Original Article

Depression after Stroke

Prevalence and Clinical Correlates of Major Depression after Stroke: A Hospital-Based Stroke Study

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ABSTRACT

Objective: To determine the prevalence and clinical correlates of major depression after stroke in patients admitted at tertiary care hospital in Karachi.

Study Design: Cross Sectional study.

Place and Duration of Study: This study was conducted at the departments of Medicine & Neurology, SMBBMC & DUH Karachi from July 2017 to June 2018.

Materials and Methods: A total of 340 patients with post stroke duration of greater than three months were included in this study. All the stroke patients were evaluated by Beck Depression Inventory questionnaire 2 for diagnosis of depression. All the data was entered in the predesigned proforma.

Results: The average age of the patients was 38.45 ± 9.48 years. Frequency of post stroke depression was observed in 45% cases, in which 13.2% mild, 44.1% moderate and 42.8% were severe. Rate of post stroke depression was significantly high in below 40 years and in ischemic type stroke.

Conclusion: Rate of post stroke depression was significantly high in ischemic than hemorrhage. We emphasize the importance of a thorough psychiatric evaluation of post stroke patients, particularly those who have a severe disability and a history of previous depressive episodes.

Key Words: Stroke, Depression, Ischemic, Hemorrhage

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INTRODUCTION

Stroke is the second most common cause of death in the world causing around 6.7 million death each year taking a life every five seconds[1]. Of all strokes, 85% are ischemic, 15% are hemorrhagic[2]. Stroke and transient ischemic attacks (TIA) are highly prevalent in Pakistan. A community-based survey suggested an estimated 21.8% prevalence of stroke and/or TIA in an urban slum of Karachi [3]. Stroke-specific fatality has been reported between 7% and 20% in various studies from Pakistan. Up to 63% of all stroke patients develop complications and up to 89% are dependent for activities of daily living [4]. After suffering a stroke, 80% of these patients' present motor impairment [5].

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Mortality and morbidity from stroke are on the increase. Among stroke survivors, the sequel of physical and psychological changes can be devastating. One of those psychological changes is major depression after stroke [6] Around a third of stroke survivors experience depression after their stroke[7]. Depressive disorder is characterized by period of mood an hedonic (inability to experience the pleasure from normally pleasurable life events such as eating, exercise, social or sexual interaction) occurring for two consecutive weeks and depression will be assessed, using a 4DSM IV criteria, persistence of two or more than two weeks duration[8]. Morris et al[9] reported that, over a 10-year period, depressed stroke patients were 3.4 more times likely to die than their non-depressed counterparts. Depression is thought to have a detrimental effect on stroke recovery through a number of mechanisms. For instance, a depressed patient may be less motivated to participate in stroke rehabilitation because of persistent fatigue or lack of hope. Cognitive impairment may also impede the recovery process, causing non-adherence to treatment schedules, which may lead to increased mortality. Depression after stroke is common among men and women Hackett et al, estimated the overall frequency of depression after to be 33% [10]. Stroke itself has debilitating morbidity and superimposed depression further decreases the quality of life of patients and impairs the recovery. This study leads us to know the magnitude of post stoke depression, so, that

departmental protocol will be developed for early screening and referral for treatment of depression after CVA. By early identification and treatment of depression we could improve the quality of life of our patients expedites their recovery and makes them functional [11].

MATERIALS AND METHODS

The cross sectional study was performed at the departments of Medicine & Neurology SMBBMC & DUH Karachi from 1 July 2017 to 30 June 2018.

Sample size: 340

Sample technique: Non-probability purposive.

Inclusion criteria: Either gender, aged between 20-70 years, post stroke duration of greater than three months.

Exclusion criteria: Patients with cognitive impairment (modified 6-item Mini-Mental Status score < 3).

• Patients having focal or diffuse organic brain disorder that may be associated with psychiatric manifestation like mental retardation, A-V malformation, tumor, intracranial infections etc.

• Patients with systemic diseases that may predispose them to depression e.g.

Hypo / hyperthyroidism, SLE.

• Patients already diagnosed as having depression or prior antidepressant treatment.

Data collection procedure: This study was conducted after the approval from Hospital Ethical Review Committee. The patients were approached through neurology outpatient department. The patient fulfilling the inclusion criteria was enrolled in the study. Informed consent was obtained from all the patients after explanation of the study protocol. All the stroke patients were evaluated by Beck Depression Inventory questionnaire (annexure II) for diagnosis of depression. The researcher will himself interview the patient in a conductive environment assuring him or her confidentiality. All the data including age, gender, duration post stroke, types of stroke (i.e. Ischemic or Hemorrhagic) and frequency of depression was entered in the pre-designed proforma.

Data analysis procedure: The data was analyzed on SPSS version19. The frequency and percentage were calculated for qualitative variable like gender, type of stroke ischemic and Hemorrhage and frequency of depression. Mean ±SD was computed for quantitative variables like age, and post stroke duration. Variables considered as potential confounders and/or effect modifiers age and gender were stratified to find out the effect of these on outcome. Post stratification chi-square test will be applied and p value <0.05 will be taken as significant.

RESULTS

A total of 340 patients with stroke were included in this study. Age distribution of the patients is presented in figure 1. The average age of the patients was 38.45 ± 9.48 years (95%CI: 36.25 to 39.58) as shown in table 1. There were 197(58%) were male and 143(42%) were female (figure 2). The average duration of post stroke cases 4.25 ± 2.68 months.

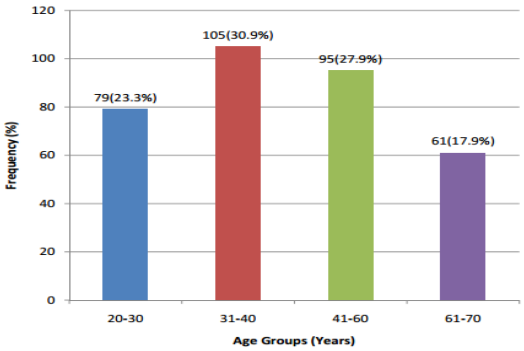

Figure No.1: Age distribution of patients. N=340

Table No.1: Descriptive statistics of characteristics of patients

Variables	Mean ± SD	95%CI	Max-Min
Age (Years)	38.45 ± 9.48	36.25 to 39.58	70-20
Duration of post stroke	4.25 ± 2.68	3.65 to 5.21	3 to 12

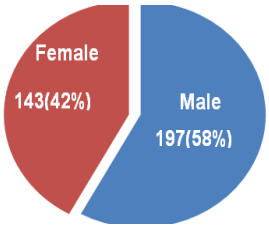

Figure No.2: Gender Distribution

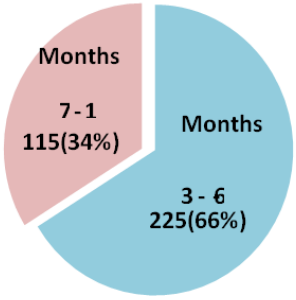

Figure No.3: Duration of post stroke

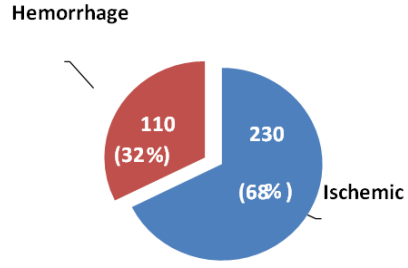

Figure No.4: Distribution of types of stroke

Distribution of duration of post stroke is given in figure 3. Regarding type of stroke, 68% were ischemic and 32% were hemorrhage as presented in figure 4. Frequency of post stroke depression was observed in 45% cases as presented in figure 5, in which 13.2% (20/152) were mild, 44.1% (67/152) were moderate and 42.8% (62/152) were severe figure 6. Rate of post stroke depression (PSD) was significantly high in below 40 years of age than above 40 years of age (p=0.009) as presented in table 2. Rate of PSD was not significant between male and female (43.1% vs. 46.9%; p=0.49) as shown in table 3. Rate of post stroke57 depression was significantly high in ischemic than hemorrhage (50% vs. 33.6% p=0.005) as shown in table 4.

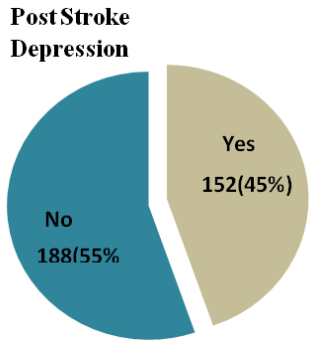

Figure No.5 Frequency of post stroke depression n=340

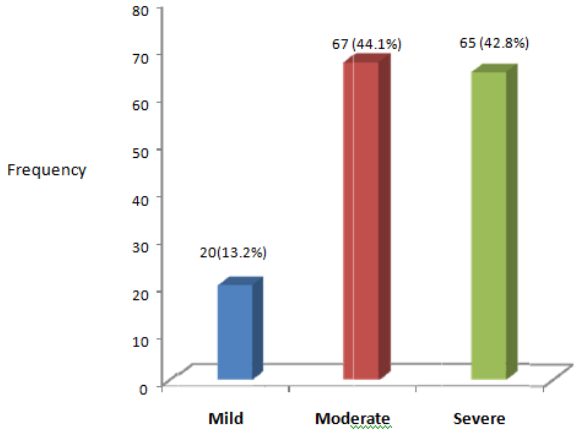

Figure No.6: Severity of post stroke depression n=152

Table No.2: frequency of post stroke depression (psd) with respect to age groups

Age Groups	n	PSD n=152		No PSD n=188	
20-30	79	45	57.0%	34	43.0%
31-40	105	52	49.5%	53	50.5%
41-60	95	35	36.8%	60	63.2%
61-70	61	20	32.8%	41	67.2%

Chi-Square= 11.67 df= 3 p=0.009

Table No.3: Frequency Of Post Stroke Depression (Psd) With Respect To Gender

Gender	n	PSD n=152		No PSD n=188	
Male	197	85	43.1%	112	56.9%
Female	143	67	46.9%	76	53.1%

Chi-Square = 0.46 df= 1 p=0.49

Table No.4: Frequency of post stroke depression with respect type of stroke

Type of Stroke	n	PSD n=152		No PSD n=188	
Ischemic	230	115	50.0%	115	50.0%
Hemorrhage	110	37	33.6%	73	66.4%

Chi-Square= 8.06 p=0.005

DISCUSSION

Stroke is a sudden non-convulsive focal neurological deficit produced by insufficiency of blood circulation to the brain [12]. Every two seconds, someone in the world will have a stroke. There were almost 17 million incidences of first-time stroke worldwide in 2010 [13]. In addition to major impact of stroke on patients' physical health, many patients experience emotional disorders following stroke. Depression is a common neuropsychiatric consequence of stroke affecting approximately 40% ofthe patients. In addition to the psychosocial stress due to disability, loss of independence, and worsening of quality of life, neurobiological factors such as site of infarcts and brain atrophy have also been proposed to be related to depression after stroke [14]. In recent years, major depression after stroke has attracted worldwide interests. Studies conducted throughout the world have found a prevalence rate of major depression of 19.3% among hospitalized patients and 23.3% among outpatient samples [15] and more recently around a third stroke survivors experience depression after their stroke [7]. In our study frequency of post stroke major depression was observed in 45% cases. The average duration of post stroke cases 4.25 ± 2.68 months. This rate is higher than those reported for outpatient samples (23.3%) [16] and (33%) [17] and reflect increasing frequency of depression after stroke.Demographic variables are important determinants of post strokedepression. Depressive symptoms were found statistically associated with young age group in our study. Rate of major depression after stroke was significantly high in below 40 years of age than above 40 years of age (p=0.009) and these results has similarity with previous studies[18] . Regarding type of stroke, 68% were ischemic and 32% were hemorrhage. Rate of post stroke depression was significantly high in ischemic than hemorrhage (50% vs. 33.6% p=0.005 and these results compatible with other studies [14, 19].

Among risk factors Hypertension was found in 68(75%), Diabetes Mellitus in 48(54.5%), Smoking &Dyslipidemia were found in 12(13.6%) these risk factors were quite higher than other published studies[20,21,22,23,24] and these differences because we did study on larger scale. Regarding the severity of PSD in our study frequency of post stroke depression was observed in 45% cases as presented in which 13.2% (20/152) were mild, 44.1% (67/152) were moderate and 42.8% (62/152) were severe. The average duration of post stroke cases 4.25 ± 2.68 months. This rate is higher than those reported for outpatient samples (23.3%) [16] and 33%) [17] and reflects these variety of depression in our sample. The prevalence of post-stroke depression at about 30% was seen in other earlier studies [25] and in Malaysian study[26] showed a prevalence of moderate to severe depression of15%patients.

CONCLUSION

It is thus concluded that prevalence of post stroke depression is high and frequent. It usually remained under recognized. Rate of major depression after stroke was significantly high in ischemic than hemorrhage. We emphasize the importance of a thorough psychiatric evaluation of post cerebrovascular accidents patients, particularly those who have a severe disability and a history of previous depressive episodes.

Author's Contribution:

Concept & Design of Study:	Dileep Kumar
Drafting:	Babar Bashir, Jawwad us Salam
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Revisiting Critically:	Jawwad us Salam
Final Approval of version:	Babar Bashir

Conflict of Interest: The study has no conflict of interest to declare by any author.

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