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BCNU for recurrent glioblastoma multiforme: efficacy, toxicity and prognostic factors.

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BACKGROUND: The prognosis for patients with recurrent glioblastoma is still poor with a median survival between 3 and 6 months. Reports about the application of carmustine (BCNU), one of the standard chemotherapeutic drugs in the treatment of newly diagnosed glioblastoma, in the recurrent situation are rare. **METHODS:** We performed a retrospective analysis of 35 patients with recurrent or progressive glioblastoma treated with 80 mg/m² BCNU on days 1 on 3 intravenously at our department for efficacy, toxicity and prognostic factors. Progression free survival and overall survival were estimated by the Kaplan-Meier method. The influence of age, Karnofsky performance status (KPS), tumor burden, pretreatment with temozolomide (TMZ), type of surgery for initial diagnosis and number of previous relapses on outcome was analyzed in a proportional hazards regression model. **RESULTS:** The median age of the group was 53 years, median KPS was 70. Median progression free survival was 11 weeks (95% confidence interval [CI]: 8-15), median overall survival 22 weeks (95% CI: 18-27). The rate of adverse events, especially hematological toxicity, is relatively high, and in 3 patients treatment had to be terminated due to adverse events (one pulmonary embolism, one pulmonary fibrosis, and one severe bone marrow suppression). No influence of age, KPS, tumor burden, pre-treatment with TMZ and number of previous relapses on outcome could be demonstrated, while gross total resection prior to recurrence showed a borderline statistically significant negative impact on PFS and OS. These data compare well with historical survival figures. However prospective randomized studies are needed to evaluate BCNU efficacy against newer drugs like bevacizumab or the intensified temozolomide regime (one week on/one week off). **CONCLUSION:** In summary, BCNU treatment appears to be a valuable therapeutic option for recurrent glioblastomas, where no other validated radio- and/or chemotherapy are available.

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