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Promises of oncolytic viral therapy for adult and children with brain glioma

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Abstract

Purpose of review: The purpose of this review is to give an overview of early clinical studies addressing the safety and efficacy of oncolytic immunovirotherapy in adults and children with brain gliomas, and to highlight the extensive potential for the development of this therapeutic alternative.

Recent findings: The lack of curative treatments and poor prognosis of high-grade glioma patients warrants research on innovative therapeutic alternatives such as oncolytic immunovirotherapy. Engineered modified oncolytic viruses exert both a direct lytic effect on tumor cells and a specific antitumor immune response. Early clinical trials of different DNA and RNA oncolytic viruses, mainly Herpes Simplex Virus Type-1 and adenovirus based platforms, have consistently demonstrated an acceptable safety profile, hints of efficacy and the potential of this therapy to reshape the tumor microenvironment in both adult and pediatric patients with glioma, thus constituting the basis for the development of more advanced clinical trials.

Summary: The future landscape of oncolytic immunovirotherapy is still plenty of challenges and opportunities to enable its full therapeutic potential in both adult and children with brain gliomas.

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