

ABSTRACT

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How to treat histone 3 altered gliomas: molecular landscape and therapeutic developments.

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INTRODUCTION: Diffuse midline gliomas (DMG) and diffuse hemispheric glioma (DHG) are both rare tumors characterized and recognized for specific alterations of histone 3 including H3K27 (DMG) and H3G34 (DHG). Despite these tumors arising from alterations of the same gene their clinical, radiological, and molecular behaviors strongly diverge, requiring a personalized therapeutic approach.

AREAS COVERED: We performed a review on Medline/PubMed aiming to search papers relative to prospective trials, retrospective studies, case series, and case reports of interest in order to investigate current knowledge toward the main clinical and molecular characteristics, radiology, and diagnosis, loco-regional and systemic treatments of these tumors. Moreover, we also evaluated the novel treatments under investigation.

EXPERT OPINION: Thanks to an increased knowledge of the genomic landscape of these rare tumors, there are novels promising therapeutic targets for these malignancies. However, the majority of available trials allowed enrollment only in DMG, while few studies are focused on or allow the inclusion of DHG patients.

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