Chapter 15
Mental Consequences of Stroke

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Abstract Depression, anxiety, and emotionalism affect over half of stroke patients at some point after stroke. These problems are associated with higher mortality and disability rates (depression), lower quality of life (anxiety), and impaired personal relationships (emotionalism). Patients with severe strokes and previous history of depression have the highest risk of depression after stroke. The main predictor of anxiety seems to be depression itself. Clinicians involved in the care of stroke patients should be able to diagnose depression, anxiety, and emotionalism and provide information to patients and their carers. Antidepressants should be considered for the management of depression, anxiety, or emotionalism after stroke. Further research is required for the development and delivery of pharmacological and non-pharmacological interventions for depression, anxiety, and emotionalism after stroke in both primary and secondary care.

Keywords Stroke • Depression • Depressive disorder • Anxiety • Emotionalism

Key Messages

- Over half of stroke patients suffer from depression, anxiety, or emotionalism at some point after stroke with symptoms starting shortly after the acute event.
- Depression and anxiety may become chronic and recurrent problems affecting stroke survivors in the long term.
- Depression after stroke can lead to higher mortality and disability rates, lower quality of life, poor life satisfaction, less efficient use of rehabilitation services, and need for institutional care after stroke.
- Anxiety after stroke can lead to depression and lower quality of life.
- All clinicians from primary and secondary care regularly involved in care of stroke patients should be able to diagnose depression, anxiety, and emotionalism on clinical grounds.
- Antidepressants should be considered for the management of depression, anxiety, or emotionalism after stroke.

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Introduction

Psychiatric disorders after stroke are common. They can be distressing to patients and their relatives and may exacerbate physical impairment [1–5]. They can also complicate patients' care and have a negative impact on mortality, disability, and quality of life after stroke [3, 6–10]. However, psychiatric disorders are often underappreciated by clinicians, and a majority of long-term stroke survivors have reported that their emotional needs had not been met adequately [11]. This chapter will focus on common psychiatric problems that the clinicians involved in the care of stroke patients should be able to approach.

Depression

Depression is defined by the presence of at least five of the following symptoms that cause clinically significant impairment in daily life for a period of 2 weeks or more, with one of the symptoms being depressed mood and/or loss of interest or pleasure in life activities [12]:

1. Depressed mood most of the day
2. Diminished interest or pleasure in all or most activities
3. Significant unintentional weight loss or gain
4. Insomnia or hypersomnia
5. Agitation or psychomotor retardation noticed by others
6. Fatigue or loss of energy
7. Feelings of worthlessness or inappropriate guilt
8. Diminished ability to think or concentrate, or indecisiveness
9. Recurrent thoughts of death or suicide

Aetiology of Depression After Stroke

The aetiology of depression after stroke is probably multifactorial. Depression may occur in any patient secondary (directly or indirectly) to the biopsychosocial stress of medical illness [13, 14]. It has been postulated that the greater the medical burden and the pre-existing vulnerability, the higher the risk of depression [9, 14, 15]. Several specific mechanisms for depression associated with physical illness, applicable to stroke patients, have been proposed [10, 13, 14]. These mechanisms include factors linked to the medical condition, any significant medical complication, and long-term dependence for activities of daily living [8]. Indeed, stroke and depression have risk factors in common, such as diabetes mellitus, and the onset of stroke and the uncertain or poor prognosis can have a negative impact on a patient's mood [14, 16]. The involvement of psychological mechanisms for depression among

patients with medical conditions such as stroke has also been reported [13, 14, 17–19]. These include the personal meaning of the illness for the individual, changes in sense of identity, alterations in body image, damaged self-esteem, dysfunctional attitudes (such as self-judgement on unrealistic standards) [10, 20], cognitive distortions [14], maladaptive coping strategies, and some types of personality [13, 14]. Biological mechanisms may also play a role in the association between stroke and depression [18, 19, 21]. These would include the damage on neurochemical pathways mediating mood [10, 13–15, 18, 21]. Finally, a number of sociological factors related to the physical disease may have an effect on patients' mood as well [13]. These would include concerns about relatives, such as difficulties in the education of children depending on the patient, stigmatisation, isolation, financial worries, the loss of social roles, employment or professional status, relocation, or institutionalisation [22, 23]. There are also social factors for depression not directly linked to stroke but prevalent among stroke survivors, for example, the loss of a spouse [10, 13, 14].

The Natural History of Depression After Stroke

Depression is more frequent among stroke survivors than in the general population [24–28]. It has a prevalence of around 30 % [2, 3], but at some point in the long term about 50 % of stroke survivors suffer from depression [29, 30]. Most patients develop their first symptoms shortly after the acute event and recover in the following months but have a high risk of recurrent depression in the long term [30]. Depression is not only a distressing condition for patients and families; it is also associated with higher rates of mortality, disability, anxiety, lower quality of life, poor life satisfaction, less efficient use of rehabilitation services, and need for institutional care [3, 6, 8].

Detection of Depression After Stroke

The guidelines of the Royal College of Physicians (RCP), European Stroke Organisation, and American Heart Association recommend multidisciplinary assessments for depression in all stroke patients [31–33]. Nurses, who have 24/7 contact with patients, particularly in inpatient settings, may be expected to be the ones who first notice when a patient is developing symptoms of depression, perform the initial assessment, and request a consultation [31]. Patients identified as having symptoms of mood disorder should have a more detailed assessment, seeking information on past history, potential causes, impact, and treatment preferences. Patients who do not become depressed shortly after stroke seem to be at lower risk for depression [30]. Except in those patients, given its chronic and recurrent nature, depression requires periodic clinical screening in the long term. To ensure that stroke patients at risk of depression receive continued care in the long term, good

coordination between secondary care specialists and primary care clinicians is essential. Patients with history of depression pre-stroke, affected by severe strokes, and with a high degree of disability or cognitive impairment after stroke have the highest risk of depression [3, 8]. Therefore, clinicians should pay particular attention to patients in these categories, who are especially vulnerable.

The diagnosis of depression is made on clinical grounds, using the criteria presented above. All doctors who see stroke patients regularly should be adequately trained to assess patients for depression using clinical criteria. For the assessment of depression in busy and resource-poor clinical settings, screening scales validated in stroke patients may also be useful [5, 34] (i.e. the Nine-Item Patient Health Questionnaire [35], the Hamilton Depression Rating Scale [36], the Center of Epidemiological Studies-Depression Scale [37], the Hospital Anxiety and Depression Scale [38], and the Beck Depression Inventory [36]). However, clinicians should know that according to a recent systematic review, the performance of scales is modest for case-finding (rule-in diagnosis) since all of them report a significant number of false positives. Conversely, the ability of scales to exclude (rule out) depression and confirm non-depressed status is high [34]. It should also be noted that, when they are used alone, screening depression scales have little or no impact on the detection and management of depression [34, 39]. In any case, if a scale is used, a thorough clinical assessment and management plan should always be arranged for patients showing positive screening results [34, 39].

The assessment of patients at high risk of depression (severe strokes, cognitive impairment, and/or history of depression) at a moment of high risk (within 6 weeks of stroke) may improve the positive predictive value of the screening tools. This would reduce the number of patients who receive unnecessary assessment after the first approach. The methods of assessment should be adapted for patients with communication problems, who are at high risk of depression, and may not be able to report their symptoms. In individuals with severe aphasia, an assessment tool designed specifically for this purpose, such as the Stroke Aphasic Depression Questionnaire (SAD-Q) or Depression Intensity Scale Circles (DISCs), may be used [33]. Many patients present with symptoms, such as psychomotor retardation or fatigue, that can be caused by depression or by the stroke itself, and this complicates their clinical assessment and management. Nevertheless, given the relevance of depression, all doctors who see stroke patients regularly should be familiar with these symptoms and should be able to assess patients for depression adequately.

Management of Depression After Stroke

There appears to be a benefit from adopting a holistic framework for the management of psychological problems after stroke. Interventions that address specific mood disorder tend to miss part of the complexity of life after stroke. Comprehensive-holistic rehabilitation programmes should integrate evaluations of cognition,

behaviour, and mood to approach the individual's difficulties [33]. Since depression and anxiety are often associated [6, 7], patients considered to have one of them should be assessed for other mood disorders [33]. Furthermore, specialist mental health teams should be involved in the management of patients with severe or persistent mood disorders.

Patients with mild or moderate problems should be provided with information, support, and advice about the mood disorder and the stroke [33]. The information may be provided with leaflets, workbooks, or verbal communication, including lectures or teaching sessions. Information is necessary to identify and act upon symptoms, manage exacerbations, facilitate access to effective treatments, and improve clinical outcomes [40]. A lack of information has a negative impact in compliance with stroke secondary prevention and psycho-social outcomes for both stroke patients and carers [41]. A Cochrane review reported that the provision of information to stroke patients and caregivers had no effect in depression rates, when depression was approached as a binary variable (depressed/not depressed), but it had a significant positive effect on depression scores [42]. The information provided in the trials included in the review contained at least one of the following components: the causes and nature of stroke, management and recovery from stroke, prevention or reduction of risk of recurrent strokes, and information on resources or services. Other interventions that may be considered for stroke survivors with mild or moderate depression are increased social interaction, increased exercise, goal setting, or other psychosocial interventions [33]. All stroke teams should have clinicians adequately trained to provide this care, although at this level the voluntary sector may be also involved.

If patients do not respond to information, support, and advice, then psychological or pharmacological treatments or a combination of both may be considered with the involvement of a clinician with expertise in managing mood disorder after stroke [33]. Whilst initial meta-analyses of randomised controlled trials (RCTs) found no evidence to support the routine use of pharmacotherapeutic or psychotherapeutic treatment for depression after stroke, subsequent RCTs and meta-analyses showed a small but significant effect of pharmacotherapy (but not psychotherapy) on treating depression but with an increase in gastrointestinal and neurological side effects [5, 43]. The National Institute for Health and Care Excellence (NICE) guidelines for depression in adults with chronic physical health problems recommend selective serotonin reuptake inhibitors (SSRIs) as first-line pharmacological treatment, and a Cochrane review has shown SSRIs to improve not only depression but also dependence, disability, neurological impairment, and anxiety after stroke [44, 45]. However, there was heterogeneity between trials and methodological limitations in a substantial proportion of them. While this Cochrane review could find no evidence of an association between SSRIs and relevant side effects, some observational studies have reported an association between antidepressants and an increased risk of adverse outcomes including falls, fractures, upper gastrointestinal bleeding, self-harm, stroke, and all-cause mortality [46, 47]. The results of large, well-designed trials are needed to determine whether antidepressants should be given routinely to improve disability in stroke patients.

Patients prescribed antidepressants should be monitored for adverse effects, and treatment should be continued for at least 4 months beyond initial recovery. If the patient's mood has not improved within a month of initiating treatment, compliance with medication should be checked, and a higher dose of the same drug, or another antidepressant, should be considered. Patients on antidepressants should have regular medication reviews to assess the need to continue with the treatment. In patients with aphasia or other impairments that complicate assessment, careful observations over time (including response to a trial of antidepressant medication) may be used [33].

The management of depression after stroke requires long-term follow-up to assess adherence and efficacy of therapy and to change doses or stop treatment where necessary [48]. Adequately coordinated clinical attention provided by stroke physicians, general practitioners, and sometimes psychiatrists would prevent the fragmentation of the long-term care of stroke patients with or at risk of depression. It has been suggested that health services may not have the resources to screen and treat all patients with post-stroke depression [48]. Nonetheless, depression is associated with negative health outcomes that would be costly for the health service in the long term. While further research into the benefit of psychological care after stroke is needed, there is already some evidence suggesting that effective management of depression after stroke may be a cost-effective policy [49].

A Cochrane review of pharmacological and psychological interventions to prevent depression after stroke reported that psychological interventions led to a small but significant improvement in depression, but no evidence of an effect of antidepressants was observed. There was no evidence of psychotherapy or antidepressants improving cognitive function, activities of daily living, or disability [50]. The trials that have been published since then showed some evidence of benefit for antidepressant drugs, although their addition to the Cochrane analyses is unlikely to change substantially the overall estimate of effect [5, 51–53]. In accordance with this evidence, RCP guidelines recommend that antidepressants should not be used routinely to prevent the onset of depression [33].

Future Approach to Depression After Stroke

Most studies for prevention and treatment of depression after stroke address patients shortly after the acute event [43, 50]. However, depression has been observed to be a frequent problem up to 15 years after stroke [30]. Therefore, the development of screening, preventive, and therapeutic interventions for depression in the long term after stroke, involving primary care clinicians, is required. Primary care settings have an advantage over hospitals, when considering long-term interventions, as follow-up examination may be routine, brief, and easy to arrange and they are the place where the medical management of different problems is integrated. Ensuring a good coordination between primary and secondary care will be essential in the development of effective interventions for depression after stroke.

As well as the diagnosis, the management of depression after stroke should be approached holistically. It has been reported that patients with multi-morbidity often receive care from different teams in an uncoordinated way [54]. The results of studies of depression in the context of other diseases [55–59] suggest that depression may be relevant to patients affected by most long-term conditions [13]. An integrated approach to depression for all the chronically ill, including stroke survivors and also patients with less frequent and therefore less investigated problems, might be developed in the future.

Probably the biggest obstacle to routine use of psychological strategies is access to trained therapists, due to scarcity of services, long waiting lists for non-crisis cases, and financial cost. However, psychotherapeutic assistance may be provided not only through a formal process of psychotherapy but also in the context of the ongoing doctor-patient relationship. For many people with medical conditions, the relationship with a clinician who is prepared to listen to their experience is the most important component of their treatment [14]. Although the therapeutic relationship may be one of the most powerful tools to preserve and protect emotional well-being, this factor is often underestimated by practising clinicians. Appropriate training to make the relationship with the patient psychotherapeutic in itself could be suggested. Some medical patients who might benefit from psychotherapy may be reluctant to accept a treatment that implies that they are 'damaged' in yet another way. These patients may prefer brief and periodic interventions that emphasise psychoeducation provided by their usual doctor.

Most predictors of depression after stroke are not purely biological but psychological and sociological as well. The multidisciplinary care that patients with depression after stroke need may also have to be delivered in cooperation with professionals working outside the health service. There is already a systematic review reporting positive effects of tele-counselling (mental health services by telephone) on depression in patients with disabling medical conditions, including stroke [60]. The tele-counselling was provided in an average of eight sessions of 30–90 min each, over a 3-month period. The programmes involved individual sessions held once a week to once a month. Significant improvements, not only in depression but also in coping skills and strategies, and community integration were observed.

Another systematic review reported that there is limited to moderate evidence supporting community-based rehabilitation interventions delivered by allied health professionals and/or nursing staff to have a positive effect on different outcomes such as quality of life, participation, and depression after stroke [61]. There is a need for trials looking at a broader range of treatment and prevention strategies, including talking interventions delivered by trained and supervised lay workers, the provision of combined and collaborative care interventions, and trials of guided self-help [48].

A large proportion of stroke patients do not develop depression, and this introduces the concept of resilience [2, 3, 14, 62]. The study of resilience has become more relevant as there has been a shift from a problem-oriented approach to one that stresses prevention and the nurturing of strengths. There are trials that have reported successful interventions enhancing resilience in patients with other medical

conditions [63]. However, even though resilience is an interesting concept that opens a new way of looking at mental health problems in the medically ill, its routine application in clinical practice requires further research. A good conceptualisation of resilience and its potential role in stroke patients may help in the development of interventions to prevent and/or treat post-stroke depression.

Clinicians', patients', and carers' beliefs about depression after stroke also influence the effectiveness of its management. Further qualitative research studies investigating what doctors, patients, and carers think about depression after stroke, and its possible clinical approach, may also help in the development of effective interventions. Finally, future studies describing the natural history, predictors, and outcomes of depression after stroke, and the effect of interventions in low- and middle-income countries, are also required [48].

Anxiety

Anxiety has received comparatively less attention than other psychological problems that affect stroke patients [1]. Anxiety has been defined as a future-oriented mood state associated with preparation for possible upcoming negative events [64]. The diagnosis of generalised anxiety disorder (GAD) requires excessive and difficult-to-control anxiety and worry, occurring most days for at least 6 months and associated with at least three of the following symptoms: restlessness, fatigue, difficulty concentrating, irritability, muscle tension, and sleep disturbance. These symptoms should cause clinically significant impairment in social, occupational, or other important areas of daily life. The disturbance is not due to the direct physiological effects of a substance (i.e. drug of abuse) or a general medical condition (i.e. hyperthyroidism) and does not occur exclusively during a mood disorder, psychotic disorder, or pervasive developmental disorder [12]. Certain physical symptoms such as palpitations, dizziness, or trembling may also be observed in patients with anxiety [1]. Genetic, neurological, and environmental factors play a role in the development of GAD [64, 65].

Natural History of Anxiety After Stroke

A systematic review reported that the pooled prevalence of anxiety after stroke was 18 % when it was assessed by clinical interview and 25 % when a rating scale was used [1]. However, anxiety affects more than half of stroke patients at some point in the long term. A large cohort study observed that up to 57 % of stroke patients presented symptoms of anxiety at some point within 10 years of stroke, with 58 % of them developing their first symptoms in the first 3 months [7]. The observed annual incidence of anxiety was up to 24 % and prevalence 32–38 % within 10 years of the acute event [7]. The dynamic natural history of anxiety after stroke has also been observed in other studies that reported that up to 40 % of patients with anxiety in the

first few months after stroke remained anxious 4–8 months later and up to 11 % of patients not anxious at 2 months became so 2–4 months later [66, 67]. Anxiety has also been reported to be associated with depression and poor quality of life in the long term after stroke [1, 7].

Detection of Anxiety After Stroke

In view of the frequency of anxiety among stroke survivors, its onset shortly after the acute event, and its strong association with depression, an assessment for anxiety within 6 weeks of stroke may be beneficial. Conducting an assessment for depression and anxiety in the same clinical interview may also help to approach patient mood holistically and plan appropriate clinical management.

A thorough clinical assessment is the foundation of diagnosing anxiety. An anxious patient can appear restless, irritable, or fatigued. Patients with anxiety may also have unexplained physical symptoms, such as chest pain and tachycardia. No laboratory testing is necessary to diagnose anxiety [68]. The diagnosis requires training, as anxiety and depression may not be easy to differentiate, and in many cases both disorders present simultaneously. Furthermore, a focus on somatic symptoms may distract patients and doctors from the psychological symptoms [65]. To improve detection and treatment of anxiety, the International Consensus Group on Depression produced two screening questions: 'During the past 4 weeks, have you been bothered by feeling worried, tense, or anxious most of the time?' and 'Are you frequently tense, irritable, and having trouble sleeping?' [69] However, it is not known how sensitive or specific these questions are [65]. A systematic review identified eight screening tools tested to detect anxiety after stroke; however, the actual clinical utility of all of them was uncertain [70].

Different predictors of anxiety after stroke have been investigated. It has already been mentioned that anxiety seems to be strongly associated with depression [1, 7]. The association between disability and anxiety reported in the literature is less consistent [1]. Therefore, when assessing patients, clinicians should pay particular attention to those showing symptoms of depression, and also to those with severe disability, who may be at highest risk of anxiety disorders. For the same reason, all patients diagnosed with anxiety should be assessed for depression and its adverse health outcomes [33]. While in the general population anxiety is associated with age 45–59 and female gender [65], most studies observing stroke patients reported no association between anxiety and age or gender [1]. Stroke location is also not associated with anxiety [1].

Management of Anxiety After Stroke

The NICE guidelines for GAD in the general population recommend providing information to patients about the diagnosis as early as possible to help them understand the disorder and start effective treatment promptly. When symptoms are not

improved after education and active monitoring, individual self-help or psychoeducational groups may be arranged [71]. For people with GAD and marked functional impairment or those who don't respond to these interventions, individual psychological intervention or drug treatment should be considered. There is no evidence that either mode of treatment is better [65]. It is also unclear whether the combination of drugs and psychotherapy is better than using one strategy alone [65]. If a patient chooses a psychological intervention, either cognitive behavioural therapy (CBT) or applied relaxation should be offered. CBT combines cognitive therapy – which focuses on monitoring thoughts and understanding self-perpetuated cognitive distortions, habitual thought patterns, and subsequent behaviours – with behavioural therapy, which aims to expose the patient to feared experiences (originally, phobias). CBT is usually provided by a specially trained psychotherapist on an individual basis, with 6–12 sessions of 1 h duration as standard. Some studies suggest that CBT can be delivered over the Internet, but how it compares to office-based CBT is unclear. Several other psychotherapeutic approaches can be combined with CBT [65], such as relaxation response training, acceptance-based behavioural therapy, emotion regulation therapy, and psychodynamic psychotherapy. Education on sleep hygiene, physical exercise, or self-help books or manuals may also be useful [65].

If a person prefers to be treated with drugs, sertraline is recommended by NICE as the initial treatment for GAD in the general population [71]. If sertraline is ineffective, an alternative SSRI or a serotonin-norepinephrine reuptake inhibitor (SNRI) should be offered. Venlafaxine and duloxetine are SNRIs that are both licensed in the United Kingdom for GAD [65]. A recent Cochrane review on interventions for anxiety after stroke suggested that both paroxetine and buspirone are effective for treating anxiety after stroke [72]. Combining paroxetine and psychotherapy did not confer any significant additional benefit for stroke patients. Both paroxetine and buspirone have reported side effects including nausea or dizziness. However, the true level of effectiveness is uncertain due to the small number of trials available and their methodological limitations. The authors of the review concluded that there is insufficient evidence to guide practice in treating anxiety after stroke.

RCP stroke guidelines recommend that patients who are provided with antidepressants for anxiety after stroke should be monitored for adverse effects and treatment continued for at least 4 months beyond initial recovery. If the patient's mood has not improved 2–4 weeks after initiating treatment, and compliance with medication is appropriate, the dose may be increased or an alternative antidepressant may be employed [33]. NICE guidance on GAD suggests that pregabalin can be offered as an initial option for patients who cannot tolerate SSRIs or SNRIs. Benzodiazepines have confirmed efficacy primarily for the short-term treatment of GAD. NICE guidance recommends that they are offered for the treatment of GAD only as a short-term measure in crises. Antipsychotics are not recommended for GAD in primary care [71].

Referral to a mental health specialist should be considered when a patient has severe symptoms with marked functional impairment and risk of self-harm, significant co-morbidity, personality disorder, self-neglect, or an inadequate response to

previous interventions. The therapeutic approach should be guided by the person's preference [71]. However, it should be borne in mind that many recommendations do not account for the specific clinical situation of stroke patients [71]. Furthermore, most stroke teams may not have the resources to provide these services, especially psychotherapy. More research is required for the development and delivery of pharmacological and non-pharmacological interventions for anxiety after stroke, both in primary and secondary care.

Emotionalism

Emotionalism has been defined as unstable emotional experiences and frequent mood changes, with emotions that are easily aroused, intense, or out of proportion to events and circumstances [12]. Emotionalism is also called emotional lability, emotional incontinence, pathological laughing or crying, involuntary emotional expression disorder, emotional dysregulation, and pseudobulbar affect. Patients report that episodes of emotionalism are at best only partially subject to voluntary control, and unless they are cognitively impaired, they judge their emotional display as inappropriate and out of character [73]. Emotionalism is therefore a distressing and embarrassing problem that may lead to social avoidance and impaired quality of contact with friends and family. The prevalence of emotionalism after stroke varies across studies between 11 % and 52 % [4, 74–79]. Symptoms of emotionalism appear to start shortly after the acute event, and studies have shown prevalence to change with time after stroke, with one study reporting emotionalism in 13 of 89 patients (15 %) at 1 month, 25 of 119 patients (21 %) at 6 months, and 12 of 112 patients (11 %) at 12 months [4, 77].

Pathological crying seems to be more common than pathological laughter [4, 74, 79]. It can be triggered by discussion of sad realities, including the prognosis of the disease, sentimental stimuli such as visits of relatives, or the discussion of emotionalism itself [4]. Emotionalism has been observed to be associated with female gender, severe motor dysfunction [80], past medical history of depression [74], and cognitive impairment [4, 75]. A number of biological and anatomical predictors of emotionalism have also been reported, including ischaemic strokes, anterior cortical events [80], single lesions located in anterior regions of the cerebral hemispheres [81], lesions in the left frontal and temporal regions [4], and thalamic microbleeds [75]. However, while this evidence is valuable, the reduced number of studies and the small number of patients assessed in most of them make the predictors of emotionalism after stroke a matter of further research.

Patients and their relatives may be unaware of the existence of emotionalism in the context of stroke. However, given its frequency, numerous patients might benefit from its adequate identification and management. If clinicians do not ask specifically about symptoms of impaired emotional regulation, these symptoms may be unrecognised or misinterpreted as a symptom of a mood disorder [73]. RCP guidelines recommend that stroke survivors who persistently cry or laugh in unexpected

situations, or who are upset by their fluctuating emotional state, should be assessed by a specialist or member of the stroke team trained in the assessment of emotionalism [33]. Assessment scales developed specifically for emotionalism may be useful in clinical trials and to screen patients. However, the diagnosis of emotionalism should be based on clinical assessment [73]. A single screening question regarding the presence of frequent laughing or crying spells may be sufficient to identify patients with emotionalism. Once the patient's answer is confirmatory, a full clinical assessment should follow to investigate whether the patient's uncontrollable episodes of laughing or crying are actually emotionalism or an underlying mood disorder. Patients with emotionalism exhibit the emotional display in the absence of depressed mood or symptoms of mania. It should also be noted that although emotionalism and mood disorders appear to be different clinical entities, they may coexist in the same patient [73].

When the diagnosis of emotionalism is made, patients should be appropriately distracted from the provoking stimuli [33]. A Cochrane review of pharmacological interventions to treat emotionalism after stroke reported that antidepressant treatment reduced the frequency and severity of symptoms, but several methodological deficiencies in the studies were observed [82]. Most trials were small, had short duration, and inadequate concealment of the randomisation sequence. It is not possible to estimate accurately the benefits and risks of antidepressants on patients with emotionalism after stroke. Use of antidepressant treatments for persistent emotionalism is recommended by RCP guidelines [33]. However, evidence is lacking on the type of antidepressants, dose, and duration of treatment. The frequency of crying, effectiveness of the treatment, and possible side effects should be monitored. If the emotionalism has not improved 2–4 weeks after initiating treatment, and compliance with medication is adequate, an increase in dose or change to another antidepressant should be considered [33].

A thorough understanding of the aetiology and pathophysiology of emotionalism after stroke needs further research, looking at the biopsychosocial basis of human emotion. Meanwhile, the recognition, diagnosis, and treatment of this clinical entity is important to help patients and their carers improve their quality of life and relationships. No systematic reviews on the natural history predictors and outcomes of emotionalism after stroke have been published. It would be useful to have information on longer-term frequency and relapse rates in future studies. Further trials of high quality, investigating the effect of antidepressants in people with emotionalism after stroke, are also required.

Conclusion

Mental health disorders such as depression, anxiety, and emotionalism are common among stroke patients. These are distressing problems on their own, and they are also associated with other adverse outcomes. The detection and clinical management of mental health disorders is part of the routine care of stroke patients.

Therefore, clinicians who see stroke patients regularly should have the required skills to manage depression, anxiety, and emotionalism appropriately. A good coordination of the multidisciplinary teams across primary and secondary care is also essential to provide healthcare of good quality to stroke patients with psychiatric conditions. A number of interventions, including the provision of adequate information, psychotherapy, and antidepressants, should be considered for the management of depression, anxiety, or emotionalism after stroke. The development of more effective interventions to prevent and treat these problems is required. Such interventions are likely to improve the overall prognosis of stroke.

Patient Questions

Q. What are the possibilities of having depression, anxiety, or emotionalism after stroke?

A. Over 50 % of patients have depression, anxiety, or emotionalism at some point after stroke. In most cases, symptoms start shortly after stroke.

Q. What is the prognosis of these problems?

A. Depression and anxiety may be chronic and recurrent problems in the long term after stroke. Depression after stroke can lead to higher mortality and disability rates, lower quality of life, poor life satisfaction, and need for institutional care. Anxiety can lead to depression and lower quality of life. The prognosis of emotionalism is not known.

Q. Can my doctor help me with depression, anxiety, or emotionalism?

A. Your doctor should be able to diagnose these problems, in most cases without the need for any further tests. Treatments for depression, anxiety, and emotionalism, involving medication or psychotherapy, are available. You should discuss with your doctor what is the best option for you and what are the effects that can be expected from the treatment.

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