DIPG-34. IDENTIFICATION OF CAR-T CELL ENHANCING ABSTRACT CITATION ID: NOAE064.087

BACKGROUND: Diffuse intrinsic pontine glioma (DIPG) is an aggressive infiltrative glioma with dismal prognosis. Radiation therapy (RT) offers a transient benefit and re-irradiation (re-RT) may be an option at disease progression. OBJECTIVE: To evaluate the outcome of patients with DIPG at progression in a single institution. METHODS: Between 2010-2023, 55 patients were evaluated, retrospectively, in respect of their treatment—one RT course versus re-RT) and concomitant medications. Overall survival (OS) was measured from diagnosis to date of death and from re-RT to death using Kaplan–Meier and log-rank test. RESULTS: Median age was 7.1 years (range 2.9–16.2y). Twenty-two patients underwent biopsy with 11 performing immunohistochemistry for H3K27M (9 mutated). In nine cases molecular analyses was evaluated: 6 H3.3K27M-mutant (2 simultaneously TP53 + 1PTPRZ1-MET fusion), 1 H3.K27M-mutant, 1 H3C2-mutant + ACRV1 mutation and 1 PDGFRα + KIT amplifications. Thirty-five patients completed the initial course of RT (54Gy-13–33 daily fraction), 30/35 also received valproic acid (VA), 5/35 bevacizumab, 3/35 nimotuzumab and 1/35 nivolumab+ipilimumab. Twenty patients underwent re-RT at first progression, four with 54 Gy (30x 180Gy), nine with 50Gy (25x 200Gy) and seven with median dose of 50Gy (26-39Gy), depending on their clinical status. These group also received valproic acid/8(20), bevacizumab/8(20), nimotuzumab/1(20) and ONC. 201(120). Patients who received re-RT showed prolonged OS compared to no reRT (median 524 vs 351 days; p=0.013). ReRT was well tolerated with 13(75%) patients experiencing stable to improved neurologic function. Patients with better clinical status and 50-54Gy reRT doses, showed prolonged OS (median 238 vs 135 days; p=0.1). Median OS from re-RT to death was 174 days (range, 14-218 days) with eight patients alive to date.

CONCLUSIONS: Re-irradiation with 50-54Gy seems safe and feasible for DIPG patients after disease progression from the first treatment, with mostly patients experiencing neurologic improvement and prolonged life period.