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Review Article

**A REVIEW ON DEPRESSION - POST STROKE  
COMPLICATION****K. Yeswanthi<sup>1\*</sup>, Bandla. Aswani<sup>2</sup>, P. Vijayasanthi<sup>3</sup>, K. Lavanya<sup>4</sup>, B. Prasanth<sup>5</sup>**<sup>1\*</sup>B Pharmacy final year, Department of Pharmacy Practice, Narayana Pharmacy College, Nellore, Andhra Pradesh, South India. PIN - 524002.<sup>2</sup>Assiastant Professor, Department of Pharmacy Practice, Narayana Pharmacy College, Nellore, Andhra Pradesh, South India. PIN - 524002.<sup>3,4,5</sup>B Pharmacy final year, Department of Pharmacy Practice, Narayana Pharmacy College, Nellore, Andhra Pradesh, South India. PIN - 524002.**Abstract:**

*Neuropsychiatric disorders account for almost 14% of the global burden of disease. Depression is the leading contributor to the global burden of disease. Depression is associated with a higher risk of stroke. There is a tendency for clinicians to focus on the easily observable physical manifestations of cerebrovascular disease, which may divert attention away from potentially greater problems related to depression that can impede optimum recovery and readjustment to life after stroke. Depression is generally characterised by varying degrees of abnormal thinking, emotion, behaviour, and relationships with others. A clinical diagnosis of depression is made by taking a detailed personal and family history, conducting a clinical examination and using a semi structured psychiatric interview. Depression has important negative effects on longterm outcomes after stroke particular in terms of impairing physical functioning, increasing suicidal ideation and the risk of premature death. Unfortunately most patients with depression and vascular disease do not receive effective treatment. So it may leads to impair quality of life of patients. This review make an attempt to increase the awareness of the depression after stroke which may used to educate the stroke patients and their caregivers which may ultimately increase quality of life of patients.*

**Key words:** Stroke, Depression, Clinical examination, Impairment**Corresponding author:****K. Yeswanthi**

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**INTRODUCTION:**

Depression is the leading global cause of healthy years of life lost through disability [1] and the third highest contributor to the global burden of disease [2]. Stroke is responsible for more disability than any other condition [3]. Without treatment, depression is a chronic, relapsing disorder that is poorly recognized, under diagnosed, and inadequately managed after stroke [4], although this is typical of most aspects of mental illness worldwide [5] Depression is associated with a higher risk of stroke the prevalence of depression is higher following stroke than in the general population and is associated with increased morbidity and mortality [6,7] .

**MANIFESTATIONS OF STROKE [8]:**

MANIFESTATIONS	FREQUENCY OF OCCURRENCE
Depressed mood	61%
Irritability	33%
Appetite changes	33%
Agitation	28%
Apathy	27%
Anxiety	23%
Sleep disturbances	16%
Aberrant behaviour, disinhibition	10%
Delusions	2%
Hallucinations	1%

**DEPRESSION OCCURRENCE: YOUNG V/S ELDERLY [9]**

PARAMETERS	YOUNGER PATIENTS	ELDERLY PATIENTS
Depressed mood	+++	+ (+)
Cognitive impairment	+	+++
Retardation	++	++
Somatic symptoms	+	+++
Anxiety	+ (+)	+++
Psychotic symptoms	(+)	++

**CLINICAL PRESENTATIONS OF DEPRESSION AFTER STROKE:**

Depression affects people of all ages , ethnicities , and socioeconomic status , and is generally characterized by varying degrees of abnormal thinking , emotion , behaviour , and relationships with others . The term depression is used to describe a variety of mood states that range from mild to life – threatening psychiatric illness . The word depression is so commonly used in everyday language that is often difficult to convey to patients exactly what is meant by depressive symptoms of clinical concern and terms such as major or minor

depression and dysthymia. In lay terms, when people feel depressed they may feel sad , isolated , or worthless , their sleep patterns may change and they may be tired , irritable , stop their rehabilitation , stop their medication , and stop socializing or going to work . These feelings are persistent and they start to interfere with their day-to-day lives. This is when depression becomes a problem [10] .

**DIAGNOSING DEPRESSION IN PEOPLE WITH STROKE:**

A clinical diagnosis of depression is made by taking a detailed personal and family history , conducting a clinical examination and using a semi-structured psychiatric interview to determine whether symptoms meet International classification of diseases (ICD) [11] or Diagnostic and statistical manual of mental disorders (DSM)[12] criteria . Broadly speaking there are three standardized methods of identifying depression: a semi-structured psychiatric interview (depression as a syndrome), completing a rating scale of observed behaviour, and administering a self completed or interviewer-administered rating scale (depression as an accumulation of symptoms or negative cognitions) .In the setting of stroke, the assessment of depression can be complex and there is little consensus about the most appropriate method of assessment [13]. For a DSM clinical diagnosis of the “syndrome” depression, the following constellation of signs and symptoms are required : a person must suffer from “ low mood” or “ sadness” and “ loss of interest or over a 2-week period ( referred to as core ; ) . In addition, at least four of the following should be present most days : insomnia , feeling restless or slowed down , less appetite , fatigue or loss of energy nearly ; feelings of worthlessness or inappropriate diminished ability to think or concentrate and suicidal ideation or recurrent of death . For moderate depressive disorder, of these symptoms need to be present (for depression , two symptoms) with atleast one symptom [14] . If there is no “low mood” or “loss or pleasure ,” a diagnosis of depression will be achieved regardless of how many symptoms are this may be labeled “depressive symptom the presence of depressive symptoms without symptoms , and is considered of clinical significance symptoms interfere with normal activities . Structured clinical interview for DSM , a structured interview , is considered to be the gold method of obtaining a reliable diagnosis of depression [15] . This provides structure to the questioning asked but requires the interviewer to make judgments as to whether patients answers diagnostic criteria, or whether further questions are asked. This is particularly important in peo-stroke,

as the symptoms of fatigue and sleep appetite disturbance may all be a consequence of whether than an underlying depressive disorder.

Composite International Diagnostic Interview fully structured interview or questionnaire; not require clinical judgment. Since this administered by lay interviewers, it is useful in research purposes. Semi-structured interviews enable a diagnose made that meets standardized diagnostic they require access to trained interviewers , psychologists , or psychiatrists , making them assuming and resource intensive to undertake clinical settings . As depression can also be an accumulation of depressive symptoms, none of which is privileged in the way that symptoms are in the syndrome-based approach , simple standardized depression scales or questionnaires may be a more valuable case-finding tool for most stroke clinicians. There are a large and ever-increasing number of depression rating scales available, many of which have been validated for use with people with stroke . Two scales that are widely used in research and readily completed by a clinician following observation and interview are the Hamilton Depression Rating Scale [16] and the Montgomery-Asberg Depression Rating Scale [17], although these scales were designed principally for psychiatric use in the grading of established depressive illness.

Depressive symptoms elicited via questionnaire or depression scale can be grouped into four broad categories. The first two are affective symptoms (depression , anxiety , irritability , apathy) and behavioral symptoms (tearfulness , reassurance , seeking , inertia , social withdrawal) . These symptoms are listed in most structured questionnaires (eg. The Hospital Anxiety and Depression Rating Scale [18])because of a claim that these are also symptoms of physical illness that may be misattributed to symptoms of depression. Removal of somatic symptoms is somewhat contentious as, regardless of their etiology, these symptoms are distressing. After a depression scale assessment is completed, the number of symptoms endorsed is counted and scores above a measure-specific threshold are said to indicate a likely case of depression.

The Beck Depression Inventory (BDI) is probably the most widely used self-administered screening instrument for depressive symptoms and has been validated for use with people with stroke [19]. It is a 21-item self-or interviewer-administered scale that starts with the assumption that the patient is clinically depressed and asks “how depressed ? ” [20].

In general diagnoses and symptom profiles derived using mood scales are considered inferior to those obtained from structured interviews, as responses on most mood scales (the patient health questionnaire 9-item depression scale [21] is an

exception) cannot be used to directly derive a DSM or ICD diagnosis of depression. A high depression scale score does indicate greater depressive symptom burden and that a clinical interview is warranted if a syndrome-based diagnosis is required. The fourth category of depressive symptoms consists of important negative cognitions such as worthlessness, hopelessness, and suicidal thoughts, which may be present without the traditional “core symptoms” of depressed mood or loss of interest or pleasure, although they often coexist with somatic symptoms. These symptoms are also listed in most structured questionnaires (e.g. the patient health questionnaire 9-item depression scale [22] and BDI [23] but not all . This presentation is thought to be more common in the elderly [24] and has been demonstrated in stroke survivors [25] .The “direct opinion” of a patient, or of their family member, close friend or health professional, is considered the least reliable method of diagnosis because of the possible lack of distinction between normal distress and diagnosable disorders [26]. While clearly still important, the subjective reporting of symptoms requires some judgement by the individual about what they are experiencing, some willingness to communicate it and an appreciation of the context in which the symptoms occur .

#### **ROUTINE SCREENING FOR DEPRESSION IN PEOPLE WITH STROKE:**

As a direct result of the under diagnosis of depression by non-psychiatric physicians [27] , several stroke management guidelines suggest that all stroke survivors should be screened for depression [28] . While this appears to provide a simple “good professional practice” solution, the evidence shows that such screening is unlikely to be clinically effective, cost-effective , or improve the management or treatment of depression in non-mental health settings [29] . Even the provision of patient’s depression scores to clinicians (irrespective of severity) did not increase the rate of recognition of depression. Those clinicians still wanting to consider a screening process may find a targeted approach more useful, screening those stroke survivors with an increased risk of depression using a depression-specific measure. It is important to note that this approach has been shown to improve management of depression. When the physician conducting the screening has clear depression treatment strategy that is monitored should has clear stopping rules [30].

#### **FREQUENCY, NATURAL HISTORY, AND DETERMINANTS OF DEPRESSION:**

Depression is a chronic relapsing disorder [31] that usually begins in early life , with the median age of onset in the mid to late 20s . The frequency of depression following cerebrovascular disease

varies enormously across individual studies depending on the characteristics of the populations studied and the methods used for the diagnosis and classification of depression. A systematic review and meta-analysis of high-quality observational studies indicated that without one in three patients will experience depressive symptoms of clinical concern at sometime following stroke [32]. This proportion remains consistent over time, irrespective of the source of recruitment population-based cohort, acute hospital, or rehabilitation hospital. The natural history of depressive symptoms in individual patients after stroke has only been assessed in *in vivo* population-based stroke incidence studies [33]. As with research on the frequency of depression after stroke, the results from studies on the determinants and predictors of depression varied widely in comprehensive systematic review of the evidence [34]. Most studies exclude people with subarachnoid hemorrhage, transient ischemic attacks, and communication difficulties (aphasia, confusion, dementia) thus restricting the generalizability of the results. The studies excluding those with a history of depression or psychiatric illness before stroke are most concerning.

The statistical quality of the modeling of determinants of depression after stroke requires particular attention. Potentially important predictors of depression – age, sex, and personal history of depression are seldom all included in published multivariate models.

#### **VASCULAR DEPRESSION:**

Vascular depression is a term that is used to describe depression in the context of advanced age, vascular dementia, and silent strokes. It is considered to be a consequence of chronic ischemic lesions [35] and this is supported by the high frequency of depression in those with hypertension, diabetes, coronary artery disease, and stroke [36] however, endorsement of this concept is mixed as definitive evidence of a vascular depression subtype of depressive disorder is limited. When it occurs, late-life depression is often associated with marked disability, functional decline [37] (including falls [38]), hospitalization, longer hospital stays, and increased mortality from comorbid medical conditions or suicide [39]. Despite this, diagnosis and treatment of depressive disorders in this population is inadequate [40]. The complex inter-relationships of depressive symptoms with disability, medical illness, treatment adherence, and other psychological factors may complicate the care of depressed older adults. There are number of factors that may make treatment more difficult in the elderly, including the high rate of comorbid disorders and often an increased sensitivity to the side-effects of

medication [41]. However, evidence shows that the treatments recommended for depression in the elderly are similar to those recommended for the general population [42].

#### **THE IMPACT OF DEPRESSION AFTER STROKE:**

Depression has important negative effects on longer term outcomes after stroke, particularly in terms of impairing physical functioning [43], possibly by impairing progress through rehabilitation [44], impairing cognitive functioning [45], increasing suicidal ideation [46], and the risk of premature death [47]. This reciprocity is a vicious cycle. Increased health care use and costs are also seen in depressed stroke patients [48]. In fact patients showing improvements in major depression after stroke experienced greater recovery in cognitive function than those patients whose major depression did not improve [49]. The health related quality of life of stroke survivors is consistently lower than that of age-and-sex-matched, non-stroke controls in the first few years after onset [50], with physical function being the most affected component [51]. A substantial proportion of stroke survivors have “very poor” levels of health related quality of life 2 years after stroke, with 8% rating their health-related quality of life as “worse than death” in one study [52], where depression and anxiety (along with age, disability, and physical impairment) were found to be important determinants of handicap.

It is also important to recognize that the burden of depression often extends into the family, with emotional reactions to the illness, altered relations, and stress associated with disturbed behavior, care giving and the high costs of treatment. Families may also experience stigma and discrimination. There are high costs to society resulting from dysfunctional families: absenteeism, decreased productivity, job-related injuries, poorer quality work, and high demands on health services [53].

#### **MANAGEMENT OF DEPRESSION AFTER STROKE PHARMACOTHERAPY**

In an otherwise well population, antidepressants are an effective treatment for major depression but are generally not indicated for mild depression (although they are often prescribed) because the balance of benefits and risks is poor [54]. While newer drugs may have fewer side-effects, current data do not support the one antidepressant over another [55]. It is recommended that antidepressants should be offered as psychological interventions to those with moderate to severe depression [56] and be continued at least 4-6 weeks, in the first instance, at the dose recommended by the manufacturer. If the response to treatment is unsatisfactory after this time, the clinician would first determine whether the patient

adhered the treatment plan. If there is no improvement in reduction of symptoms, then an alternative anti-depressant should be selected or psychotherapy added. Use an effective type and dose of antidepressant has been identified, treatment should be continued for 9 months to 12 months [57]. Consideration may then be to maintenance therapy for at least 6 months reduce the risk of relapse.

Although antidepressant treatment may on average be more effective than placebo in reducing depressive symptoms in stroke patients, the clinical significance of such modest changes in mood scores is uncertain. It is also important to note that up to a half of all potentially eligible stroke patients were excluded from these trials based on communication problems, cognitive loss, or previous psychiatric illness. In addition given that a key requirement of treatment is for patients to achieve a therapeutic dose of medication for an adequate period of time, treatments in most studies may not have been provided for an adequate duration.

On the basis of the limited direct evidence of the benefits of antidepressants in stroke patients, and the considerable randomized evidence in other clinical situations, it is recommended that SSRIs be used (with caution) only in those with severe depression, given the general lack of efficacy of SSRIs in the general population with less severe depressive symptoms [58]. Any antidepressant therapy should only be started with a clear follow-up and stopping protocol, including the potential for swapping inefficacious treatments after 6-8 weeks [59], consideration of the cost of treatment (financial and harm from side-effects), and drug interactions. Special care should be taken in the treatment of patients with comorbid conditions and in the potential from contributing to polypharmacy in older, frailer patients, as no systematic reviews are available in this area. The care of depressed older adults may be complicated by the complex inter-relationships of depressive symptoms with disability, one or more comorbid disorders, treatment adherence, often an increased sensitivity to the side-effects of medication [60], and other psychological factors [61].

### PSYCHOLOGICAL THERAPIES

Some form of psychological therapy is preferable in the treatment of mild mood disorders. Psychotherapy is general term that refers to the treatment of psychological disorders using planned and structured interventions aimed at influencing behavior, mood and emotional patterns of reacting. There are a variety of psychotherapeutic methods, including cognitive behavioral therapy, problem-solving therapy, and motivational interviewing. Cognitive behavioral therapy focuses on changing cognitive patterns in order to change behavior and

emotional state; problem-solving therapy targets depression by systematically teaching patients skills for improving their ability to deal with their own specific everyday problems and life crises, rather than developing generic skills; and motivational interviewing is a semi-directive, goal-based therapy that explores the cognitive dissonance and ambivalence people experience when attempting to achieve behavior change [62]. Psychotherapy should be provided by trained health professionals, usually psychiatrists, psychologists, psychotherapists, or qualified counselors [63]. In most cases, approximately six to eight sessions need to be provided over a period of 10 to 12 weeks [64], although there is no evidence to guide the optimal frequency of treatment [65]. Most people experience an improvement in mood and a reduction in symptoms after 2 months of therapy, consequently the response to therapy can be reviewed after eight sessions [66]. The benefit of talking therapies (problem-solving therapy and motivational interviewing) may rise from discussions targeted at adjustment to stroke, education about the symptoms of depression and the chances of developing depressive symptoms, and identifying appropriate social support and access to services [67]. Unfortunately, it is likely that the biggest obstacle to routine use of psychological strategies is access to trained therapists, because of the scarcity of services, long waiting lists for non-crisis patients, and financial cost. Psychotherapy may be used in addition to initial treatment with antidepressants for severe depression, to reduce residual symptoms and the risk of relapse, or it may be used in those with moderate or severe depression who refuse antidepressant treatment.

### ELECTROCONVULSIVE THERAPY

Electroconvulsive therapy involves the brief passage of an electrical current through the brain to induce a generalized seizure. The primary indication is severe depressive illness, or when a disorder, or its symptoms, are considered potentially life threatening and an urgent response is required. This therapy must be administered by appropriately trained health professionals under accredited guidelines [68] and should only be used to achieve rapid and short-term improvement of severe symptoms after other treatments have proven ineffective [69].

### CONCLUSION:

Only a small proportion of people access effective medical or psychological treatment for their depression, with most receiving no treatment for a variety of reasons. Approximately half of those with depression do not see any health professional because of stigma, fear about drugs, misinformation about antidepressants, and the

consequences of being diagnosed with a psychological disorder. Others may seek help but their disorder remains undiagnosed and untreated. This may be for a number of reasons: they are unwilling to communicate what they are experiencing, a lack of recognition of symptoms by health professionals, unwillingness by health professionals to provide a diagnosis "label;" lack of access to preferred treatments, particularly psychological therapies; and an unwillingness to take antidepressants. Special attention is required to overcome the many barriers to obtaining and adhering to treatment for mood disorders. A public health approach should be taken to mental health with the aim of achieving a sustained reduction in the burden of depressive symptoms for the population.

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