P17.05. MAGIC MIRROR ON THE WALL, WHICH IS THE SHARPEST ONE OF ALL? EXTERNAL VALIDATION AND COMPARISON OF THREE DIFFERENT SCORES PREDICTING SURVIVAL AFTER REIRRADIATION OF PROGRESSIVE HIGH-GRADE GLIOMAS

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BACKGROUND: Accurate predictive scores for the survival after salvage-treatment which are based on simple clinical parameters would be beneficial for the management of progressive high-grade gliomas (HGG). However, such scores should not enter clinical practice unless being validated with an independent dataset. Universal validity of a prognostic score is reflected by its capability to discriminate between different prognostic groups and good calibration. PATIENTS AND METHODS: Focusing on reirradiation, we assessed three different prognostic scores suggested by Combs et al., 2013 (Score A), De Vleeschouwer et al., 2012 (Score B) and Carson et al., 2007 (Score C). The scores were based on the following clinical parameters: Score A: age, time between initial radiotherapy and reirradiation and WHO grading; Score B: age, karnofsky performance score, WHO grading and minimal mental score; Score C: KPS, age, tumor location, use of steroids and WHO grading. Validation was performed with an independent dataset containing 175 HGG patients from 4 different institutions in Germany, Switzerland and the Netherlands, who all underwent a second course of radiotherapy at disease progression. Discrimination was checked by visual comparison of the respective Kaplan-Meier plots and by calculating the hazard ratios of the better prognostic groups in relation to the worst prognostic group defined by each score. Calibration was assessed generating calibration curves and prediction error curves. RESULTS: Median survival in the validation cohort was 9.2 ± 0.2 months from the start of reirradiation. Each score discriminated well between at least 3 different prognostic groups (good - intermediate - poor). However, scores A and B overestimated survival in the intermediate group, whereas score C tended to underestimate survival in the case of poor prognosis. Score A was most accurate in predicting an individual patient’s short-term prognosis (<10 months). For long-term prognosis (>10 months) score B should be preferred. CONCLUSIONS: We conducted a validation study to assess discrimination and calibration of 3 different prognostic models predicting survival after reirradiation of progressive high-grade gliomas on an independent dataset. Each score serves its purpose, with score A being easiest to handle. Differences in performance are marginal and depend on the explicit question.