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Diffuse intrinsic pontine glioma and CAR-T therapy: An Emerging Frontier

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Abstract

This study explores the integration of chimeric antigen receptor T-cell (CAR-T) therapy with convection enhanced delivery (CED) as a novel approach for treating diffuse intrinsic pontine glioma (DIPG), a highly aggressive pediatric brain tumor with limited treatment options. Preliminary clinical results indicate that CED improves CAR-T cell distribution within the tumor microenvironment, leading to promising anti-tumor responses. However, challenges such as catheter-related complications and potential on-target/off-tumor toxicity remain. Ongoing research is essential to optimize these strategies and address ethical considerations surrounding patient safety and equitable access to innovative therapies. The aim is to assess the safety, efficacy, and distribution of CAR-T cells delivered directly to the tumor site via CED, thereby enhancing therapeutic outcomes while minimizing systemic side effects.

Keywords: CAR-T; CED; paediatric tumor; pontine glioma.