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Post Stroke Psychiatric Co-Morbidity in Adults – A Study from Enugu, South East Nigeria

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Abstract

Background: Stroke is a common neurological disorder with high mortality and disability rates worldwide. The burden of psychiatric co-morbidity is not well documented in developing countries including Nigeria. This could have significant implications for proper case management.

Aim: This study examined the frequency and pattern of common psychiatric disorders present in stroke survivors in Enugu, South East Nigeria.

Methods: Consecutive stroke survivors (≤ 6 months post-stroke), aged ≥ 16 years attending the neurology out-patient clinic of the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu, and who had no previous psychiatric condition were recruited over a 6-month period (October 2013 – March 2014). Informed consent as well as socio- demographic data was obtained and each patient was evaluated for psychiatric morbidity using the Mini International Neuropsychiatry Inventory.

Results: There was an overall psychiatric morbidity prevalence of 37.8% found in the post-stroke patients studied, with depression accounting for more than 50% of cases. Though more females were involved, the psychiatric disorders were not significantly associated with gender, marital status or educational level.

Conclusions: There is a significant burden of psychiatric comorbidity found in Nigerian stroke survivors. This may go unnoticed, if not actively screened for by clinicians and could impact negatively on management outcomes if not attended to appropriately.

Keywords: *Stroke; South-East Nigeria; Co-Morbidity*

Introduction

Stroke is the most common cause of mortality worldwide and the third most common cause in developed countries [1,2]. It is defined by the World Health Organization (WHO) as 'rapidly developing clinical signs of disturbance in focal or global cerebral function, with symptoms lasting for up to 24 hours or longer or leading to death with no other apparent cause than of vascular origin' [3].

In Enugu, South East Nigeria, stroke is the most common medical cause of hospital admissions and the second most frequent disorder encountered in Neurology clinics [4,5].

Stroke has also been reported to produce a wide range of mental and emotional disorders [6,7]. Studies of communities and population with stroke report comorbidity of depression and anxiety disorders [8 -11].

Meta-analyses of point-prevalence rates suggest that one third of stroke-survivors develop post-stroke depression and one quarter develop post-stroke anxiety [12,13] while more than half of stroke survivors will be affected by depression at some point [14].

The relationship between depressive symptoms and stroke appears to be bidirectional and this complicates their studies. Kraepelin, in a report, noted that the diagnosis of states of depression is frequently complicated by accompanying arteriosclerotic disease, because sometimes such disease is an accompanying phenomenon of manic-depressive insanity but at other times may itself engender states of depression [15].

Risk of depression in older adults without stroke has been reported to increase as the number of cerebrovascular risk factors increases, suggesting that depression is related to clinically silent, small vessel cerebrovascular disease [16].

Analysis of more than 11,000 subjects in the Multiple Risk Factor Interventions Trial (MRFIT) cohort showed that depression symptoms were independently associated with all-cause mortality and cardiovascular disease mortality during 18 years of follow-up [17].

A prospective cohort study with 29 years of follow-up data showed that reporting of five or more depression symptoms at baseline was associated with a 66% relative increase in stroke mortality, even when other stroke risk factors, change in depression status and other risk factors over time were included in the models [18].

Meta-analysis by Robert Robinson., *et al*. reported lower depression prevalence rates for stroke patients studied in a community setting with 14% for major depression and 9% for minor depression compared to those in acute rehabilitation hospitals, with a mean prevalence rate of 21.6% for major depression and 20.0% for minor depression [19].

In the outpatient's studies by same authors which varied between 3 months and 3 or more years, the prevalence rate of post-stroke major depression was reported to be 24.0% while that for minor depression was 23.9%.

A Nigerian study of psychiatric morbidity among stroke patients by Ajiboye., *et al*. reported an overall psychiatric morbidity of 36.0% with depression representing 19.0% and generalized anxiety disorder 9.6% while phobia was 1.2% [8].

For a diagnosis of major depression, it is required that there should be persistent low mood or loss of interest in most activities for at least 2 weeks plus at least five of the following symptoms: weight change (increase or decrease), altered sleep pattern (too little or too much), lack of energy, poor concentration, agitation, reduced self-esteem, suicidal ideas or plans.

Minor depression requires three or four of these symptoms, with at least one of the symptoms being depressed mood or loss of interest, for at least 2 weeks [20].

Though there has been lots of a study in the Western countries on the relationship of stroke to psychiatric morbidity, such studies are rare in Nigeria especially in the Eastern region.

This study will assess psychiatric morbidity (depression and anxiety disorders) in post stroke patients being followed up at an outpatient neurology clinic in a tertiary health institution in South East Nigeria.

Methodology

Study area

The study was carried out at the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu which is the major Federal Government-owned tertiary health care provider in the South-East region of Nigeria. The adult Neurology clinic is run weekly by the Consultant Neurologist and post-stroke patients make up about 20% of over 750 patients seen annually [4].

Study Population

This was a descriptive cross-sectional study of adult patients (≥ 16 years old) being followed up for radiologically confirmed stroke who were consecutive attendees of the Neurology outpatient clinic between October 2013- March 2014. Subjects were not more than 6 months post- stroke and gave informed consent. Those with pre-existing history of psychiatric disorders were excluded from the study.

Sampling Technique

Total sampling was utilized in recruiting patients into this study.

Instruments

Socio-Demographic Questionnaire

A socio demographic questionnaire was designed by the interviewer to record bio-data and socio demographic variables and pre-tested to ensure clarity and adequacy.

Mini International Neuropsychiatry Interview (MINI)

The MINI is a short structured diagnostic interview used by psychiatrists and clinicians. It was developed in 1990 and assesses the disorders of the DSM-IV and ICD-10. It covers 17 Axis I disorders (i.e., mood, anxiety, substance use, psychotic, and eating disorders), a suicidality module and one Axis-II disorder (i.e., Antisocial Personality Disorder), with most disorders having a timeframe of 2 - 4 weeks except for two disorders. A follow-up module is included for each individual disorder for which the respondent has a positive initial screen. It was designed for multi-centre clinical trials as well as epidemiology studies and to be used as a screening instrument in non-research clinical settings. The MINI has been validated against the Structure Clinical Interview (SCID-P) for DSM diagnoses. Validation and reliability studies have been done comparing the MINI to the SCID-P for DSM-III-R and the CIDI (a structured interview developed by the World Health Organization for lay interviewers for ICD-10). The results of these studies show that the MINI has acceptably high validation and reliability scores, but can be administered in a much shorter period of time (mean 18.7 ± 11.6 minutes, median 15 minutes) than the above referenced instruments [21].

Ethical Clearance

Ethical clearance was obtained from the Ethical Committee of the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu.

Statistical Analysis

Analysis was done using Statistical Package for the Social Sciences (SPSS) version 16.0 (Chicago, Illinois). Descriptive statistics were used to compute means and standard deviations for numerical variables as well as frequencies for nominal and ordinal variables. The relationship between categorical responses and explanatory variables were evaluated using chi-square test. In all statistical tests, a value of $P < 0.05$ was considered significant.

Results

A total of 71 post- stroke patients were encountered within the study period but only 45 had radiological confirmation (computerised tomography scan or magnetic resonance imaging scan) and were thus eligible for further assessment. Of these, 2 (4.4%) had generalized anxiety disorder (GAD), 14 (31.1%) had depression, 1 (2.2%) had social phobia and 28 (62.2%) had no psychiatric morbidity.

The overall prevalence of psychiatric morbidity was 37.8%.

Sociodemographic Variables and Associations with Psychiatric Morbidity

Gender: There were 23 males (51.1%) and 22 females (48.9%). Among the males, 9 (20%) had depression while 14 (31.1%) had no psychiatric morbidity. For the females, 2 (4.4%) had generalized anxiety disorder, 5 (11.1%) had depression and 1 (2.2%) had social phobia while 13 (28.9%) had no psychiatric morbidity.

There was no significant association between gender and psychiatric morbidity among the stroke patients (p = 0.277).

Marital status: Of the subjects studied, 31 (68.9%) were married, 3 (6.7%) were divorced or separated, and 11 (24.4%) were widowed. Among the married, 12 (26.7%) had depression, 1 (2.2%) had social phobia and 18 (40%) had no psychiatric morbidity. For the divorced and separated, 1 (2.2%) had depression and 2 (4.4%) had no psychiatric morbidity.

Of the widows studied, 2 (4.4%) had generalized anxiety disorder, 1 (2.2%) had depression and 8 (17.8%) had no psychiatric morbidity.

There was no significant association between marital status and psychiatric morbidity among the stroke patients (p = 0 .484).

Educational level: Out of the 45 studied, 9 (20%) had no formal education, 11 (24.4%) had only primary education while 5 (11.1%) and 20 (44.4%) subjects attained secondary and tertiary education respectively.

Of those that had no formal education, 1 (2.2%) had generalized anxiety disorder and 8 (17.8%) had no psychiatric morbidity.

Among those that had only primary education 4 (8.9%) had depression and 7 (15.6%) had no psychiatric morbidity.

For those with only secondary education, 2 (4.4%) had depression and 3 (6.7%) had no psychiatric morbidity.

Within those that attained tertiary level education, 1 (2.2%) had generalized anxiety disorder, 8 (17.8%) had depression and 10 (22.2%) had no psychiatric morbidity.

There was no significant association found between educational level and psychiatric morbidity among the stroke patients (p = 0.680). (Table 1) for results details.

Overall Psychiatric Morbidity	Depression	GAD	Social Phobia	Nil Psychiatric Morbidity	Total
17(37.8%)	14(31.1%)	2(4.4%)	1(2.2%)	28(62.2%)	45(100%)

Variable	Number studied	Depression	GAD	Social Phobia	Psychiatric Morbidity	Nil Psychiatric Morbidity	Statistics
Gender							P = 0.277
Male	23 (51.1%)	9 (20%)	-----	-----	9 (20%)	14 (31.1%)	
Female	22 (48.9%)	5 (11.1%)	2 (4.4%)	1 (2.2%)	8 (17.8%)	13 (28.9%)	
Marital status							P = 0.484
Married	31 (68.9%)	12 (26.7%)	-------	1 (2.2%)		18 (40%)	
Separated	3 (6.7%)	-------	-------	--------		3 (6.7%)	
Widowed	11 (24.4%)	1 (2.2%)	2 (4.4%)	-------		8 (17.8%)	

Educational level							P = 0.680
None	9 (20%)	4 (8.9%)	1 (2.2%)			8 (17.8%)	
Primary	11 (24.1%)	2 (4.4%)				7 (15.6%)	
Secondary	5 (11.1%)	8 (17.8%)				3 (6.7%)	
Tertiary	20 (44.4%)		1 (2.2%)			10 (22.2%)	

Table 1: *Prevalence of psychiatric morbidity and its association with sociodemographic variable.*

Discussion

Among the stroke patients studied, our result showed an overall psychiatric morbidity prevalence of 37.8% with depression representing 31.1% and anxiety disorders 6.6% (i.e. 2.2% for social phobia and 4.4% for generalized anxiety disorder).

These findings are in agreement to that of Ajiboye., *et al*. who with a separate instrument, the Schedule for Clinical Assessment in Neuropsychiatry (SCAN) reported a psychiatric morbidity of 36.0% among stroke patients attending a neurology clinic in Ilorin, North Central region of Nigeria [8].

Their study equally reported a cumulative anxiety disorder of 10.8% which is higher than the 6.6% found in this study. However, both frequencies agree with the reported rates of generalized anxiety disorder after stroke which ranges from 4 - 28% [22].

This study's finding of no significant association between sociodemographic variables and psychiatric morbidity in stroke also agrees with that of Ajiboye., *et al* [8].

Oladiji., *et al*. working with the Depression Anxiety Stress Scale, reported that gender is a predictor of psychiatric morbidity in post-stroke depression with women more likely to be depressed [23]. This finding could be due to women's predisposition to developing depression than because of the stroke [24].

Hackett., *et al*. in a review did not find any association between gender / level of education with post stroke depression which agrees with our findings [13].

A study utilising the Hospital Anxiety and Depression Scale (HADS) by Broomsfield et al reported that female gender was associated with higher anxiety and depression scores in stroke patients [25]. The HADS as a screening instrument is less stringent than the MINI used in this study which is a diagnostic instrument.

The significant finding of psychiatric morbidity in this study when collaborated with other such studies points to the critical need for a more comprehensive clinical review at follow up of stroke survivors. This comprehensive review should incorporate periodic mental health assessment and case management of identified psychiatric disorders for a better treatment outcome.

Conclusion

Nigerian adult post- stroke patients have a significant burden of psychiatric comorbidity. This could have implications for outcomes of treatment and rehabilitation strategies in such individuals and can contribute to a reduced quality of life. There is a need for clinicians and health professionals involved in stroke care to have a high index of suspicion and initiate appropriate mental health reviews at intervals during follow up visits.

Limitations

The unavailability of neuroimaging for confirmation of stroke diagnosis, largely due to socio-economic factors, limited the number of post stroke patients eligible for the study.

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Authors' Contributions

IO conceived and designed the study with NU. Data collection was done by IO and NU while NU analysed the data. OI, NU and IO wrote the manuscript while IO edited the final copy. All authors approved the final manuscript. OI is the guarantor of the manuscript.

Disclosure

The authors have nothing to declare.

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