Diffuse low-grade gliomas and neuroplasticity.

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Abstract

The traditional approach in neuro-oncology is to study the tumor in great detail and ultimately give little consideration to the brain itself. Choosing the best treatment strategy for each patient with a diffuse low-grade glioma, in other words optimizing the oncologic and functional balance, implies not only a full knowledge of the natural history of this chronic disease, but also an understanding of the adaptation of the brain in response to growth and spread of the glioma. The aim of this review is to examine the mechanisms underlying this neuroplasticity, allowing functional compensation when the tumor progresses, and opening the way to new treatments with the principle of shifting towards "functional personalized neuro-oncology", improving both median survival and quality of life.

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KEYWORDS: Awake brain surgery; Connectivity; Diffuse low-grade glioma; Functional mapping; Neuroplasticity

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