The role of intra-arterial chemotherapy as an adjuvant treatment for glioblastoma.


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Abstract

Glioblastoma multiforme (GBM) is an aggressive tumor with poor survival outcomes and limited treatment options. We conducted a literature review to compare the survival outcomes of intra-arterial (IA) and intravenous (IV) chemotherapy delivery for GBM. Nine studies of IA chemotherapy infusion with 301 total patients met our criteria for inclusion and three studies contained IV treatment groups for comparison (n = 230 for IA, n = 71 for IV). The studies were grouped by either using newly diagnosed or recurrent GBM patients. In the newly diagnosed group, IV chemotherapy produced a statistically higher median overall survival (MOS; 16.3 months) compared with IA treatment (14.02 months). However, the total number of adverse events in IA chemotherapy was 1.08 per patient whereas for IV it was higher at 1.54 events per patient. Our recurrent GBM group includes only patients treated with IA chemotherapy which resulted in an average MOS of 10.84 months. This group had 2.7 adverse events per patient but no IV group is available for comparison. Historically, the survival of patients with recurrent GBM ranges from 3 to 9 months (Gil-Gil et al. Bevacizumab for the treatment of glioblastoma. Clin Med Insights Oncol 2013;7:123-35). For this reason, we believe IA chemotherapy to be a viable methodology in recurrent GBM patients to prolong survival at the risk of procedure-related complications and in newly diagnosed patients with the benefit of decreased complications.

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