evident from results that percentage of female patients who have PSD increases as compared to the percentage of female patients in the total sample and percentage of male patients with PSD decreases in comparison to male population in total sample but these differences are not significant as p value =0.40 for females with PSD and 0.44 for males with PSD. Hence we can say that gender is not related to development of depression after stroke which is same as found by Kauhanen[36] but is different from other studies where it was revealed that female gender is associated with PSD[33] and male gender is associated with depression after stroke[34]

Mean age of all patients who were included in this study and who developed depression later on is almost same that is 60.48 ± 6.31 years (all patients included in this study) and 60.68±5.62 years (patients with PSD) and p=0.47, so we can say that age does not has a role in development of PSD which is different from other studies where age was found to be a predictive factor for PSD[35]. We found that majority of patients who were interviewed came during first four months after stroke and majority of patients who developed depression came during first three months after stroke.

When we compared the percentage of patients who developed depression during first three months after stroke with patients who developed PSD after first 3 months we found that p=0.003 which is highly significant, so we can say that more commonly PSD develops early (with in first three months) in patients of stroke which is same as found in other studies[31,36] but different from what found by

Robinson et al[13] who claimed a stable 14% prevalence for up to 2 years and Burvill[37], Pohjasvaara[38] who found that the prevalence of poststroke depression has varied from 24% to 41% depending on the time elapsed after stroke.

Severity of stroke is an important factor for development of depression as is clear from results that number of patients who developed PSD increases in a linear fashion (R^2=0.844) as severity of stroke increases from mild to moderate to severe which is the same as in other studies where it was found that severity of stroke in terms of disability is an important predictive factor for development of PSD[34,35].

Conclusion:

- Post stroke depression developed in almost one third of patients (37.9%) who presented with stroke.
- Sex and age are not responsible for development of PSD but it needs to be confirmed with another study having equal male and female distribution in the study sample.
- PSD develops during early months after stroke and severity of stroke (based on disability) is an important responsible factor for development of PSD.

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