A clinical perspective on the 2016 WHO brain tumor classification and routine molecular diagnostics.

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Abstract
The 2007 World Health Organization (WHO) classification of brain tumors did not use molecular abnormalities as diagnostic criteria. Studies have shown that genotyping allows a better prognostic classification of diffuse glioma with improved treatment selection. This has resulted in a major revision of the WHO classification, which is now for adult diffuse glioma centered around isocitrate dehydrogenase (IDH) and 1p/19q diagnostics. This revised classification is reviewed with a focus on adult brain tumors, and includes a recommendation of genes of which routine testing is clinically useful. Apart from assessment of IDH mutational status including sequencing of R132H-immunohistochemistry negative cases and testing for 1p/19q, several other markers can be considered for routine testing, including assessment of copy number alterations of chromosome 7 and 10 and of TERT promoter, BRAF, and H3F3A mutations. For "glioblastoma, IDH mutated" the term "astrocytoma grade IV" could be considered. It should be considered to treat IDH wild-type grades II and III diffuse glioma with polysomy of chromosome 7 and loss of 10q as glioblastoma. New developments must be more quickly translated into further revised diagnostic categories. Quality control and rapid integration of molecular findings into the final diagnosis and the communication of the final diagnosis to clinicians require systematic attention.

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