to investigate molecular prognostic markers in 23 medulloblastoma patients who were registered in the Japan Pediatric Molecular Neuro-Oncology Group and treated with lower-dose CSI relative to standard treatment. A WCAS was defined as the presence of at least two of three chromosomal changes as follows: chromosome (chr) 7 gain, chr 8 loss, and chr 11 gain.Results: All patients presented with no residue or a residual tumor smaller than 1.5 cm2 after surgery without metastasis. The median age at onset was 6.9 years, and the median follow-up period was 80.6 months. CSI was delivered at a median dose of 18.0 Gy. Regarding molecular subgrouping, there were 5 WNT, 2 SHH, 1 Group 3, and 15 Group 4 medulloblastomas. Seven patients with Group 3/4 medulloblastomas showed WCASs and had significantly better prognosis than those without the alteration (5-year progression-free survival 100% vs. 63%, p = 0.046). Two late relapses occurred at 89 and 115 months after diagnosis, respectively, and one of these patients presented with a WCAS.Conclusion: WCAS may be a molecular prognostic marker not only in patients with medulloblastoma treated with standard-dose CSI but also in those treated with lower-dose irradiation.

Key words: medulloblastoma | molecular classification | whole chromosomal aberration

MPC-7

CLINICAL FEATURES OF DIFFUSE HEMISPHERIC GLIOMA, H3 G34-MUTANT IN CHILDREN AND YOUNG ADULTS

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INTRODUCTION: H3F3A G34R/V mutated gliomas are seen predominantly in children and young adults, and have been proposed as “Diffuse hemispheric glioma, H3 G34-mutant” in cIMPACT-NOW Update 6. However, the clinical features of the tumor have not been fully elucidated. METHODS: We retrospectively reviewed 4 cases with H3G34R mutation among 40 cases diagnosed as glioblastoma under 30 years old or primitive neuroectodermal tumor (PNET) in our hospital. RESULTS: There were one male and three female patients with a median age of 21.5 years (range: 17–27 years). All lesions were localized in the cerebral hemispheres, and the initial symptoms were headache in two cases and seizures in two cases. On imaging, there was one case with poor contrast, and unlike the infiltrative growth pattern of the other three contrasted cases, it showed a well-defined mass lesion. DWI showed high signal in all four cases, reflecting the high cell density in histopathology. All cases were IDH-wildtype. CONCLUSION: Although the patient background and genetic characteristics of the glioma with H3 G34R/V mutation at our institution were generally consistent with previous reports, there were some cases with atypical imaging findings. Further investigation is required for a deeper understanding of the clinical features of this tumor.

Key words: H3 G34R/V mutation | glioma | children and young adults

MPC-8

SERUM ANTI-ZINC FINGER FYVE DOMAIN-CONTAINING PROTEIN 21 (ZFYVE21) AUTOANTIBODY AS A NOVEL BIOMARKER FOR OLIGODENDROGLIOMA IDH-MUTANT AND 1P/19Q CO-DELETION

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Background: Glioma is one of the most challenging diseases to cure, and it would be beneficial to discover new serum biomarkers for early diagnosis. Moreover, zinc finger FYVE domain-containing protein 21 (ZFYVE21) was a regulator of tumor invasion and migration. In this study, we examined the levels of serum anti-ZFYVE21 antibodies in patients with glioma. Methods: This is a multicenter observational prospective study to discover a novel serum autologous antibody marker. We analyzed 286 pre-surgically collected sera of CNS tumors and compared them to healthy donors(HD). Bacterially expressed glutathione-S-transferase-fused ZFYVE21 protein was purified, and its antibody levels were measured by amplified luminescent proximity homogeneous assay-linked immunosorbent assay (AlphaLISA). Results: The anti-ZFYVE21 antibody levels were significantly elevated in patients with gliomas (P<0.001) than those in HD, instead of patients with other CNS tumors. Among gliomas, the highest sensitivity was observed for oligodendroglioma containing IDH mutation and 1p/19q co-deletion to HD (sensitivity: 72.00%, specificity: 67.71%, AUC: 0.7565, P<0.0001), while there is no significance in astrocytoma containing only IDH mutation. In comparing 1p/19q co-deleted oligodendroglioma with IDH-mutated astrocytoma, the sensitivity and specificity were 50% and 100%, respectively. Conclusion: Serum anti-ZFYVE21 antibodies might be a novel diagnostic marker distinguishing 1p/19q co-deleted oligodendroglioma from IDH-mutant astrocytoma.

Key words: 1p/19q co-deletion | glioma | serum marker

MPC-10

PROGNOSTIC ANALYSIS IN IDH MUTANT ASTROCYTOMA PATIENT WITH CDKN2A/B HOMOZYGOUS DELETION.

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Background: IDH mutant astrocytoma has good prognosis compared with IDH wildtype one. In IDH mutant astrocytoma, However, patients with CDKN2A/B homozygous deletion (HD) are worse prognosis than non CDKN2A/B HD. Here we analyzed the prognosis of glioma patients identified with CDKN2A/B HD in our hospital. Method: There were 62 cases, and female was 26. Mean age of all cases was 41.2 and median age was 38. In IDH gene status, R132H was 59 cases (95.2%), R172K 2 (3.2%) and R132S 1 (1.6%). All 62 cases were TERT wildtype. CDKN2A/B HD were 12 cases (19.4%). In log-rank test, the group of CDKN2A/B HD was poor prognosis than non HD. In astrocytoma grade 3, CDKN2A/B HD had significantly poor prognosis (p=0.002). In Cox proportional hazard model analysis, CDKN2A/B HD was effective predictive prognostic factor as well as age and grading (p=0.03). Discussion/Conclusion: We showed that CDKN2A/B HD was good predictive prognostic factor in IDH mutant astrocytoma.

Key words: astrocytoma | IDH mutation | CDKN2A/B homozygous deletion

MPC-13

THE EVALUATION OF THE SHIFT OF TREND IN LOWER GRADE GLIOMA DIAGNOSES BASED ON EACH ERA`S CRITERIA

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It is found that molecular characteristics in lower grade gliomas (LrGGs) such as codeletion of 1p/19q and IDH mutation was found to be more accurate to predict the patient`s clinical outcome compared to morphological diagnoses alone. Since the revision WHO2016 classification of LrGGs, molecular characteristics were implemented as diagnostic standard for LrGGs diagnoses. In the other hand, morphological diagnostic standard before WHO2016 classification era was determined by different considerations and therapeutic strategies. The malignancy grades were also majorly determined by morphological diagnoses only. This study re-evaluated 20 years of LrGG cases in single institution based on WHO2007 morphological criteria and compared them to the original institutional diagnoses from each era. The study samples were originally grade II-III diffuse glioma-diagnosed cases resected from 1990 to 2016. Biopsy cases were excluded. IDH mutation was analyzed by Sanger sequence and 1p/19 codeletion status was analyzed by Comparative Genome Hybridization (CGH). As the result 93 cases were collected and based on original diagnoses, more than 50% cases are astrocytomas. Compared to re-assessment by morphological diagnoses (WHO 2007), case numbers of astrocytoma diagnoses are decreased whereas oligodendroglioma and oligoastrocytoma case numbers are increased. But, based on WHO2016 criteria, the case number of astrocytomas is again found to be increased. From comparison between original institutional diagnoses and re-assessment results, it is found that there is a shift of trend from astrocytoma to oligodendroglioma and from grade II to grade III. Comparison between morphological diagnoses (WHO2007) and molecular (WHO2016) found that astrocytoma diagnoses remain unchanged meanwhile 45% of oligodendroglioma diagnoses were shifted into astrocytomas. There is a probability that there are high frequency of morphologically diag-