Insights From Molecular Profiling of Adult Glioma.

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Abstract
The comprehensive molecular profiling of cancer has resulted in new insights into the biology and classification of numerous tumor types. In the case of primary brain tumors that commonly affect adults, an emerging set of disease-defining biomarker sets is reshaping existing diagnostic entities that had previously been defined on the basis of their microscopic appearance. Substantial progress has been made in this regard for common primary brain tumors in adults, especially diffuse gliomas, where large-scale profiling efforts have led to the incorporation of highly prevalent molecular alterations that promote a biologically based classification as an adjunct to the traditional histopathologic approach. The growing awareness that histologically indistinguishable tumors can be divided into more precise and biologically relevant subgroups has demanded a more global routine approach to biomarker assessment. These considerations have begun to intersect with the decreasing costs and availability of genome-wide analysis tools and, thus, incorporation into routine practice. We review how molecular profiling already has led to an evolution in the classification of brain tumors. In addition, we discuss the likely trajectory of incorporation of global molecular profiling platforms into the routine clinical classification of adult brain tumors.

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