POST STROKE DEPRESSION: EXPERIENCE AT A TERTIARY CARE HOSPITAL OF PAKISTAN

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ABSTRACT

Objective: To determine the frequency of depression in post stroke patients visiting a tertiary care hospital.
Study Design: Cross-sectional analytic study.
Place and Duration of Study: The study was carried at Armed Forces Institute of Mental Health Rawalpindi over 6 months, from Nov 2016 to Apr 2017.
Material and Methods: The present study involved 130 post-stroke patients of either gender aged between 30-70 years who presented at the outpatient department of Armed Forces Institute of Mental Health Rawalpindi with stroke within past 2 years. A structured questionnaire was used to collect demographic data. Depression was assessed using ICD-10 diagnostic criteria. Attributing factors like patient's age, gender, duration of stroke, educational, employment, socioeconomic and marital status and presence or absence of siblings, obesity and diabetes were noted. A signed written consent was taken from all patients.
Results: The mean age of the patients was 57.1 ± 10.9 years. There were 75 (57.7%) male and 55 (42.3%) female patients with a male to female ratio of 1.4:1. Depression was diagnosed in 51 (39.2%) post-stroke patients. There was no statistically significant difference in the frequency of depression across various subgroups based on patient's age, gender, duration of stroke, educational, employment, socioeconomic and marital status and presence or absence of siblings, obesity and diabetes.
Conclusion: Depression was observed in a substantial proportion of post-stroke patients presenting at a tertiary care hospital which warrants routine screening for timely identification and management of depression in future practice to improve the quality of life and outcome of such patients.

Keywords: Depression, Post-stroke complications, Stroke.

INTRODUCTION

Stroke is a debilitating illness rendering thousands disabled and leading a substantial proportion of people to death worldwide[1]. Stroke affects all ages, but the incidence of stroke increases dramatically with advancing age[1]. During the last decade, there has been a 20% increase in the incidence of stroke in low to middle income countries (LMIC)[2-4]. Pakistan is a low income country where about one out of four adults have type II diabetes, hypertension, or cardiovascular disease and these highly prevalent risk factors make them uniquely prone to stroke[5]. Although there is no robust large scale epidemiologic data, a reported stroke prevalence of 4.8% means 4 million people are living with stroke in Pakistan[6].

Approximately 5.8 million people die from stroke per year and those who survive, over 50% suffer major disability causing physical, social and psychological burden on themselves as well as on their families[7]. It is fo llowed by several neurological disturbances and cognitive impairments (deficits in memory, language, attention and orientation). Last, but not least, we can mention mood disorders which clearly affect both the rehabilitation as well as patients adjustment to disability[8].

Depression is a frequent though often unrecognized neuropsychological sequel of stroke, having physical, biological, psycho behavioral and social aspects[8,9]. At present, mechanism of

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the post stroke depression (PSD) is unclear and treatment outcome is unsatisfactory, which seriously upsets the prognosis of patients[9]. PSD has become a noticeable issue in rehabilitation programs after stroke with reported frequency varying from as low as 22.0% in Netherlands[10] to as high as 72.0% in Croatia[11]. Two recent studies reported the frequency of post stroke depression to be 35.0% and 38.5% among patients presenting at Agha Khan University Hospital, Karachi[7,12]. However, it was a single centre experience and necessitated the present study as knowing the magnitude of problem will enable screening of patients in anticipation allowing prevention and timely identification as early recognition and effective intermediation may amend the clinical outcome of post stroke depression which is considered crucial for better stroke care. Early treatment of PSD might have a promising effect not only on depressive symptoms but also on the rehabilitation and recovery of stroke patients.

MATERIAL AND METHODS

It was a cross-sectional analytic study conducted at Armed Forces Institute of Mental Health Rawalpindi over 6 months from November 2016 to April 2017. Sample size of 130 cases was estimated using 95% confidence level and 8% margin of error while taking expected frequency of depression 27.0% after stroke[13]. Non-probability consecutive sampling was done and patients of either gender, aged between 30-70 years who presented at the outpatient department of Armed Forces Institute of Mental Health Rawalpindi with stroke within past 2 years were included. Permission from the institutional ethical review committee was taken. Patients were included in the study after taking informed consent. A structured questionnaire was used to collect demographic data. Depression was assessed using ICD-10 diagnostic criteria by consultant in charge of unit on presentation in outpatient department. Attributing factors like patient's age, gender, duration of stroke, educational, employment, socioeconomic and marital status and presence or absence of siblings, obesity and diabetes were noted. Patients with past history of depression, mania, hypomania (including anti depressant-induced), psychotic symptoms, or seizure disorder, substance abuse and those with serious suicidal or homicidal risk and those having family history of depression were excluded from study. A written informed consent was taken from every patient. Data was entered and analysed through SPSS version 19.0. Age and duration of stroke have been presented by mean ± SD while gender, marital status, siblings, socio-economic status, educational status, employment status, obesity, diabetes and depression were presented by frequency and percentage. Frequency of depression were stratified for age, gender, duration of stroke, marital status, siblings, socio-economic status, educational status, employment status, obesity and diabetes to address effect modifiers. Post-stratification, Chi-square test/ Fischer exact test were applied used to compare the frequency of depression in various sub groups taking *p*-value ≤0.05 as statistically significant.

RESULTS

The age of the patients ranged from 30 years to 70 years with a mean of 57.1 ± 10.9 years. Majority (n=91, 70.0%) of the patients were aged between 50-70 years. There were 75 (57.7%) male and 55 (42.3%) female patients with a male to female ratio of 1.4:1. The duration of stroke ranged from 3 months to 24 months with a mean of 14.1 ± 6.5 months. Seventy Nine (60.8%) patients were married and 73 (56.2%) patients had siblings. Ninty Three (71.5%) patients were educated and 88 (67.7%) patients were employed. Sixty One (46.9%) patients belonged to lower (<20,000 Pkr/month), 63 (48.5%) patients belonged to middle (20-50,000 Pkr/month) and 6 (4.6%) patients belonged to higher (50,000 – 100,000 Pkr/month) class. Thirty Two (24.6%) patients were obese while 51 (39.2%) patients were diabetic.

Depression was diagnosed in 51 (39.2%) patients as shown in table-I. There was no statistically significant difference in the frequency of depression across various subgroups based

on patient's age, gender, duration of stroke, educational, employment, socioeconomic and marital status and presence or absence of siblings, obesity and diabetes as shown in table-II.

Table-I: Frequency of depression in post-stoke patients

Depression	Frequency (n)	Percent (%)
Yes	51	39.2
No	79	60.8

Table-II: Stratification of frequency of depression in post-stroke patients (n=130).

Characteristics	n	Depression n (%)	*p*-value
Age (years)			
30-50 years	39	15 (38.5%)	0.920
51-70 years	91	36 (39.6%)	
Gender			
Male	75	28 (37.3%)	0.603
Female	55	23 (41.8%)	
Duration (months)			
≤1 year	52	22 (42.3%)	0.559
1-2 years	78	29 (37.2%)	
Marital Status			
Married	79	31 (39.2%)	1.000
Un-married	51	20 (39.2%)	
Siblings			
Yes	73	27 (37.0%)	0.554
No	57	24 (42.1%)	
Education Status			
Educated	93	36 (38.7%)	0.841
Un-educated	37	15 (40.5%)	
Employment Status			
Employed	88	33 (37.5%)	0.559
Un-employed	42	18 (42.9%)	
Socioeconomic Status			
Lower Class (<20,000 Pkr/month)	61	24 (39.3%)	0.954
Middle Class (20-50,000 Pkr/month)	63	25 (39.7%)	
Higher Class (50,000 – 100,000 Pkr/month)	6	2 (33.3%)	
Obesity			
Obese	32	15 (46.9%)	0.308
Non-Obese	98	36 (36.7%)	
Diabetes			
Diabetic	51	21 (41.2%)	0.718
Non-Diabetic	79	30 (38.0%)	

Chi-square test, observed difference was statistically insignificant

DISCUSSION

Stroke is the 3rd most common cause of death and the leading cause of disability in the world[1]. Among the complications of stroke, post stroke depression (PSD) is the most common neuropsychiatric sequel and is of high clinical significance[2]. Post stroke depression usually goes undiagnosed for long durations and it adds to the morbid consequences of stroke if not managed timely[3,4]. The reported frequency of depression in post-stroke patients varied among different studies in different populations while there was limited local such published material which necessitated the present study to get an insight into the magnitude of problem.

In the present study, the mean age of the patients was 57.1 ± 10.9 years. A similar mean age of 56.9 ± 8.9 years has been reported by Almani *et al*. in patients presenting with stroke at Liaquat University Hospital, Hyderabad[13] while Taj *et al*. (2010) reported it to be 56.7 ± 15.5 years at Aga Khan University Hospital, Karachi[14]. A similar mean age of 59 ± 17 years has been reported by Khalid *et al*. (2016) among such patients presenting at Aga Khan University Hospital, Karachi[12]. Caeiro *et al*. (2006) reported similar mean age of 56.8 ± 13 years among such patients in Portugal[15].

In the present study, there were 75 (57.7%) male and 55 (42.3%) female patients with a male to female ratio of 1.4:1. Khealani *et al*. reported similar male predominance with male to female ratio of 1.4:1 among such patients presenting at Aga Khan University Hospital, Karachi[16] while Almani *et al*. reported it to be 1.1:1 at Liaquat University Hospital Hyderabad[13]. A similar male predominance with male to female ratio of 2.1:1 has been reported by Khalid *et al*. among such patients at Aga Khan University Hospital, Karachi[12]. Aslam *et al*. however reported female predominance (63% vs. 37%) among such patients at Services Hospital, Lahore[7]. A similar male predominance with male to female ratio of 1.5:1 has been reported among Norwegian such patients by Naess *et al*. in 2010[17].

We observed that 32 (24.6%) patients were obese while 51 (39.2%) patients were diabetic. Khan *et al*. (2018) reported similar frequency of obesity (23.8%) among such patients presenting at Yusra Teaching Hospital, Rawalpindi[1] while Khealani *et al*. reported it to be 23.3% among such patients presenting at Aga Khan University Hospital, Karachi[16]. A similar frequency of obesity (25.5%) and diabetes (41.3%) among such patients has been reported by Khan *et al*. at Ziauddin Medical University Hospital, Karachi[18]. A similar frequency of diabetes has also been reported by Taj *et al*. who observed that 40.3% of stroke patients at Aga Khan University Hospital, Karachi were diabetic[14].

In the present study, depression was diagnosed in 51 (39.2%) patients. Khalid *et al*. (2016) observed similar frequency of depression among such patients in local population and reported it to be 38.5%[12] while Aslam *et al*. (2015) reported it to be 35.0% previously[7]. A comparable frequency of 40.0% has been reported by Fróes *et al*. (2011) in Brazil[19] while Hayee *et al*. (2001) reported it to be 41.0% in Bangladesh[20]. Similar results have also been published by Gainotti *et al*. (40.0%) in Italy[21] and Williams *et al*. (39.0%) in USA[22]. Herrmann *et al*. reported similar freq-uency of 39.0% for post stroke depression in Canada[23].

Thus depression was observed in a substantial proportion of post-stroke patients presenting at a tertiary care hospital which warrants routine screening for timely identification and management of depression in future practice to improve the quality of life and outcome of such patients. In the present study, we didn't observe any statistically significant difference in the frequency of depression across various risk factors of stroke and depression in general which proposes that in contrast to conventional depression, post stroke depression arises from physiopathological changes in brain which are not affected by environmental stimuli and presence or absence of risk factors can't be used to identify high risk individuals for PSD[24]. It is therefore advisable that during follow-up of patients with stroke, each and every patient should be considered at equal risk and should be monitored carefully.

A very important limitation to the present study was that we didn't consider the effect of depression and its treatment on the clinical course of stroke among such patients which is also very important and should be considered. Such a study is highly recommended in future research.

CONCLUSION

Depression was observed in a substantial proportion of post-stroke patients presenting at a tertiary care hospital which warrants routine screening for timely identification and management of depression in future practice to improve the quality of life and outcome of such patients.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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