

How Tumors Affect the Mind, Emotion and Personality



Many brain tumor patients face changes in memory, thinking, or emotions since the diagnosis of a tumor or its treatment. In fact, studies have documented cognitive impairments in as many as sixty to ninety percent of patients with brain tumors. While the goal of survival remains a critical one, the post-treatment quality of survivors' brain functioning is gaining increased attention.

Often, people with brain tumors are quite aware of changes in the way they feel, think, remember and act. These changes may be so subtle that patients themselves are more aware of their difficulties than those around them. Other times, it is the caregiver who first perceives differences. Occasionally, patients are rather unaware of their difficulties although changes are apparent to those around them. Some caregivers have said, "I took one person into surgery and came out with another."

What causes changes in brain functioning?

A number of factors contribute to changes in brain functioning. Factors associated with the tumor itself include the location, size, and how fast the tumor grows. There is a tendency for patients with brain tumors to develop particular difficulties related to the area of the brain affected by the tumor. However, the relationship between the tumor area and brain functions affected is much more complex. In part, this is because pathways from the tumor area to other areas of the brain may be disrupted as well. Also, treatments for the tumor can produce changes as severe as the tumor itself. For instance, radiation is known to place patients at greater risk for more severe and widespread cognitive problems. The combination of these

factors can result in a very complex and individual pattern of neurobehavioral deficits. It is often impossible to separate or predict the effects of the tumor itself, the surgery, radiation treatment, immunotherapy, and chemotherapy.

What functions are affected after a brain tumor diagnosis?

There is no single pattern of neurobehavioral changes following a brain tumor diagnosis. Patients may experience any combination of changes, and even patients with similar tumors may have quite different experiences. Some common functions include:

- **Language:** Patients may demonstrate difficulty expressing themselves, understanding spoken language, or writing. The most common difficulties are word-finding and word fluency problems. The word may be on the "tip of the tongue" but the patient is unable to retrieve the word on command.
- **Attention and Concentration:** Patients often complain of becoming distracted more easily or losing concentration, even when things are of interest.
- **Learning and Memory:** Most patients experience some short-term memory loss. While old memories are retained, new information is difficult to learn and remember.
- **General Cognitive Abilities:** Sometimes general intellectual abilities are affected. One frequent complaint is slower thinking speed. This may result in work and home projects taking much longer than before the onset of the tumor.
- **Executive Functioning:** Patients with frontal tumors and other large tumors often experience difficulty with problem solving, judgment, flexibility in thinking, and multi-tasking. Patients may maintain general intellectual abilities, but they may feel that thinking is effortful and less efficient.

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- **Emotion and Personality:** These are probably the most difficult changes for both the patient and family, and the ones most often overlooked by professionals even though they occur in approximately half of patients. While depression is particularly common, changes can also include irritability, anxiety, apathy, euphoria, and sudden mood changes. Behavioral and personality changes may also occur, ranging from exaggeration of previous characteristics to appearance of very different traits. Some patients and their families report new behaviors such as obsessive compulsive tendencies, disinhibition, withdrawal, or changes in sexual interest.

How are functions of the brain evaluated?

To evaluate changes in brain function, physicians and patients often consult with a clinical neuropsychologist, a licensed psychologist specializing in how the brain functions and the impact of brain trauma on a person's abilities.

Neuropsychologists often evaluate functioning of individuals who have suffered some type of injury to the brain, whether it be a result of a traumatic brain injury, a stroke, or a brain tumor. Neuropsychologists often work with brain tumor patients to determine how particular brain functions might have been affected as a result of the tumor and its treatments. Neuropsychologists also examine functions that have not been interrupted and cognitive strengths that may help the patient to adapt.

This assessment is referred to as a neuropsychological evaluation. During the assessment, a variety of pencil and paper, computer, and other noninvasive tests are used to evaluate functions of the brain. Many times, an initial (baseline) evaluation is done so that changes, both improvements and declines, can be monitored with follow-up evaluations. The assessment also helps to determine whether treatment, in the form of cognitive rehabilitation or psychotherapy, may be useful.

Are there treatments to improve brain functioning?

Cognitive rehabilitation is a treatment designed to help patients regain abilities or compensate for cognitive or behavioral changes. Sessions are often combined with counseling to help patients adjust to differences resulting from the tumor. In addition to receiving treatment for cognitive and memory difficulties, patients may also be seen for emotional and personality changes, including

disinhibition, frustration tolerance, and frequent mood changes. When abilities are difficult to recover, patients may learn compensation techniques (i.e. keeping a notebook with reminders to remember appointments, errands, and conversations). Sometimes, sessions are held to teach a patient's family how to modify the environment to help their loved one work around deficits. Vocational rehabilitation (provided through the State Department), job coaches in the work setting, and individual psychotherapy have also been shown to be helpful.

How can I get help?

Contact your physician for a referral to a neuropsychologist. Many university affiliated hospitals have neuropsychologists on their staff. Some neuropsychologists are trained in both evaluation and cognitive rehabilitation or psychotherapy, however most are only trained in evaluation. If possible, try to find a neuropsychologist who has experience in working specifically with brain tumor patients. People with brain tumors show different patterns and progressions than other patients affected by neurologic conditions such as stroke or head trauma.

Within every person, there exists a very unique mind with a special set of strengths and weaknesses. The goal of evaluation and treatment should be to identify these strengths and weaknesses and to monitor changes over the course of time. No evaluation is complete without a plan for treatment aimed at regaining as much function as possible and training in compensation techniques for those abilities which cannot be fully regained.

Adapted from a previous version by S. Portman.

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