of scalp-sparing radiation with concurrent TTFields. METHODS: This is a single-arm pilot study (clinicaltrials.gov Identifier: NCT03477110). Patients (age≥ 18 years) with KPS≥ 60 with newly diagnosed glioblastoma were eligible. Patients received concurrent scalp-sparing radiation (60 Gy/30 fx), standard TMZ (75 mg/m2 daily), and TTFields. Maintenance therapy included standard TMZ and TTFields continuation. Radiotherapy was delivered through TTFields arrays. Primary endpoint was safety and toxicity of concurrent TTFields with chemoradiation. RESULTS: We report the first eighteen patients on trial. Majority were male (66.7%) with median age 59 years (34 to 77). Median KPS was 90 (70–100). Median follow-up was 6.0 months (1.4 to 18.0). Twelve (66.6%) patients had unmethylated MGMT, five (27.8%) were methylated, and one patient's status was not obtained. Scalp dose constraints were achieved, with mean dose having a median value of 7.4 Gy (4.3–13.2), D20cc median 23.2 Gy (17.7–36.8), and D30cc median 20.3 Gy (14.8–33.4). Only one possible Grade 3 toxicity was observed in a patient who experienced a seizure in month six of the maintenance phase. Skin toxicity (erythema or dermatitis) was limited to Grade 1 (83.3%) or 2 (5.6%) during the concurrent phase and resolved spontaneously or responded to topical medications. Other Grade 1 events included fatigue (47.3%), cognitive impairment (31.6%), pruritis (52.6%), headache (26.3%), dizziness (15.8%), and nausea (26.3%). Other Grade 2 events included fatigue (21.1%) and headache (10.5%). Nine patients (50%) had progression, with median PFS of 7.6 months (2.2–9.6 months). CONCLUSIONS: Concurrent TTFields with scalp-sparing chemoradiation is a safe and feasible treatment option with limited toxicity. Future randomized prospective trials are warranted to define therapeutic advantages of concurrent TTFields with chemoradiation.

CTNI-22. RETROSPECTIVE ANALYSIS OF THE COMBINED TREATMENT OF VINCRISTINE, ACNU, CARBOPLATIN AND INTERFERON-B PLUS RADIOTHERAPY (VAC-FERON-R)IN PATIENTS WITH DIFFUSE ASTROCYTOMA

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OBJECTIVE: Diffuse astrocytomas are classified as WHO grade II and its median overall survival (mOS) is 10 to 11 years. The efficacy of chemoradiation in the high-risk feature has been reported. The prognosis is associated with IDH and TERT promoter (TERTp) mutations. Here, we retrospectively analyzed the patients with diffuse astrocytoma treated with vincristine, ACNU, carboplatin and interferon-β plus radiotherapy (VAC-feron-R)in our institute. PATIENTS AND METHODS: Between December 2003 to January 2016, 44 patients were diagnosed as diffuse astrocytoma with integrated diagnosis of histological and molecular analysis. The average age was 43.1 years (22–71 years). They received VAC-feron-R as initial treatment in our institute. We analyzed the IDH1/2 and the TERTp mutation using Sangar sequencing and determined the 1p/19q codeletion by the fluorescence in situ hybridization or the multiplex ligation-dependent probe amplification. RESULTS: Median follow-up period was 76.5 months, mPFS was 126 months, mOS did not reach, and 10-year survival rate was 60%. IDH status was determined in 29 patients, 9 mutant and 20 wild types. There was no significant difference in PFS and OS between the two groups. TERTp status was determined in 18 patients with IDH wild type, 6 mutant and 12 wild types. mPFS of patients with TERTp wild type did not reach, but that with TERTp mutant type was 34.5 months (p = 0.0356). CONCLUSION: Compared with previous clinical studies, VAC-feron-R showed a favorable clinical outcome in diffuse astrocytoma. The impact of TERTp status on prognosis was identified but not IDH status in this cohort.

CTNI-23. IDH1/2WT ANAPLASTIC GLIOMAS OF THE EORTC RANDOMIZED PHASE III INTERGROUP CATNON TRIAL: OVERALL SURVIVAL RELATED TO TREATMENT, MGMT STATUS AND MOLECULAR FEATURES OF GLIOBLASTOMA

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BACKGROUND: The phase III CATNON trial randomized 751 adult patients with newly diagnosed 1p/19q non-codeleted anaplastic glioma to 59.4 Gy radiotherapy +/- concurrent and/or adjuvant TMZ. Here, we present the molecular analysis of the *IDH1/2wt* subgroup, and associations between molecular characteristics and patient outcomes. METHODS: CNV data and *MGMT* promoter methylation status were assessed from EPIC methylation array data. *IDH1/2* and *H3F3A* mutation status were determined with a glioma tailored next-generation sequencing panel and *TERT* promoter mutation status using a SNaPshot assay. Overall survival (OS) was measured from date of randomization. RESULTS: Of 654 assessed tumors, 211 (32%) were *IDH1/2wt*. An *H3F3A* mutation was present in 14 tumors (*K27M*: n=10; *G34R*: n=4). Of the remaining 197 patients, 154 tumors had molecular features of glioblastoma according to cIMPACT-NOW 3 criteria ('*IDH1/2wt* astrocytomas WHO IV'), 39 tumors did not ('*IDH1/2wt* astrocytomas WHO III'), and 4 had inconclusive molecular data. *IDH1/2wt* astrocytomas WHO III patients had significantly better survival than WHO IV patients: median OS of 2.83 yrs vs 1.43 yrs respectively [log-rank test: p< 0.001]. Of the 154 *IDH1/2wt* astrocytoma WHO IV, 55 (36%) were found *MGMT* promoter methylated. *MGMT* promoter methylation was prognostic in *IDH1/2wt* astrocytomas WHO IV patients, with a median OS of 1.86 yrs for methylated vs 1.34 yrs for unmethylated [HR 1.62, p=0.006]. In the *IDH1/2wt* astrocytomas WHO IV, no effect of concurrent and/or adjuvant TMZ was observed; the HR for OS after RT with any TMZ vs RT alone was 1.31 [95% CI 0.73–2.36, p=0.4] for *MGMT* promoter methylated and 0.90 [95% CI 0.55–1.45, p=0.7] for unmethylated glioma patients. CONCLUSIONS: Our study validated the prognostic value of the cIMPACT-NOW 3 criteria. *MGMT* promoter methylation is prognostic but not predictive for outcome to TMZ treatment in this cohort of *IDH1/2wt* anaplastic gliomas with molecular features of glioblastoma.

CTNI-24. A PHASE 2 STUDY OF TRAMETINIB FOR PATIENTS WITH PEDIATRIC GLIOMA WITH ACTIVATION OF THE MAPK/ERK PATHWAY. TRAM-01

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BACKGROUND: Pediatric low-grade gliomas (PLGG) are the most frequent brain tumors in children. It is known that the majority of PLGG have activation of the MAPK/ERK pathway. METHODS: This multicenter phase II included three progressing/refractory PLGG groups: NF1 patients, KIAA1549-BRAF fusion patients and patients with other activation of the MAPK/ERK pathway (excluding V600E). Primary objective is to evaluate overall response rate after daily oral trametinib administration for 18 cycles each 28 days duration. Secondary objectives include the assessment of progression-free survival, tolerability of trametinib, serum levels of trametinib and evaluation of quality of life during treatment. RESULTS: As of June 1 2020, 37 patients have been enrolled (NF1: 7 patients, KIAA1549-BRAF fusion: 22, other: 8 (including 5 patients with FGFR1 alterations). Median age is 9.3 years (range 2.3–25.4). Median follow-up is 8.8 months (range 0–19.3). Twenty-eight patients are evaluable. Best response includes: 4 partial response (PR) (14%), 5 minor response (MR) (18%), 18 stable disease (64%), 1 progressive disease (3.5%). Median time to response is 2.8 months (range 2.4–11.3). Median duration of response is 8.0 months (range 0.6–16.8. Progression free survival at 12 months is 83.1% (95% CI 70.5–98.0%) and median progression free survival has not reached. Nine patients (24%) discontinued treatment: 3 for progressive disease, 4 adverse events (3 alanine aminotransferase increase, 1 paronychia), 2 for other reasons. CONCLUSION: Trametinib is a potentially effective targeted therapy for patients with recurrent/refractory PLGG. Overall treatment is well tolerated. This ongoing trial will continue to gather data on response rate, duration of response and safety of trametinib for PLGG.