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# Advances in pediatric gliomas: from molecular characterization to personalized treatments

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## Abstract

Pediatric gliomas, consisting of both pediatric low-grade (pLGG) and high-grade gliomas (pHGG), are the most frequently occurring brain tumors in children. Over the last decade, several milestone advancements in treatments have been achieved as a result of stronger understanding of the molecular biology behind these tumors. This review provides an overview of pLGG and pHGG highlighting their clinical presentation, molecular characteristics, and latest advancements in therapeutic treatments. Conclusion: The increasing understanding of the molecular biology characterizing pediatric low and high grade gliomas has revolutionized treatment options for these patients, especially in pLGG. The implementation of next generation sequencing techniques for these tumors is crucial in obtaining less toxic and more efficacious treatments. What is Known: • Pediatric Gliomas are the most common brain tumour in children. They are responsible for significant morbidity and mortality in this population. What is New: • Over the last two decades, there has been a significant increase in our global understanding of the molecular background of pediatric low and high grade gliomas. • The implementation of next generation sequencing techniques for these tumors is crucial in obtaining less toxic and more efficacious treatments, with the ultimate goal of improving both the survival and the quality of life of these patients.

**Keywords:** Molecular characterization; Pediatric gliomas; Targeted therapies.

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