

Neuropsychologists inform treatment and follow-up care for individuals with brain tumors

An Interview with Michael W. Parsons, Ph.D., ABPP

Neuropsychologists play an important and unique role in the evaluation and treatment recommendations for patients with brain tumors, according to Dr. Michael W. Parsons, a faculty member of Harvard Medical School/Massachusetts General Hospital in the Pappas Neuro-Oncology Center and Department of Psychiatry. A neuropsychologist's involvement can occur at different stages of the patient's process from initial evaluation and identification of deficits, which can have a bearing on surgical decision making, to follow-up evaluation and consultation after the completion of treatment, which may take on more of a rehabilitation model to help patients cope with changes and make daily life decisions.

According to Dr. Parsons, neuropsychologists "are perfectly positioned" to help patients and team members with guiding the individualized decision-making process, considering the complexities of the patient's presentation and weighing factors including surgical approach, life expectancy, expected treatment efficacy, cognitive and behavioral outcomes, and quality of life, which can vary widely based on tumor location and individual and cognitive factors.

"Understanding the specifics of the brain tumor diagnosis, which has to do with genetic variants, WHO diagnostic criteria, and a number of demographic characteristics of the individual, is the first step in understanding what this individual is likely to experience and what my role is in their care," according to Dr. Parsons. There are numerous factors to consider including the modality of treatment, that have widely varying cognitive consequences.

In a recent book chapter, "The Physicians Field Guide to Neuropsychology Collaboration through Case Example Neurosurgery for Meningioma" Dr. Parsons and his co-authors describe the challenges patients face with meningiomas that impact the frontal lobes. Meningiomas, which most commonly are slow growing tumors that do not tend to invade brain tissue, have a predilection for the orbital groove which can impact function through brain tissue compression and edema. The presentation can appear more behavioral and mimic that which we see with behavioral variant FTD. However, given that it is less likely to impact the dorsolateral prefrontal cortex and connections to the basal ganglia, neuropsychologists are less likely to observe the impairments in working memory, attention, or memory encoding that are more typical in FTD. Dr. Parsons adds that the history and neurobehavioral presentation in these cases may provide more information than the psychometric testing. Early imaging can be imperative to early detection and once the mass is removed and compression ameliorated, behavior can revert to a normal state.

Dr. Parsons says that he has been struck by the resilience of many of the brain tumor patients, which contributes to a rewarding and key aspect of his job. People with premorbid mental health conditions may have exacerbations of their symptoms with their diagnosis and addressing their mental health along with the brain tumor treatment is necessary for a patient's overall quality of life.

Treatment for non-central nervous system (non-CNS) cancers, such as radiation, hormone therapies, or chemotherapies also can have cognitive effects, albeit these may be milder. There is a subset of individuals, however, who develop much more significant cognitive decline following treatment, which has researchers interested in understanding if the cancer treatment itself has somehow accelerated an underlying process. Studies are looking at biomarkers, such as APOE, to understand this risk, but again, the findings have been mixed. Researchers seek to understand whether biomarkers, such as functional imaging, genetic variables, and neurodegenerative risk factors can help us understand these different patient trajectories.

For more information about Dr. Parsons research and clinical interests, follow the link to listen to his interview with Dr. Pamela Dean [[LINK](#)]