main (2nd - 14 years old after birth), tumor location: 22 sellar or parasellar regions, 8 CP angles, 7 oculomotor nerves, and 3 petrous bone, treatment: duration of survival significantly improved all macroscopic tumor resection by the operation, but, in small pontine part AT/RT, an outcome tended to be poor. On the other hand, in AT/RT which occurred in the sellar region, all cases adult woman tended to have good prognosis. It is necessary for AT/RT (central AT/RT) in the brain to recognize that there is extra-parenchymal AT/RT (peripheral AT/RT) tumor which we reported this time which came to be recognized widely.

CLINICAL OTHERS (COT)

COT-01

EXPERIENCE OF INTRODUCING ALTERNATING ELECTRIC FIELD THERAPY FOR AN ELDERLY GliOBLASTOMA PATIENT LIVING ALONE

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INTRODUCTION: In December 2017, alternating electric field therapy (EFT) for glioblastoma was covered by insurance in Japan, but because of treatment complexity, the number of cases of introduction remains small, and the threshold for introduction is even higher for elderly patients living alone. CASE PRESENTATION: The patient was an 84-year-old man, who are living alone, and an open biopsy was performed for a contrast-enhanced neo-plastic lesion in the left frontal lobe. The clinical diagnosis was glioblastoma and Ki-67 was 60%. Following initial treatment, the tumor recurred within 1 month prior to the initiation of alternating EFT. Nonetheless, steroid was administered, he could not walk without aid and was forced get admitted on the day after the introduction, and rehabilitation treatment was instituted. Motor aphasia was slowly disappeared, and he could walk stably without help after 2 weeks and was discharged on day 28. Magnetic resonance imaging prior to discharge indicated that the tumor had shrunk and cerebral edema had ameliorated. Following discharge, the treatment could be continued with the help of a home-visiting nurse, and no adverse events were noted. DISCUSSION: In the current case, treatment with temozolomide (TMZ) could not be conducted because of neutropenia, but alternating EFT may have been effective because of the possibility of treatment delay. In Japan, from December 2017 to April 2020, alternating EFT was initiated in 440 patients, 5 (1.1%) of whom were patients living alone, including the current case. The other four were all men in their 50s and not elderly. CONCLUSION: In the case of elderly patients living alone, medical practitioners may be able to control the treatment by preparing the environment for alternating EFT for patients and keeping the patient willing to undergo treatment.

COT-02

THE OPENING OF TUMOR TREATING FIELDS WITH ONLINE SUPPORT SYSTEM

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BACKGROUND: EF-14 trial showed the efficacy of tumor treating fields (TTF) and TTF was approved as a standard therapy for glioblastoma. In TTF opening, Device Support Specialist (DSS) should explain how to use it for the patient and family. However no DSS does always stay in our Yamaguchi prefecture, and DSS has to come to our hospital across other prefectures. On the other hand, COVID-19 infection is still spreading and it is sometimes tough to move from a big city to countryside. Here, we would present the first experience of TTF opening with online DSS support. A case REPORT: A 68 years old man had right hemiparesis. MRI showed multiple lesions in the left hemisphere, and biopsy showed glioblastoma. After 1 month from chemo and radiotherapy, TTF was introduced. DSS from Tokyo explained how to use TTF via PC camera with TV monitor. A skilled neurosurgeon and special nurse also helped them in front of him. His head and the attached array were well checked from DSS with PC camera moving around. Everything was smooth and he started TTF. CONCLUSION: Online medicine should be absolutely spreading. In countryside, it is hard that DSS comes to our hospital from a big city. TTF opening could be favorable via online system with skilled medical staffs.

COT-03

CIRCULATING BIOMARKER FOR GliOBLASTOMA AND PRIMARY CENTRAL NERVOUS SYSTEM LYMPHOMA -NEXT GENERATION SEQUENCING OF SMALL NONCODING RNA-

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OBJECTIVE: Glioblastoma (GBM) and Primary Central Nervous System Lymphoma (PCNSL) are common intracranial malignant tumors. They sometimes present similar radiological findings and diagnoses could be difficult without surgical biopsy. For improving the current management, development of non-invasive biomarkers are desired. In this study, we explored the differently expressed circulating small noncoding RNA (snRNA) in serum for specific diagnostic tool of GBM and PCNSL.

Material & METHODS: Serum samples were obtained from three groups: 1) GBM patients (N=26), 2) PCNSL patients (N=14) 3) healthy control (N=114). The total small RNAs were extracted from serum. The whole expression profiles of serum snRNAs were measured using Next-Generation Sequencing System. We analyzed serum levels of snRNAs (15-30 nt) in each serum samples. The difference of snRNAs expression profile among three groups were compared. Data analysis was performed by logistic regression analysis followed by leave-one-out cross-validation (LOOVC). The accuracy of diagnostic models of snRNAs combination were evaluated by receiver operating characteristic (ROC) analysis.

RESULTS: We created the combination models using three snRNA in each models based on the logistic regression analysis. The model 1 (based on snRNA-X1, X2 and X3) enabled to differentiate GBM patients form healthy control with a sensitivity of 92.3% and a specificity of 99.2% (AUC: 0.968). The model 2 (based on snRNA-Y1, Y2 and Y3) enabled to differentiate PCNSL patients form healthy control with a sensitivity of 100% and a specificity of 93.9% (AUC: 0.984). The model 3 (based on snRNA-Z1, Z2 and Z3) enabled to differentiate GBM patients form PCNSL patients with a sensitivity of 92.3% and a specificity of 78.6% (AUC: 0.920).

CONCLUSION: We found three diagnostic models of serum snRNAs as non-invasive biomarkers potentially useful for detection of GBM and PCNSL from healthy control, and for differentiation GBM from PCNSL.

COT-05

EXPERIENCE OF FERTILITY PRESERVATION IN 3 MALE CASES AND 1 FEMALE CASE WITH HIGH-GRADE GLIOMA

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High-grade glioma (HGG) has a low survival rate, and fertility preservation (FP) has rarely been discussed in the field of Japanese neurosurgery. We report on 4 reproductive patients, including 2 male patients who became biological fathers. Case 1 was a 23-year-old man with anaplastic oligodendroglioma (AO) of the right frontal lobe. Temozolomide maintenance therapy (TMZ-MT) was completed 42 courses after the initial surgery and cryopreservation of eggs. Patients of reproductive age with HGG, especially oligodendroglial tumors who have a higher survival rate than astrocytic tumors, should be positively informed about FP before treatment begins. Case 2 was a 24-year-old female with diffuse midline glioma (H3K27M mutant) in the cervical spinal cord. After partial removal, we provided FP information in the same manner, but the couple did not chose cryopreservation of sperm due to his mRS 5. Case 4 was a 24-year-old female with anaplastic astrocytoma of the brain stem. FP information was provided after stereotactic biopsy, but she chose to start radiochemotherapy without cryopreservation of eggs. Patients of reproductive age with HGG, especially oligodendrogial tumors who have a higher survival rate than astrocytic tumors, should be positively informed about FP before treatment begins.

COT-07

CEREBROVASCULAR COMPLICATIONS IN ADULT PATIENTS WITH MALIGNANT BRAIN TUMOR

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STUDY POPULATION: We retrospectively reviewed 539 patients with ischemic stroke and 445 patients with hemorrhagic stroke who visited Kyoto University Hospital between January 2010 and December 2019 and the as
in patients with ischemic stroke and 26 (5.1%) patients with hemorrhagic stroke. Patients with malignant brain tumor, and most tumors were either malignant glioma or metastatic brain tumor. A medical history of cranial irradiation was seen in 66.7% of patients with ischemic stroke, and 80% of hemorrhagic stroke occurred within the tumor before starting the treatments. Either ischemic or hemorrhagic stroke occurred in 9.1% of patients with glioblastoma and 4.1% of patients with metastatic brain tumor, and the number of ischemic and hemorrhagic were almost the same. In patients with glioblastoma, nearly half of the stroke cases were associated with bevacizumab. Half of the cases of bevacizumab-related stroke were asymptomatic, while asymptomatic cases were seen in 21.4% for non-bevacizumab cases.

Discussion: Stroke is not an uncommon complication in patients with malignant brain tumor but only a restricted number of cases are preventable. Including the cases of bevacizumab-related stroke, which is often asymptomatic, accurate diagnosis and the second prevention would be important.

COT-08
ANALYSIS OF PROGNOSIS OF BIOPSY/PARTIAL RESECTION CASES OF MALIGNANT GLIOMA
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Introduction: Malignant glioma is the most common and aggressive primary brain tumor and requires multimodality treatment. Regarding surgical treatment, it is desirable to achieve maximum resection while considering function preservation. There is consensus that the survival prognosis is prolonged in gross or subtotal resection. However, there are cases in which biopsy or partial resection is performed due to the spread of lesions at the time of onset, underlying diseases, and social background. The purpose of this study was to retrospectively analyze the cases of malignant glioma at our university and to find out the factors related to the prognosis of cases in which removal was insufficient.

Target: 55 cases of malignant glioma treated at our university since 2013 who underwent biopsy or partial resection.

Method: Overall/progression-free survival period is the end point, and parameters are age, bevacizumab use, pathological diagnosis, photodynamic diagnosis use at operation, immunotherapy, ventricular invasion, collateral invasion, sex, preoperative Performance Status (PS), postoperative PS, left or right, navigation use, steroid use, anticonvulsant drug type, radiation, IDH mutation, 1p19q co-deletion, MGMT methylation, TERT mutation, p53 mutation, biopsy or partial resection. After narrowing down the evaluation items by univariate analysis (Logrank test), multivariate analysis (Cox proportional hazard model) was performed.

Result: The univariate analysis was significant in 5 items including bevacizumab use, radiation therapy, leviteracetam use, postoperative PS70 or higher, and partial resection instead of biopsy. Multivariate analysis detected two statistically significant differences, bevacizumab use and post-operative PS70 and above. There was no difference in the timing of bevacizumab use. Considering the largely poor results of poorly resection cases, the weight of postoperative treatment is high, so continuity of treatment and selection of postoperative treatment are important, and maintenance of ADL and use of bevacizumab are significant among them.

COT-11
ADMINISTRATION OF BEVACIZUMAB FOR PATIENTS WHO FAILED TO COMPLETE STUPP REGIMEN AFTER GLOBLASTOMA SURGERY
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Stupp regimen is widely used as the standard treatment after glioblastoma surgery, but in some cases treatment must be discontinued for various reasons. We experienced Bevacizumab in two patients who were unable to continue treatment in the Stupp regimen, and report our experience with literature review. First patient is a man in his 60s. Resection of glioblastoma of the left cerebral hemisphere was performed, and postoperatively right hemiparesis and aphasia remained. Irradiation and administration of Temozolomide were performed, but Temozolomide was unable to continue because of side effects. After systemic management, Bevacizumab was administered, and reduction of residual tumor and peripheral edema were observed, and the patient began to speak. After 12 cycles of administration, the tumor regrew, and he died. Second patient is a woman in her 80s. Craniotomy was performed for hemispheric infarction of the left cerebral hemisphere, postoperatively, aphasia, right hemiparesis remained, bedridden, and was unable to eat. Four months after initial surgery, a tumor was found in left parietal lobe and was resected. The pathological diagnosis was glioblastoma. For the treatment of recurrence, the patient was unable to be transferred for radiochemotherapy, so the patient was treated with Temozolomide and Bevacizumab. The patient’s condition became better, eat by herself, and could play in rehabilitation facility on the wheelchair. After 12 cycles of bevacizumab, the tumor subsequently enlarged, and died. Although the effect is limited, there are some cases in which Bevacizumab administration could maintain patient’s condition by controlling tumor growth for a certain period of time. From the experience of these patients, it seems that even in patients with postoperative poor Karnofsky Performance Status (KPS) and elderly people, Bevacizumab administration would be an option before transitioning to end-of-life care.