approximately 15 months following standard of care therapy. However, 10% survival at 5 years was observed in a randomized phase III study. At GBM recurrence, the addition of bevacizumab (BEV), a humanized monoclonal antibody targeting vascular endothelial growth factor (VEGF), resulted in a 3–4 month prolongation of progression-free survival (PFS) without improving overall survival (OS). A 45-year-old female who underwent surgery for left fronto-temporal WHO grade II astrocytoma associated with a 1253 bp insertion in the IDH1 gene and seed explantation 9 months later, was diagnosed with MGMT methylated GBM on the occasion of partial tumor resection in 2010 followed by radiotherapy plus concomitant and adjuvant temozolomide (TMZ) chemotherapy, which was stopped after 4 months due to resection of a left temporal tumor cyst and recurrent cyst within 1 month, TMZ treatment causing prolonged thrombocytopenia was discontinued after 1 additional cycle. Immediately after this cycle, the patient experienced left median cerebral artery stroke resulting in right hemiparesis, Broca’s aphasia and severe hemianopia of the right side. The most recently, BEV 10 mg/kg i.v. q4d was initiated, shortly interrupted for abdominal herniotomy in 2012, and continued for 3 years. Since 2014, concurrent low molecular weight heparin was given because of right lower limb deep venous thrombosis suspicion. Whereas GBM progression had not been detected for 2 years during anti-VEGF therapy, methotrexine PET MRI 6 months after BEV discontinuation revealed left temporal tumor recurrence. Rechallenge with BEV was initiated and the patient remained in stable clinical and radiographical condition for 4 months until now. This case highlights the utility of sequential BEV treatment in a patient being at high risk to develop chemotherapy-induced myelotoxicity. Long-term survival (≥ 3 years after diagnosis) in GBM has been attributed to patient-derived rather than tumor-derived factors. To our knowledge, this is the first description of long-term monotherapy with BEV for GBM and ongoing therapeutic response to single-agent BEV rechallenge in a patient with recurrent secondary GBM.

**P08.47 DIANHYDROGALACTITOL (VAL-083) CAUSES BIFUNCTIONAL ALKYLATION LEADING TO IRREVERSIBLE DNA DOUBLE-STRAND BREAKS, S/G2 PHASE CELL-CYCLE ARREST AND INDEPENDENT MANNER OFFERING A UNIQUE TREATMENT PARADIGM FOR GBM**

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Glioblastoma (GBM) is the most common brain cancer. Systemic therapy with temozolomide or nitrosourea is often ineffective due to the activity of the DNA repair enzyme O6-methylguanine-DNA-methyltransferase (MGMT). Patients with recurrent GBM have limited treatment options after initial standard of care. Dianhydrogalactitol (VAL-083) is a bifunctional alkylating agent that rapidly induces interstrand DNA cross-links targeting N7 of guanine leading to cell cycle arrest and apoptosis due to DNA double-strand breaks. VAL-083 readily crosses the blood-brain barrier, accumulates in brain tumor tissue and has shown activity in prior clinical trials. In a recent trial, 10 mg/kg VAL-083 was given because of right lower limb deep venous thrombosis suspicion. The most recently, BEV 10 mg/kg i.v. q4d was initiated, shortly interrupted for abdominal herniotomy in 2012, and continued for 3 years. Since 2014, concurrent low molecular weight heparin was given because of right lower limb deep venous thrombosis suspicion. Whereas GBM progression had not been detected for 2 years during anti-VEGF therapy, methotrexine PET MRI 6 months after BEV discontinuation revealed left temporal tumor recurrence. Rechallenge with BEV was initiated and the patient remained in stable clinical and radiographical condition for 4 months until now. This case highlights the utility of sequential BEV treatment in a patient being at high risk to develop chemotherapy-induced myelotoxicity. Long-term survival (≥ 3 years after diagnosis) in GBM has been attributed to patient-derived rather than tumor-derived factors. To our knowledge, this is the first description of long-term monotherapy with BEV for GBM and ongoing therapeutic response to single-agent BEV rechallenge in a patient with recurrent secondary GBM.

**P08.48 COMBINED ALTERATIONS IN MAPK PATHWAY GENES, CDKN2A/B AND ATRX CHARACTERIZE ANAPLASTIC PILOCYTIC ASTROCYTOMA**

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Tumors with histological features of pilocytic astrocytoma but with increased mitotic activity and additional high grade features (i.e., microvascular proliferation, necrosis) have been designated anaplastic pilocytic astrocytomas (APA). Patients with such tumors are thought to have an unfavorable clinical outcome. The status of APA as a separate entity has not yet been established and molecular features have only partially been elucidated. We analyzed a large retrospective series of 98 cases with histological features of APA by genome wide DNA methylation profiling, copy number analysis, targeted sequencing and, in a subset, panel sequencing. Unsupervised hierarchical clustering analysis of 450k methylation data together with over 250 reference cases of 13 established glioma classes (glioblastoma, astrocytoma, oligodendroglioma, pleomorphic xanthoastrocytoma, pilocytic astrocytoma, ganglioglioma, dysplastic neoplastic tumor and diffuse leptomeningeal gliomatous involvement) allowed the identification of a distinct methylation cluster comprising 73 APA (“APA core group”). Most of the remaining cases clustered into other tumor classes. The median age of the APA core group was 43 years with only 6/8 (7%) cases occurring in pediatric patients, 56/67 (84%) were located in the cerebellum. The most frequent molecular alterations were deletions of CDKN2A/B (64/73, 87%) followed by alterations of the MAPK pathway (19/24, 79%, mostly NF1 mutations and BRAF fusions) and loss of ATRX (31/67, 46%). Outcome analysis confirmed an overall 10% (22/228, 43%) patients deceased (median survival 13 months). In summary, APA is characterized by increased patient age, predominant cerebellar location, frequent MAPK pathway alterations, CDKN2A/B deletion, ATRX loss and unfavorable prognosis.

**P08.49 THE VALUE OF NEUROCognitive TESTING IN MULTIMODAL RESPONSE ASSESSMENT IN PATIENTS With Glioblastoma Multiforme**

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BACKGROUND: Due to several possible clinical and radiological pitfalls in response assessment, Tumorboard decision (TB) in patients with glioblastoma can sometimes be challenging. Early detection of recurrence in glioblastoma multiforme (GBM) is a crucial factor for a prompt and effective second line therapy. Standard MRI sequences are the main diagnostic tool for follow up and the diagnosis of possible tumor recurrence. Additional MRI sequences, such as M1-Diffusion and M1-Perfusion imaging, or 18F-FET-PET (PET) imaging, may provide useful information in ambiguous cases of suspected GBM recurrence. We performed a study aimed at answering the question, whether additional neurocognitive assessment (NA) is in line with imaging results, as well as the TB.

METHODS: We consecutively enclosed twenty-five patients with histological proven GBM in a retrospective pilot study, counting for eighty-one (n=81) multimodal follow up (FU) test results. All patients were selected after receiving consecutive FU, comprising of MRI, PET and NA, using basically NeuroCogFX as neuropsychological test battery. Results were analysed for statistically significant correlations among themselves and over time. A consistency analysis was performed to demonstrate the impact...