section followed by radiation and 5 cycles of pembrolizumab stable at 5th cycle. CONCLUSION: Children with NF1 stigmata and GBM can have concurrent NF1 and LS, or CMMRD with NF1 somatic mutations. Our patients tolerated alkylating agents, despite risk for secondary malignancies as upfront therapy and at recurrence checkpoint inhibitors. Upfront therapy in GBM with mismatch repair syndrome with checkpoint inhibitors should be studied.

NFB-07. USE OF PEGYLATED INTERFERON A- 2B IN PEDIATRIC PATIENTS AFFECTED BY UNRESECTABLE PLEXIFORM NEUROFIBROMAS: MONOCENTRIC EXPERIENCE

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BACKGROUND: Neurofibromatosis type 1 (NF1) is autosomal dominant neurogenetic disorder characterized by progressive cutaneous, neurologic, skeletal, and neoplastic manifestations. Plexiform neurofibromas (PN) are one of the different types of neurofibromas that occur in these patients. Complete surgical resection is difficult due to the tumor infiltrative behavior. We evaluated pegylated interferon- α-2b (PI) in patients with unresectable progressive or symptomatic PN. METHODS: Pediatric patients (1–21 years old) affected by unresectable PN, followed at Bambino Gesù Hospital, were treated with PI. We administered PI as a weekly subcutaneous injection at a beginning dose of 1.0 mcg/kg/wk, increased to 3.0 mcg/kg/wk if well tolerated. Paracetamol (15mg/kg) was given 30 minutes prior the dose of PI and then every 4–6 hours as needed. Patients were evaluated with Magnetic Resonance Imaging (MRI) every 12 months after treatment start in case of stable disease. RESULTS: 10 patients (3 females, 7 males) were enrolled. Median age was 12 years old. The median duration of treatment was 12,6 months. Grade 3 neutropenia (30%) and increased liver transaminases level (20%) were the most common toxicity. 6/10 patients experienced an improvement about pain. 7/10 patients showed clinical response. 1/10 patient had a radiological response at MRI, 1/10 experienced progression disease and 8/10 showed a stable disease at MRI evaluation. CONCLUSIONS: Our study demonstrated that PI could be a suitable treatment for unresectable PN in terms of stabilization of the tumour size due to its antitumor activity although clinical response does not correlate with radiographic changes.

NFB-08. PHASE II STUDY OF AXITINIB IN PATIENTS WITH NEUROFIBROMATOSIS TYPE 2 AND PROGRESSIVE VESTIBULAR SCHWANNOMAS

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INTRODUCTION: Vascular endothelial growth factor receptor (VEGFR), platelet derived growth factor receptor (PDGFR), and c-KIT represent clinically and/or preclinically validated molecular targets in vestibular schwannomas. We conducted a single institution, prospective, open-label, two-stage phase II study (ClinicalTrials.gov identifier NCT02129647) to estimate the response rate to axitinib, an oral multi-receptor tyrosine kinase inhibitor targeting VEGFR, PDGFR and c-KIT, in neurofibromatosis type 2 (NF2) patients with progressive vestibular schwannomas (VS). METHODS: NF2 patients older than 5 years with at least one volumetrically measurable, progressive VS were eligible. The primary endpoint was to estimate the objective volumetric response rates to axitinib. Axitinib was given continuously in 28-day cycles for up to of 12 cycles. Response was assessed every 3 months with MRI using 3-D volumetric tumor analysis and audiograms. Volumetric response and progression were defined as ≥20% decrease or increase in VS volume, respectively. RESULTS: Twelve eligible patients (ages: 14–56 years) were enrolled on this study. Seven of twelve patients completed 12 cycles (range: 2 to 12 cycles). We observed two imaging and three hearing responses. Best volumetric response was -53.9% after nine months on axitinib. All patients experienced drug-related toxicities, the most common adverse events were diarrhea, hematuria and skin toxicity, not exceeding grade 2 and hypertension, not exceeding grade 3. CONCLUSIONS: While axitinib has modest anti-tumor activity in NF2 patients, it is more toxic and appears to be less effective compared to bevacizumab. Based on these findings, further clinical development of axitinib for this indication does not appear warranted.

NFB-09. ENROLLMENT AND CLINICAL CHARACTERISTICS OF NEWLY DIAGNOSED, NEUROFIBROMATOSIS TYPE 1 ASSOCIATED OPTIC PATHWAY GLIOMA (NF1-OPG): PRELIMINARY RESULTS FROM AN INTERNATIONAL MULTI-CENTER NATURAL HISTORY STUDY

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INTRODUCTION: Because treatment and clinical management decisions for children with NF1-OPG remain challenging, we sought to establish evidence-based guidelines. We prospectively enrolled children with newly-diagnosed NF1-OPGs, and gathered standardized clinical neuro-oncology and ophthalmology assessments. METHODS: Only children with NF1 and newly diagnosed OPGs, confirmed by central review, were eligible. Indications for obtaining the initial MRI, as well as factors associated with the decision to treat with chemotherapy or observe without treatment, were obtained. Quantitative visual acuity (VA), other ophthalmic features, and imaging were captured at standard time points. Goal enrollment is 250 subjects. RESULTS: One-hundred thirty-three children (52% female) from 20 institutions met inclusion criteria, and were included in this preliminary analysis. Eighty-six percent of subjects were able to perform quantitative VA testing at enrollment. The most common reasons for the diagnostic MRI included screening related to NF1 diagnosis (36.8%), ophthalmologic concerns (29.3%), and non-ophthalmologic concerns (24.8%), such as headache. To date, twenty subjects have initiated treatment with chemotherapy, twelve (9%) at the time of the initial OPG diagnosis. Median age at OPG diagnosis was 3.1 years. Age and sex distribution were similar in subjects immediately entering the observation and treatment arms (median age 3.0 versus 3.5 years, respectively). CONCLUSION: Most children with NF1-OPGs are observed at time of their initial OPG diagnosis, rather than treated. Importantly, a large proportion of children are able to complete quantitative VA testing at enrollment. Once enrollment is complete, these data will help to establish evidence-based guidelines for clinical management of NF1-OPGs.

NFB-11. WHITE MATTER DIFFERENCES IN CHILDREN WITH NF1 COMPARED TO CONTROLS

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INTRODUCTION: Neurofibromatosis type 1 (NF1) is a genetic condition in which children develop learning challenges and glioma. White matter tracts (WMT) are implicated in these cognitive functions, while oligodendroglial precursor cells are implicated in both gliomagenesis and white-matter development. Specific WMTs have not been well characterized in NF1. METHODS: Twenty NF1 patients aged 1.4–17.6 years (M = 9.5 years, 24 male) and 20 age-and-sex-matched controls underwent dMRI at 3T (25 directions, b=1000 s/mm^2). Automated segmentation of WMTs extracted fractional anisotropy (FA) and mean diffusivity (MD) of 18 major WMTs. Covariance analysis examined the effect of group (NF1/controls) on FA/MD after controlling for intracranial volume. Regression analyses for WMTs determined the interaction of FA/MD with age for NF1 patients compared to controls. Significance was set at $p<0.05$ after correcting for multiple comparisons using false discovery rate. RESULTS: Compared to controls, children with NF1 had significantly decreased FA in 8 and increased MD in 12/18 tracts. Differences held after controlling for intracranial volume. The interaction between group and age accounted for a significant proportion of the variance in FA in 9 and in MD in 16/18 tracts. FA and MD differ-