

Preventative Care

Psychological Factors Affecting Behavior: Depression After Brain Injury

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Who is Depressed?

A young man was taken to the emergency room after he attempted to jump out of a moving vehicle driven by his mother.

After initial evaluation in the emergency room, he was admitted to a psychiatric unit with a diagnosis of Major Depressive Disorder and suicidal ideation. After admission, it was discovered that six months earlier the young man had sustained a brain injury. He was in rehabilitation to address, among other issues, impulsivity and poor judgment.

A young woman entered a brain injury rehabilitation program shortly after sustaining an injury. Impairments noted in initial assessments included disrupted sleep patterns, fatigue, poor attention and concentration, mild memory deficits, low frustration tolerance and agitation, mild expressive language deficits, and mild right-sided weakness. The treatment plan focused on careful structuring of activities to normalize sleep patterns, providing low stimulus environments to reduce agitation, development of compensation strategies for attention and memory impairments, and exercises for motor impairments. She showed rapid improvement in physical abilities and speech. Insomnia and agitation persisted and worsened.

Depression and Brain Injury: Relationship, Incidence, and Impact

The relationship between brain injury and depression is complex and certainly not fully understood. At least three

possible relationships exist. Brain injury may directly cause development of depression by changing the delicate balance of chemicals in the brain. Brain injury may disrupt or overwhelm coping patterns, which in turn, may result in depression. Depression may develop secondarily as a reaction to experiences of loss and radical lifestyle changes resulting from brain injury.

Whatever the nature of the relationship, depression appears to be the most common psychological disorder associated with brain injury. Anxiety disorders and substance use disorders are next in frequency of occurrence. Estimates of the

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incidence of depression following brain injury vary widely, ranging from 6–77%. These estimates can be compared to the reported incidence of 5–17% in the general population. The variability in the estimated incidence of depression following brain injury is attributable to a variety of differences across studies on this topic. Studies differ from one another in

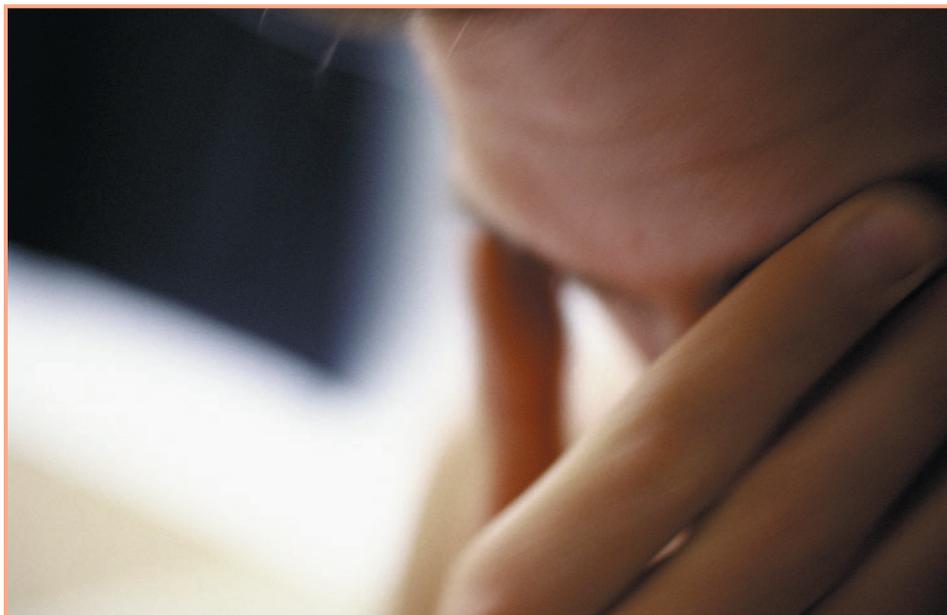
the measures used, the severity of the injuries of participants included in the sample, the length of time since injury, the types of disorders considered, and a host of other variables. While the precise incidence of depression is debatable, researchers agree that depression is a frequent concern following brain injury and an area that requires attention from both treatment and research perspectives.

Depression may occur shortly after the injury or may develop months or years later. When present, depression has a substantial impact on outcomes for persons with brain injuries.

Depression has been associated with poorer rehabilitation outcomes, greater activity limitations including reduced employment potential, and impaired social functioning. For some, depression may interfere with participation in life activities more than the cognitive and physical sequelae of brain injury. Symptoms of depression, rather than symptoms related to brain injury, may be the reason an individual seeks treatment.

Depression also takes a toll on caregivers of persons with brain injury. Caregivers often make dramatic sacrifices and changes in lifestyle to care for a loved one with a brain injury. Meeting the needs of the person with brain injury often becomes a primary focus. When the person receiving care is depressed, all of the caregiver's efforts to relieve the depression may be unsuccessful. This tends to erode the caregiver's self-esteem and increase

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feelings of inadequacy, further stressing an already taxed support system.

Given the serious implications of depression following brain injury, it is critical that appropriate actions be taken to address the disorder. The first step in this process is making a diagnosis.

Making the Diagnosis

The two examples at the beginning of this article illustrate the complexity of making an accurate diagnosis of depression following brain injury. In the first example, a diagnosis of depression was made based largely on the belief that attempting to jump out of the car was a suicide attempt. Upon further evaluation, however, it was learned that the young man's action was actually an impulsive act to avoid going to the appointment to which his mother was driving. The young man was not depressed. In the second example, a diagnosis of depression was not made initially. The impairments that were noted are common following brain injury and the rehabilitation team developed a treatment plan to address these familiar problems. The treatment program, however, did not result in the expected outcomes. Upon further evaluation, the young woman was diagnosed with Major Depression.

These misdiagnoses are not difficult to understand when you consider the overlap that exists between impairments due to brain injury and symptoms of depression. A review of the symptoms described in a commonly used depression inventory highlights this point.

Symptoms of Depression

- Sadness
- Hopelessness
- Focus on past failure
- Anhedonia (absence of pleasure or ability to experience it)
- Guilt
- Punishment
- Self-dislike
- Self-blame
- Fatigue
- Loss of interest in sex
- Diminished concentration
- Suicidal thoughts
- Crying
- Agitation
- Loss of interest in activities
- Indecisiveness
- Worthlessness
- Loss of energy
- Insomnia or excessive sleeping
- Irritability
- Decreased or increased appetite

Fatigue, loss of energy (reduced endurance), decreased or increased appetite, and insomnia or excessive sleeping may result directly from brain injury. In addition, diminished concentration, indecisiveness, agitation, and irritability are common cognitive/behavioral consequences of brain injury. Other consequences of brain injury can easily be misinterpreted as signs of depression. Problems with initiation may be misinterpreted as loss of interest in activities; emotional lability (rapidly shifting and changing emotions) may be misinterpreted as sadness or crying due to depression; flat affect may be misinterpreted as anhedonia. At least half of the symptoms of depression listed above may also be a consequence of brain injury not associated with depression. As illustrated in the example of the young woman, however, the same symptoms, when occurring concurrently with sadness and feelings of hopelessness, may indeed indicate the presence of significant depression. One might ask, how can an accurate diagnosis be made and why is diagnosis so important?

The first step in obtaining an accurate diagnosis is finding a provider that understands both brain injury (and its consequences) and the symptoms of depression. Surprisingly, many very well educated health and rehabilitation professionals do not have this dual understanding. Physicians and psychologists working in psychiatric and mental health settings often fail to ask about physical factors, including brain injury that may be important contributors to the symptom picture. Many are predisposed to assess the symptoms as psychiatric/psychological in nature. Similarly, professionals working in brain injury rehabilitation may be predisposed to interpret symptoms as consequences of brain injury. They may fail to gather information about mood, feelings of self-worth, or thoughts of self-harm that would contribute to a better understanding of the true nature of the symptoms.

Simply stated, misdiagnosis leads to ineffective treatment. Therefore, identifying professionals who understand both psychological processes and brain injury is crucial when there is a question of depression following brain injury. Unfortunately, it is not easy to find such individuals. When trying to find professionals with the necessary expertise, consider the following:

- Contact local brain injury associations for assistance in finding qualified professionals.
- In areas that do not have professionals with the necessary expertise:
 - o Travel to the nearest location that has a qualified provider;
 - o Encourage collaboration among professionals available in the community who together have the necessary expertise; or,
 - o Work closely with a professional who obtains education and/or consultation from professionals outside the local community.

The benefits of accurate diagnosis and treatment are worth the efforts required to employ professionals with the necessary expertise.

Once a qualified professional(s) is identified, accurate diagnosis involves an assessment process that incorporates information from multiple sources. Information from medical records, from feedback provided by family and friends, and from observation and interviewing of the individual with brain injury should be considered. Results of depression inventories may also be used, but must be interpreted with an understanding of how the deficits resulting from the individual's brain injury may affect the test responses. As in any assessment for depression, questions about thoughts of suicide should be included. Research

indicates that suicide among persons with brain injury is elevated relative to the general population.

Treatment

Effective treatment of depression following brain injury requires a multi-pronged approach. When a diagnosis of depression is made, there are a variety of treatment options to consider. The specific options initiated will depend on the individual's needs and cognitive abilities. For example, when memory or abstract reasoning is impaired, "talking therapy" may not be appropriate, but structured behavioral therapy may be effective. The most appropriate treatment approach is determined during the assessment process and is modified as the individual progresses. Education, medication, counseling, skill development, and support may all be components of an effective treatment regime.

become overwhelming. Relationships suffer because there isn't an understanding of why the person behaves or responds differently.

Education about the consequences of brain injury provides both the person with brain injury and those close to him/her a framework for understanding the changes. This alone often results in great relief and a reduction in relationship conflicts. The enhanced understanding that comes from education also promotes modification of expectations that, in turn, further reduces the stress placed on relationships as a result of brain injury. In addition, understanding the consequences of brain injury lays the groundwork for actively engaging in the rehabilitation process.

Signs of Depression

- Depressed mood
- Markedly diminished interest or pleasure in all or almost all activities
- Significant weight loss or weight gain when not dieting or decrease or increase in appetite
- Insomnia or excessive sleeping
- Psychomotor agitation (excessive motor activity associated with a feeling of inner tension) or retardation (generalized slowing of physical reactions, movement, or speech)
- Fatigue or loss of energy
- Feelings of worthlessness or excessive or inappropriate guilt
- Diminished ability to think or concentrate or indecisiveness
- Recurrent thoughts of death, recurrent suicidal ideation, or a suicide attempt

Diagnosis of Major Depression requires at least five of these symptoms (one being either depressed mood or loss of interest or pleasure) persisting for two weeks.

Diagnostic and Statistical Manual of Mental Disorders (4th ed.). (1994). Washington, DC: American Psychiatric Association.

Education

Too often, people sustain brain injuries but are given minimal information about their injury and the functional consequences of their injury. Without this information, the changes they experience are frightening and may quickly

Because the ability to absorb and apply information changes across time, persons with brain injury and their families need to receive brain injury education soon after the injury and periodically at points after injury. Information given early on may have new meaning when reviewed

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later in the rehabilitation process. Education should include information about basic brain functioning, the impact of injury, and the physical, cognitive, behavioral, and social consequences associated with injury.

Education about the causes and symptoms of depression is equally important when depressive symptoms arise. Failure to recognize and understand the impact depression has on an individual may result in self-degradation and blaming, creating a downward spiraling cycle. Providing education about the biological, psychological, and social aspects of depression and treatment options can interrupt this negative cycle and promote a willingness to obtain treatment.

The value and importance of education should not be underestimated. Education provides the basis for understanding behavior and enhances the ability to make decisions about treatment and care.



Medication

Antidepressant medications are often prescribed for the treatment of depression. The antidepressants most commonly prescribed for persons with brain injury are in a class known as selective serotonin reuptake inhibitors (SSRI's). Included in this class are medications such as fluoxetine (Prozac), sertraline (Zoloft), and paroxetine (Paxil). These medications have a low incidence of side effects and often are highly effective in relieving depression and lethargy. They, however, may cause increased agitation in persons with brain injury who have severe cognitive impairments. If the SSRI's are poorly tolerated or ineffective, tricyclic antidepressants such as Elavil or Pamelor, or atypical antidepressants such as Wellbutrin may be tried. For additional information about antidepressant medications refer to "Medications and Behavior" in this issue of *Premier Outlook*.

The effects of all medications prescribed to persons with brain injury must be closely monitored. This is especially true of psychoactive medications including antidepressants. There may be a need for a change in medications or dosages due to side effects or as the person progresses through different stages of recovery. Regular contact with the prescribing physician is a critical aspect of care. Reporting to the physician any effects noted after initiation of a new medication or after making changes in medication will help ensure that the person receives the right medication and dosage. Without this information the physician cannot provide the most appropriate course of treatment.

Therapy/Counseling

Therapy is another component of treatment for depression. Therapy may take on a variety of forms: individual therapy, group therapy, or family/relationship therapy. Persons with educational backgrounds in psychology, social work, theology, marriage and family counseling,

rehabilitation counseling and other disciplines may provide these services. Just as with diagnosis, it is important for the person providing therapy to have a good understanding of neurological dysfunction, as well as the biological, psychological, and social aspects of depression. Knowledge of brain injury and its consequences provides a foundation for understanding the unique challenges the individual in therapy is confronting.

Individual Therapy—Individual therapy involves one-to-one meetings, usually once a week. The focus of the sessions is on helping the individual with brain injury adjust to the changes brought about due to the brain injury, modify maladaptive behavior patterns, and learn new coping strategies. Individual therapy may be provided at mental health clinics, hospital outpatient programs, rehabilitation programs, or private practice offices.

Group Therapy—Group therapy involves meeting with a small group, usually five to eight individuals. Often the individuals have some problem/situation in common. A therapist facilitates the group process. The group offers opportunities to share common experiences, learn from others' experiences, and receive feedback from members of the group. This feedback can be very meaningful, as the members often have a first-hand understanding of the issues being confronted.

Family/Relationship Therapy—Brain injury affects not only the individual that is injured, but also all those involved with that individual, especially family members. Changes in roles, responsibilities, and relationships may put inordinate strain on the family. As noted above, when the person with brain injury becomes depressed, additional tension is created. The focus of

family/relationship therapy is to understand and identify ways to reduce the stress and conflicts that arise from changes in relationships and lifestyle. Family/relationship therapy may include all members of the family or specific individuals.

Skill Development

Sometimes depression develops following brain injury because the individual simply does not have the skills to manage new challenges. Development of new skills or enhancing existing skills can reduce the feelings of helplessness that may contribute to depression.

Compensation Devices

and Strategies—Identifying and learning to use devices and strategies to compensate for impairments resulting from brain injury are a critical part of effective treatment.

It is important for the person with brain injury to understand that almost everyone uses compensatory devices. The proliferation of personal data assistants (PDA's) is a great example of this. Identification and effective use of appropriate compensatory devices and strategies can increase an individual's sense of control and in turn improve mood.

Social Skills—Impulsivity, decreased ability to recognize subtle cues, irritability, decreased spontaneity, egocentricism, and a range of other behavioral and cognitive impairments that may occur following injury to the brain negatively impact social relationships. Social isolation is one of the most common concerns expressed by persons with brain injury and a contributing factor in development of depression. Social skills training can be an important component in combating isolation. Social skills training may occur as a part of individual or group therapy or may be the sole focus of a group or class.

Coping Skills—Coping skills are often impaired or overwhelmed following brain injury. Development of new skills is essential. Anger management and stress management are two areas that often need to be addressed. Training may include basic strategies such as getting proper nutrition, exercise, and rest, to more elaborate techniques such as structured relaxation programs, Tai Chi, or other forms of meditation. These skills may be taught within a therapy context or through classes offered at local colleges or recreation centers.

Support

As noted above, social isolation is a major concern for persons following brain injury and a contributor to the development of depression. The importance of social support in combating depression should not be underestimated. Support may take on a variety of forms, each providing unique benefits.

Friends and Family—The support network of friends and family is probably the most critical and the most strained following injury. Persons with brain injury often find that old friends drop away after the injury and new friendships have to be forged. Development of new friendships requires focused effort. Efforts must include developing a broad range of interests, identifying places to meet people with similar interests, and persisting when initial efforts aren't productive. Often, expectations must be modified. Social skills training described above may also be an important part of developing new relationships.

Support Groups—Support groups offer opportunities to share stories, learn from others, practice social skills, and develop relationships. There are support groups for all sorts of issues. State and local brain injury associations or organizations

usually offer support groups for persons with brain injury and/or their families. There are support groups for persons experiencing depression, for persons seeking employment, for persons with physical impairments, and for persons starting college. The list is almost endless. One may need to visit several support groups to find one that is right for him/her. The goal is to find a group in which one is comfortable sharing, receiving feedback, and giving and receiving support.

Spiritual Support—For many, support, guidance, and counseling about spiritual issues is an essential part of coping with brain injury and addressing symptoms of depression. This support may come from individual meetings with a member of the clergy, from attending worship services, or from participating in discussion groups that focus on issues of spirituality.

Participation in Planned

Activities—Participation in planned activities provides structure for a person with a brain injury and offers opportunities for development of friendships. Activities that involve physical activity may be particularly important for combating depression. Engaging in volunteer projects may enhance self-esteem. No matter what the activity, whether it is participating on a baseball team or volunteering at the hospital gift shop, becoming involved can have a positive impact on mood.

The most effective treatment for depression following brain injury is dependent on the individual. Treatment almost always involves a combination of approaches and the most effective combination will change over the course of treatment.

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Conclusion

Depression is a common problem following brain injury. Unrecognized or untreated, it can have devastating effects on an individual's outcome and quality of life. It is critical that persons with brain injury, family members/support persons, and rehabilitation professionals become familiar with the signs and symptoms of depression and ensure that necessary action is taken when symptoms develop. Depressive symptoms may occur soon after an injury or develop months or years later. Depression, however, does not have to persist. Effective treatment is available.



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