|| Print ISSN: 2589-7837 || Online ISSN: 2581-3935 ||
International Journal of Medical Science and Diagnosis Research (IJMSDR)
Available Online at www.ijmsdr.com
NLM (National Library of Medicine ID: 101738825)
Original Research Article
Volume 4, Issue 5; May: 2020; Page No. 92-95

PREVALENCE OF DEPRESSION IN CHRONIC STROKE PATIENTS

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Conflicts of Interest: Nil
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Abstract:
Background: Developing countries like India are facing a double burden of communicable and non-communicable diseases. Stroke is one of the leading causes of death and disability in India. The estimated adjusted prevalence rate of stroke range, 84-262/100,000 in rural and 334-424/ 100,000 in urban areas. Depression is characterized by persistent feelings of sadness accompanied by feelings of hopelessness, worthlessness and helplessness. Depressed patients can experiences loss of energy or fatigue, inability to concentrate and decreased interest in daily living activity with changes in sleep and weight, and thoughts of death and suicide.
Objectives: To measure the prevalence of depression in chronic stroke patients.
Study design: Observational study
Methods: A total of 85 participants were recruited in this observational study. Each participant was given BDI scale.
Results: About 85 participants, 52.9% were moderately depressed, 18.85% of severely depressed, 16.5 % of mild mood disturbance, and 11.85% of borderline depressed chronic stroke patients.
Conclusion: This study concluded that prevalence of depression ranges from moderate to severe percentage in chronic stroke patients.
Keywords: stroke, cerebrovascular accident, hemiplegia, prevalence, epidemiology, with Booleans AND, OR, IN.

Introduction

The definition of stroke by the World Health Organization is 'a clinical syndrome consisting of rapidly developing clinical signs of focal (or global in case of coma) disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin.'[(1)]. According to the recent evidences, developing countries like India are facing a double burden of communicable and non-communicable diseases. Stroke is one of the leading causes of death and disability in India. The estimated adjusted prevalence rate of stroke range, 84-262/100,000 in rural and 334-424/ 100,000 in urban areas. The incidence rate is 119-145/100,000 based on the recent population based studies. [(2)]

Stroke is becoming an important cause of premature death and disability in low-income and middle-income countries like India, largely driven by demographic changes and enhanced by the increasing prevalence of the key modifiable risk factors. [(2)]

Stroke is associated with variety of focal deficits which includes changes in level of consciousness and impairments of motor, sensory, cognitive, perceptual and language functions. In stroke, lesions affecting frontal lobe, hypothalamus and limbic system can produce a number of emotional changes. The patients typically presents with spontaneous emotions like depression, apathy, and difficulty with expression of positive emotions [3].

Depression is characterized by persistent feelings of sadness accompanied by feelings of hopelessness, worthlessness and helplessness [4]. Depressed patients can experiences loss of energy or fatigue, inability to concentrate and decreased interest in daily living activity with changes in sleep and weight, and thoughts of death and suicide [5].

Post stroke depression can interfere with rehabilitation and result into poorer long term functions. The delay realization of presence of depression in stroke patients leads to more disabilities [6]. To the level of depression in stroke patients the outcome measure used are Beck Depression Inventory BDI I and II, Geriatric Depression Scale GDS, Hamilton Depression Scale HDS. Among which BDI has being used for this study for its excellent consistency. It is a self-reported instrument which has multiple choice format for which purport is to measure the presence and exact degree of depression. Each of the inventory items corresponds to a specific category of depressive symptoms and/ or attitude. It is a commonly used instrument which intended to measure the severity of depression in an individual irrespective of cultural and ethnic affiliation [7].

Need of the study

Post-stroke depression (PSD) is one of the common emotional disorders afflicting stroke survivors. Diagnosis of PSD is challenging; therefore, it often remains unrecognized and/or undertreated. PSD is associated with

cognitive impairment, increased mortality and risk of falls, increased disability, and worse rehabilitation outcome. So, there is dearth of evidence regarding the prevalence of depression in stroke patients using BDI scale. This study is initial step to evaluate depression in chronic stroke patients.

Objective of the study:

- To measure the prevalence of depression in chronic stroke patients.

Review of Literature

The literature pertaining to this study is reviewed undertaken as described below. Each area is described under separate sections. The following reviews were conducted with the specified objectives.

- Burden of stroke
- Burden of depression
- Methods to evaluate depression

Search strategy:

In order to fulfill the above objectives the following strategies were adopted to identify articles. The search engines are used to identify articles were PubMed, Science Direct. The search was narrowed by specifying English language.

Inclusion criteria for this review were all types of study related to chronic stroke more than 3 months in 20-70 age group, studies between 2008-2017 were included and quality of articles more than 60% of Critical Appraisal Skill Programme (CASP).

Exclusion criteria for this review are languages other than English, duplicate articles and articles not relevant to this study (study of management in stroke, drugs and surgery to stroke etc.) and quality of the article less than 60%CASP. Using the above search limits, each review was conducted with specify key words listed under each section.

To identify burden of Stroke

The following key words were used for this section: stroke, CVA, epidemiology, burden with Boolean operators "AND, IN". Included 3 quality articles in this objective. Literature reports that there is a high prevalence of stroke survivors in India and prevalence rates increased with age and were higher in men than in women. Stroke is second leading cause of death in world wide. There are many risk factors which is leading stroke like hypertension, smoking and diabetes.

In India there is a huge burden of stroke with significant regional variations. Stroke units, thrombolytic, and rehabilitation are predominantly available in urban areas, particularly in private sector hospitals.

There is a paucity of good-quality epidemiological studies on stroke in India emphasizes the need for a coordinated effort at both the State and national level to study the burden of stroke in India.

To identify burden of Depression

Using the following search limits, each was conducted with the following Key words: depression, prevalence of depression, epidemiology of depression, burden of depression with Boolean operators "AND, OR, IN". The included articles used after filtering is 3.

Literature reports that there is a higher prevalence of depression effecting one third of the stroke patients. They are found in community-dwelling populations, urban and rural populations. Different demographic factors affect the incidence of depression in stroke patients.

Methods to evaluate depression

Using the following search limits, each was conducted with the following Key words: depression, BDI and stroke, BDI, depression in stroke with Boolean operators "AND, OR, IN". After filtering 3 articles included for the study. Literature reports that Beck Depression Inventory (BDI) is best and valid assessment tool. It's easy to administer, only limitations is if the participants unable to read and has cognitive impairments.

Research Gap

There is a high prevalence of stroke in Indian populations, but there is dearth of evidence regarding the prevalence of depression in relation with duration in chronic stroke patients using BDI scale in Indian populations.

Methodology

An observational study was conducted. The patients who were admitted in tertiary care with a diagnosis of Stroke and who attended physiotherapy OPD and came for follow up in NEURO OPD. In this study, both female and male participants were recruited by using convenience sampling with sample size of 85 using Z-formula. The duration of this study was 6 months.The materials used for the study was Beck Depression Inventory scale in kannada, English and pen.The inclusion Criteria were 1)Male and female with chronic stroke more than 3 months 2)Able to understand and follow simple verbal instructions 3)Willing to participate in study. The exclusion criteria were 1) Acute stroke 2) If not willing to participate in the study.Permission from college was obtained. Ethical approval for the study was obtained from ethical committee. Based on inclusion and exclusion criteria patients' details were selected from the records of MRD hospital, Neurology OPD and Physiotherapy OPD. Some patients were contacted through telephone, and then visited at their home. The informed consent was taken

from the patient and attender after explaining the procedure and purpose. The demographic data was collected. All the participants who were selected can read English or Kannada language

Method of scale translation

Permission from the author was taken to use and translate the scale Beck Depression Inventory into Kannada. Parallel back translation guidelines were followed to translate the scale. The translation of the scale from English to Kannada was done by 1st individual. Translated Kannada version was retranslated to English and matched with original scale by 2nd individual. Translated English version was translated to Kannada by 3rd individual and matched with initial Kannada translation .In the end; it was matched with version by the initial translated Kannada 4th individual

Data analysis:

The percentage was calculated to know the prevalence of depression in chronic stroke participants. The data was added on excel sheet and Spearman's correlation co-efficient was used to identify the influence of depression on age and duration of the participants. Data analysis was done by using SPSS version 22

A total number of ninety stroke participants were identified, in which eighty five participants met inclusion criteria. A total number of fifty seven males and twenty eight females where included in the study. The mean age of the participants was 50.37 ±11.73.

Table 1: Percentage of depression in chronic stroke patients

Score	Frequency	Percentage
Mild	14	16.5%
Borderline	10	11.85%
Moderate	45	52.9%
Severe	16	18.85%
Total	85	100.05

On the basis of table 1, there are 52.9% of moderately depressed, 18.85% of severely depressed, 16.5 % of mild mood disturbance, and 11.85% of borderline depressed chronic stroke patients.

Table 2: Correlations between Age and Depression

		Age	Depression
Age	Pearson Correlation	1	.067
	Sig. (2-tailed)		.541
	N	85	85
	Pearson Correlation	.067	1
Depression	Sig. (2-tailed)	.541	
	N	85	85

On basis of table 2 there is no significant difference found between age and depression.

Table 3: Correlation between Duration and Depression

		Duration	Depression
Duration	Pearson Correlation	1	.080
	Sig. (2-tailed)		.468
	N	85	85
	Pearson Correlation	.080	1
Depression	Sig. (2-tailed)	.468	
	N	85	85

On basis of table 3 there is no significant difference found between duration and depression

Discussion

This study was to measure the prevalence of depression in chronic stroke patients. The scale used in this study was Beck Depression Inventory. Beck Depression Inventory (BDI) Created by Dr. Aaron T. Beck (1961) is a 21 questions multiple-choice self report inventory. It is 21 items scale intended to assess depression among chronic stroke patients. It asks questions about depressed mood, feelings of guilt and restlessness, psychomotor retardation and feelings of helplessness- all during a period of a month.

BDI has multiple choice format for which purport is to measure the presence and exact degree of depression. Each of the inventory items corresponds to a specific category of depressive symptoms and/ or attitude. The BDI is a commonly used instrument which intended to measure the severity of depression in an individual irrespective of cultural and ethnic affiliation.

It is a self-reported instrument intended to assess the existence and severity of symptoms of depression categorize under various diagnostic schemes. BDI has been highly reliable and valid instrument.

A total of 90 samples were identified, in which 85 patients met inclusion criteria. They were given Kannada translated Beck Depression Inventory scale. The patients had to tick the suitable answers to the given 21 questions.

According to our result, there are 52.9% of moderately depressed, 18.85% of severely depressed, 16.5 % of mild mood disturbance, and 11.85% of borderline depressed chronic stroke patients.

According to (Arun et al 2010) The results of this study indicate that depression is under recognized following stroke. The prevalence of PSD is high, with about one-third of stroke survivors suffering from it. Demographic variables are important determinants of PSD. Depression is related to functional disability following stroke but the relationship does not reach statistical significance in our study. The association of disability with PSD may reflect its effect on sustaining—and possibly retarding recovery from—physical impairment. We suggest that chronic stroke survivors be routinely screened for depression, given its high

prevalence and its negative impact on further recovery and quality of life.

In this study according to the result, the prevalence of depression was more in males than females. There were 57 males and 28 females in this study. Mean age of males in this study were 23.77±5.5 and Females were 23.67±6.50 subjects.

According to (Zafarullah et al 2012) It is concluded that prevalence of post stroke depression is high and frequent. It usually remained under recognized. Demographic and Stroke variables are associated with post stroke depression and are the most important determinants of post stroke depression. Young patients with male sex are more vulnerable to develop depression. Those who usually have primary level of education, low monthly income, urban residence, unemployed and having Ischemic stroke are at higher risk of developing depression after stroke.

Research implication:

The following study can be used as baseline data to assess the further correlations between depression with disabilities, activity of daily living and effect on rehabilitation.

Clinical implication:

- BDI scale should be used in daily clinical practice to indentify patient with depression when they come for their rehabilitation.
- Psychological assessment should be integrated in the whole neurological assessment.

Conclusion

- This study concluded that prevalence of depression is moderate to severe percentage in chronic stroke patients.

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