129P Outcomes and prognostic factors in re-irradiation of intracranial gliomas: Single institution experience

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Background: The treatment options for recurrent gliomas are limited. Re-irradiation is being increasingly considered as an option, in view of the advances in treatment techniques, the ability to document doses and overlay plans. However, there is lack of data on outcomes, cumulative doses and prognostic factors in re-irradiation of gliomas. This study attempts to collate a single institutions' data on re-irradiation of gliomas.

Methods: This is a retrospective analysis of outcomes and prognostic factors in re-irradiation of intracranial gliomas. All patients of gliomas who received re-irradiation between January 2012 to January 2017 were included. Medical records were evaluated to collect data on outcomes of 22 patients treated in a single institution. Survival curve was estimated using Kaplan maier method. Pearsons correlation co-efficient was used to identify factors correlating with better survival.

Results: Median age of patients undergoing re-irradiation was 45yrs (8-66yrs), of which 59% were female, 41% male. The histopathological diagnosis at initial radiation was predominantly grade2 (50%) and grade 3 (31.8%), only 18.1% were glioblastomas. However, at the time of re-irradiation, most common diagnosis was grade 3 glioma (40.9%). Glioblastomas were 36.3%, grade 2 gliomas were 18.1% and 4.5% did not undergo biopsy or surgery at recurrence. Median cumulative dose in 2Gy equivalent – NTD (Normalized Total Dose) was 108Gy (94Gy – 120Gy). Re-irradiation was delivered at standard fractionation in all except one patient, who received hypofractionated dose of 3.5Gy per fraction. Median time interval between the two courses of radiation was 38 months (12-360 months). All patients received IMRT, image guidance. Median re-irradiation volume was 405cc. ROC curve was generated, which showed thatcummulative dose of 115Gy and above was associated with better survival. There were no reported cases of symptomatic brainnecrosis. Median survival was 24 months following re-irradiation. Among the various prognostic factors tested, tumor volume at the time of re-irradiation was the only factor which correlated with survival.

Conclusions: Re-irradiation of gliomas should be considered a valid option in select cases, particularly in small volume recurrences. IMRT with image guidance with conventional fractionation upto total cumulative dose of 115Gy can be considered safe.

Legal entity responsible for the study: Department of Radiation Oncology, Apollo Cancer Institute, Hyderabad

Funding: None

Disclosure: All authors have declared no conflicts of interest.