

A Primary Care Provider's Guide to Depression After Spinal Cord Injury: Is It Normal? Do We Treat It?

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Abstract: Although most people with spinal cord injury (SCI) are emotionally resilient, as a group they are at increased risk of major depressive disorder. Depression tends to be undertreated in people with SCI, perhaps because depression is mistakenly viewed as an expected reaction to severe disability or is confused with grief. Depression and grief are distinguishable, and the Patient Health Questionnaire-9 is a reliable and valid screen for major depression in this population. Major depression can be treated with antidepressants, especially venlafaxine XR, and with psychotherapy, especially cognitive behavioral therapy, focused on helping the person resume activities that were previously enjoyable or meaningful. Structured exercise also may help relieve depressed mood. **Key words:** depression, PHQ-9, primary care, screening, spinal cord injury

Health Maintenance Checklist

1. Screen all patients with the Patient Health Questionnaire (PHQ-2). If either depressed mood or anhedonia are endorsed, have the patient complete the PHQ-9.
2. Ask patients what they are doing each day to stay active and find meaning or enjoyment in life.

Episodic Care Key Points

1. Consider titration of low-dose venlafaxine XR to minimally therapeutic dose.
2. Consider referral for cognitive behavioral therapy.
3. Assure adequate pain management.
4. Suggest participation in physical activity.

Case Report

A 34-year-old divorced male sustained a T-10 American Spinal Injury Association Impairment Scale (AIS) A spinal cord injury (SCI) 11 months ago in an alcohol-related car crash. He presents with recurrent urinary tract infection and chronic right shoulder pain. During routine screening for depression by the hospital assistant, the patient said, "Wouldn't you be?" He denied alcohol use since his SCI. On the Patient Health Questionnaire-2 (PHQ-2), he endorsed feeling down and lacking enjoyment of usual activities most days but said it was because he has an SCI and that he was "not depressed." With prompting by the hospital assistant, the patient completed the rest of the PHQ-9 and scored 17 with prominent

insomnia, fatigue, self-blame, and thoughts of death but no plan or intent. The physician confirmed a diagnosis of moderately severe major depressive disorder and offered the patient a trial of venlafaxine XR. The physician explained that this drug has been proven to improve several of the symptoms he endorsed, as well as non-neuropathic pain, specifically in people with SCI. The patient agreed to start on a low dose (37.5 mg/d) to be increased gradually to a minimally therapeutic dose of at least 150 mg/d over several weeks.

Background

The point prevalence of major depressive disorder (MDD) in people with SCI is 22.2%, approximately three times higher than the

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prevalence in the general population.¹ During the first year after SCI, depression follows one of four trajectories: chronic (12.5%), delayed (12.8%), improved (23.9%), and nondepressed, otherwise known as “resilient” (50.8%).² As a result, we can see that resilience, not depression, is typical following SCI, while the risk of depression is elevated in this population.

Within the population of people with SCI, there are a number of risk factors for depression. Depression after SCI is more likely among individuals with a prior history of mental illness generally and depression specifically.³ People with a history of unstable work, substance abuse, and low education are also at increased risk of becoming depressed.³ In addition, chronic SCI-related pain is a significant modifiable risk factor for depression in this group.³

Depression used to be conceptualized as a stage in a healthy grieving process.⁴ However, becoming depressed is not associated with good outcomes. For example, early depression is associated with greater subsequent depression.⁴ Depression after SCI is associated with worse medical and functional outcomes such as higher risk of pressure ulcers, urinary tract infections, and bowel dysfunction; more days in bed; greater use of paid personal care; and increased risk of mortality.^{5,6}

Assessment

Major depression can be reliably identified and assessed in people with SCI. Research shows that the PHQ-9 is a valid screening tool for major depression in this population.⁷ Using a cutoff of 11 or more, the PHQ-9 was 100% sensitive and 84% specific compared to a structured clinical interview for major depression administered within approximately 7 days. Those who screen positive should undergo a diagnostic assessment because a fraction will not qualify for the diagnosis after a closer look. The PHQ-9 is also efficient. The same study found that no one who scored zero on the first two screening items (depressed mood or anhedonia) met criteria for major depression on the diagnostic assessment.

Therefore, persons who do not endorse either of the first two symptoms (known as the PHQ-2) are very unlikely to meet criteria for major depression at that time, and the remaining PHQ-9 questions 3 through 9 can be skipped. Other research has shown that the PHQ-9 is as sensitive to treatment effects as other longer measures.⁸ In general, a change of at least 5 points on the PHQ-9 is considered clinically significant, and depression remission is defined by a score of less than 5.⁹ Finally, the notion that certain somatic items on the PHQ-9 scores would be inflated by the effects of SCI has not been supported by item response theory research.¹⁰ All PHQ-9 items that are endorsed should be counted toward the total score in persons with SCI.

Screening everyone with SCI for depression is highly recommended because there is evidence from multiple studies that depression after SCI is undertreated.¹¹ There are many reasons depression may be undertreated, including the myth that people “should be” depressed after such a life-changing injury. Mental health disorders are stigmatizing, and people do not like admitting they have them. Depression can be confused with normal grief. However, symptoms of major depression differ significantly from symptoms of grief (see **Table 1**).¹² It should be noted that grief is not recognized as a psychiatric disorder in the *Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5)*.¹³ However, a consensus conference on grief and grief symptoms produced the list in **Table 1**, and these symptoms provide a useful contrast to the *DSM-5* criteria for major depression.¹⁴

To make the differential diagnosis, clinicians should focus first on whether the patient meets criteria for major depression, the higher base-rate condition. Grief disorder as determined by the consensus conference includes one essential criterion, persistent yearning for the way one was before loss/injury. The person must endorse at least four additional grief symptoms to meet consensus grief disorder criteria.¹⁴ Patients may have both conditions, and having both predicts more chronic depression.¹⁵

Table 1. Comparison of grief versus depression symptoms

Grief symptoms ¹⁴	DSM-5 depression symptoms ¹³
1. Intrusive thoughts about loss	1. Depressed mood
2. Pangs of severe distress	2. Loss of interest or pleasure
3. Yearning for before loss	3. Fatigue, lack of energy
4. Avoiding reminders of loss	4. Poor appetite or over eating
5. Bitterness over loss	5. Insomnia or hypersomnia
6. Feeling stunned, shocked, dazed	6. Difficulty concentrating
7. Confused, part of you died	7. Excessive guilt or self-blame
8. Trouble accepting loss as real	8. Psychomotor changes
9. Hard to trust others since loss	9. Thoughts of death or suicide
10. Feeling emotionally numb	
11. Feeling that life is unfulfilling, meaningless	
12. Grief symptoms make life more difficult	

Treatment

Whether to treat and what to treat often hinges on the differential diagnosis of grief versus depression. If the patient has symptoms of grief within the first 6 to 12 months after SCI but does not meet criteria for major depression, there is no evidence that any treatment helps, and some treatments have been found to be harmful.¹⁶ Therefore watchful waiting is recommended. Significant grief symptoms that persist more than 12 months after injury and interfere with life may merit treatment. While only speculative, one promising approach to treating grief that does not resolve on its own can be found in the literature on treating complicated grief in people who have lost their spouse.¹⁷ The treatment combines interpersonal and exposure therapies but has not been tried in individuals with SCI thus far. If the patient meets criteria for major depression (regardless of grief symptoms) at any point following SCI, they should be treated.

There is now level 2 evidence that cognitive behavioral therapy¹⁸ and level 1 evidence that venlafaxine XR¹⁹ are effective treatments for major depression after SCI. Venlafaxine XR had a significant effect on core symptoms of depression such as depressed mood, feelings of

guilt, disinterest in life, psychomotor retardation, psychomotor agitation, and anxiety. Interestingly, venlafaxine XR, a serotonin-norepinephrine reuptake inhibitor (SNRI), also resulted in people reporting that their SCI interfered less with their life at home, in social situations, and at work compared to placebo controls. A meta-analysis of counseling for depression after SCI found that strategies designed to foster regular participation in activities that are perceived as pleasant or meaningful had the largest effect.¹⁸

Other modifiable risk factors for depression, especially chronic pain, should be treated aggressively when present. We know that treating chronic neuropathic pain with pregabalin also improves depression.²⁰ Treating depression with venlafaxine can have another significant secondary benefit: It results in robust reductions in non-neuropathic pain. By 12 weeks, about 50% of patients reported that their non-neuropathic pain had decreased by at least 50% compared to only about 22% in the placebo control group.²¹ Venlafaxine XR had no significant effect on neuropathic pain. It is uncertain whether the effect of venlafaxine XR on non-neuropathic pain will generalize to people with SCI who are not also depressed.

One additional promising approach to consider for people who are depressed is physical activity. We know people with SCI are highly sedentary, both for physical reasons and also out of habit.²² Just as in the nondisabled population, sedentariness after SCI is associated with a host of negative outcomes, including greater risk of depression.²³ There are at least two published randomized controlled trials and one unpublished trial that show improved depression in people who engage in 9 months of clinic-based resistance training plus aerobic exercise,²⁴ 12 sessions of Iyengar yoga,²⁵ or 12 weeks of individually preferred physical activities with the aid of a telephone coach.²⁶ We also know that people with SCI who are depressed are very interested in using exercise to improve mood. In one study, 75% said they would be willing to try exercise for depression compared to 73% to 61% who said they would be willing to try antidepressants and 67% to 51% who said they would be willing to try counseling.²⁷

Finally, it is difficult to treat depression in people with SCI. Limited access to care, nonadherence, difficulties with transportation, and the presence of multiple other medical and psychosocial comorbidities can interfere with effective treatment. Systems-level changes, whereby mental health treatment is more integrated into standard care, and telehealth approaches may be needed to improve treatment effectiveness. A group of researchers at the University of Washington, Department of Rehabilitation Medicine, tested the effectiveness of treating depression, pain, and physical inactivity in patients who attended the SCI clinic.²⁸ They used a collaborative care approach and telehealth methods to organize treatment.²⁹ Collaborative care combines systematic screening, symptom monitoring, decision support, stepped care, expert supervision of a care manager, telehealth, and treating to a target (i.e., remission).³⁰ They found that depression severity and pain interference decreased significantly in the collaborative care group compared to the usual care group at 4 and 8 months.²⁸

Case Resolution

After a total of 12 weeks on treatment and 6 weeks on venlafaxine XR 150 mg/d, the patient's shoulder pain decreased from 6/10 to 3/10 intensity and his PHQ-9 dropped to 9, which is below the cutoff for major depression but not low enough to be remitted. In a follow-up appointment, the physician explained that the goal should be to get his PHQ-9 score to below 5 because people who remit are less likely to have depression come back. The physician suggested they could increase the dose of venlafaxine XR or the patient could "talk to somebody." Per the patient's preference, he was referred to a psychologist who focused on having the patient identify and gradually resume some adapted activities that had previously been sources of meaning or enjoyment. Within 6 weeks, the patient had re-established a relationship with his favorite sibling and had gone out to dinner, a sports event, and on a short overnight trip to the coast. He said he was starting to feel somewhat "normal" again, and his PHQ-9 score had dropped

to a 6. He was advised to continue counseling and stay on the venlafaxine XR for at least 6 more months, again to prevent relapse.

Conclusion

Depression following SCI is a common, disabling comorbid condition that can be overlooked and is undertreated. Even though depression might seem to be an expected response to a catastrophic injury like SCI, depression is not "normal." Depression after SCI often has roots in preinjury adversity and mental health conditions. Standard screening instruments, like the PHQ-9, are valid in SCI and can be used to guide treatment. There is reasonable evidence that medical and psychological treatments for depression are effective in persons with SCI. Treating depression can have positive side effects, such as improved non-neuropathic pain and the perception that SCI is interfering less with life socially, at home, and at work. Structured counseling to help people resume pleasant, meaningful activities and to become more physically active also can reduce depression severity. Using a collaborative care model to systematically integrate depression care into standard outpatient care has some promise as a way to reduce depression and pain interference.

Key Take Home Points

1. Major depressive disorder is a common comorbidity in people with SCI; it is not a typical reaction to severe disability.
2. The PHQ-9 is a valid screening measure for major depression in spinal cord injury.
3. There is some evidence that antidepressants and cognitive behavioral therapy can improve depression in people with SCI.
4. Grief symptoms are distinct from depressive symptoms and do not merit treatment within the first year following SCI.

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