Validation of the prognostic Heidelberg re-irradiation score in an independent mono-institutional patient cohort.

Abstract:
Re-irradiation has been shown to be a valid option with proven efficacy for recurrent high-grade glioma patients. Overall, up to now it is unclear which patients might be optimal candidates for a second course of irradiation. A recently reported prognostic score developed by Combs et al. may guide treatment decisions and thus, our mono-institutional cohort served as validation set to test its relevance for clinical practice. The prognostic score is built upon histology, age (= 50 years) and the time between initial radiotherapy and re-irradiation (12 months). This score was initially introduced to distinguish patients with excellent (0 points), good (1 point), moderate (2 points) and poor (3-4 points) post-recurrence survival (PRS) after re-irradiation. Median prescribed radiation dose during re-treatment of recurrent malignant glioma was 36 Gy in 2 Gy single fractions. A substantial part of the patients was additionally treated with bevacizumab (10 mg/kg intravenously at d1 and d15 during re-irradiation). 88 patients (initially 61 WHO IV, 20 WHO III, 7 WHO II) re-irradiated in a single institution were retrospectively analyzed. Median follow-up was 30 months and median PRS of the entire patient cohort 7 months. Seventy-one patients (80.7%) received bevacizumab. PRS was significantly increased in patients receiving bevacizumab (8 vs. 6 months, p = 0.027, log-rank test). KPS, age, MGMT methylation status,
sex, WHO grade and the Heidelberg score showed no statistically significant influence on neither PR-PFS nor PRS. In our cohort which was mainly treated with bevacizumab the usefulness of the Heidelberg score could not be confirmed probably due to treatment heterogeneity; it can be speculated that larger multicentric data collections are needed to derive a more reliable score.