

ABSTRACT

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Efficacy and safety of tumor-treating fields in recurrent glioblastoma: a systematic review and meta-analysis.

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BACKGROUND: Tumor-treating fields (TTF) is a novel cancer treatment that uses alternating electric fields to interfere with tumor cell mitosis. It has been approved by the U.S. food and drug administration for the treatment of recurrent glioblastoma (rGBM). We designed this meta-analysis to evaluate the efficacy and safety of TTF in the treatment of rGBM.

METHODS: The study was based on the PRISMA guideline. Systematic retrieval was performed in PubMed, Cochrane Library, and Embase databases. The outcomes were overall survival (OS) hazard ratio (HR), 1-year survival rate, and cutaneous toxicity.

RESULTS: These studies included a total of 1048 rGBM patients who received TTF treatment. The overall survival time between the TTF group and the control group was HR 0.75 ([95%CI 0.63 to 0.89]; P = 0.001). Pooled 1-year overall survival rate and incidence of cutaneous toxicity were 0.47 and 0.48, respectively. Data were insufficient to evaluate the effect of MGMT methylation status and tumor recurrence times on heterogeneity.

CONCLUSIONS: TTF therapy is effective for recurrent glioblastoma. However, most relevant trials should assess rGBM patient baseline characteristics such as age, KPS, MGMT methylation status, and number of tumor recurrence,. In addition, the risk of rashes caused by long-term wearing of devices should also be considered.

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