

had a KPS score of 100, and an elevated D-dimer level (7.59 µg/ml), revealing pulmonary embolism and deep vein thrombosis. She was started on a DOAC and underwent surgical removal of the tumor via craniotomy. She was diagnosed with glioblastoma and underwent radiation therapy in combination with chemotherapy. Approximately 20% of the patients with glioblastomas suffer concurrent symptomatic venous thromboembolism. The incidence of venous thromboembolism is further elevated in patients with a poor KPS score or elderly people. Many patients with glioblastomas suffer asymptomatic venous thromboembolism. In this report, asymptomatic venous thromboembolism was noted in patients with a good KPS score. In glioblastoma patients, it is necessary to test for venous thromboembolism by measuring D-dimer levels before surgery.

COT-19

TREATMENT EXPERIENCE OF AND TIPS FOR ADMINISTRATING NOVO TTF

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BACKGROUNDS: Current standard of care for glioblastoma, consists of postoperative temozolomide (TMZ) concomitant with radiotherapy, followed by adjuvant TMZ monotherapy. Recently, an international phase 3 trial (EF-14) demonstrated that addition of tumor-treating fields (TTF) to adjuvant TMZ after completion of chemoradiotherapy extended median progression-free survival and overall survival by 2.7 months and 4.8 months, respectively, compared with TMZ alone in patients with newly diagnosed glioblastoma. TTF is now considered as a part of its initial treatment in the guideline in Japan (recommendation grade B). However, distinct from anticancer drugs, little is known or experienced using TTF as a therapeutic device so far, especially in management and handling. **METHODS:** First six patients with newly diagnosed glioblastoma who underwent TTF were analyzed with special interest in medical and social supports to execute TTF at home. **RESULTS:** TTF was first introduced in our institution in May 2016, but no patients were treated because of no coverage by medical insurance until December 2017. We further needed to wait to initiate TTF treatment until January 2019 when the contract to use TTF systems was finally made between the company and institution. Since then six patients were registered in five months. For its introduction to clinical practice, it is essential to establish new in-house environment with medical professions division in the facility including documentations of calculating instruction fees and usage guidance for home care application of TTF. It is also important to initiate providing information of TTF such as timing of visit by specific practitioners and potential medical and psychologic burdens to patients and their families during and after chemoradiotherapy to better understand this new modality leading to the consent acquisition. **CONCLUSIONS:** Introducing TTF into clinical practice should accompany improvement of management in not only medical equipment and documentations but also patient care in hospital and home.

COT-20

PERIOPERATIVE STATUS OF SERUM D-DIMER LEVEL AND VENOUS THROMBOSIS IN PATIENTS WITH MALIGNANT BRAIN TUMOR

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BACKGROUNDS: The patients with malignant brain tumors frequently show the hypercoagulability state and a decrease in fibrinolysis ability with an elevation in D-dimer. This is partially due to tumor-related hemiparesis or surgical stress including long-term bed-ridden positioning during and after operation, which could lead to development and extension of deep venous thrombosis (DVT) in lower extremities and eventually fatal pulmonary embolism. **METHODS:** We retrospectively examined the pre- and postoperative serum D-dimer levels and DVT state in 75 consecutive patients with malignant brain tumors (i.e. glioma, malignant lymphoma; mean age 64 yo, 28 females) operated at our hospital from January 2015 to April 2017. Serial D-dimer levels were measured with the latex agglutination method (Roche) at 2 days before and right after operation, postoperative day (POD) 1, 3, and 7. Lower limb venous ultrasound (LVUS) or contrast CT was performed if preoperative D-dimer was 0.5 µg/ml or higher.

RESULTS: Average BMI was 21.3, nine patients with diabetes mellitus, 10 had recurrent diseases after chemotherapy, and 10 presented paresis in the lower extremities preoperatively while two developed transient paresis postoperatively. While two patients had prior DVT history, central and calf DVTs were identified preoperatively in one and 12 (15%) patients, respectively. Among four patients with re-elevation of D-dimer after POD 7, infection (2 patients), new DVT (2), and hemorrhagic events (gastrointestinal 2, including 1 death; epistaxis 2) developed, where a cut-off value D-dimer > 1.69 yielded sensitivity 100% and specificity 80%. Intraoperative intermittent calf compression prevented perioperative pulmonary embolism in those with calf DVT. **CONCLUSIONS:** Appropriate perioperative DVT managements could pre-

vent development of pulmonary embolisms in all patients with "high-risk" malignant brain tumors. Not only D-dimer > 1.5, but age of 80 or older, high preoperative D-dimer levels with calf DVT and taking DOAC may be risk factors for postoperative venous thromboembolism.

COT-21

EFFECT OF BEVACIZUMAB FOR PEDIATRIC HIGH GRADE GLIOMA

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INTRODUCTION: Bevacizumab (BEV) therapy has been used for pediatric high grade glioma, however the evidence and effectiveness are not understood yet. **METHODS:** We report 7 cases (age 2 to 10 years old) of pediatric high grade glioma treated with BEV. One case is thalamic diffuse midline glioma H3K27 mutant (DMGH3K27M), one case is brain stem DMGH3K27M, one case is cerebellar high grade glioma, and 4 cases are diffuse intrinsic pontine glioma (DIPG) diagnosed clinically without biopsy. 5 cases were treated with BEV when diagnosed as recurrence after chemoradiotherapy. One case was treated for rapid tumor progression during radiotherapy. One case was started on BEV therapy with radiation and concomitant temozolomide therapy. **RESULT:** The number of times of BEV was 2 to 13 times (median 7 times). The period of BEV was 1 to 9 months (median 4 months). One case which was treated with BEV at rapid progression during radiation showed good response on imaging and improvement of symptoms. 4 of 5 cases who were treated at recurrence clinically showed mild symptomatic improvement. One case treated with BEV and radiotherapy initially was not evaluated. The adverse effects of BEV included wound complication of tracheostomy and rash. **CONCLUSION:** BEV showed good response for rapid progression during radiotherapy, and mild response for recurrence cases. BEV is thought to be an effective therapeutic agent for pediatric HGG at recurrence and rapid tumor progression during radiotherapy.

COT-22

TIMING OF SURGERY AND BEVACIZUMAB THERAPY FOR MALIGNANT GLIOMAS

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BACKGROUND: The drug manufacturer recommends postponing initiation of bevacizumab for malignant gliomas at least 4 weeks later postoperatively. Malignant glioma patients with significant neurological deficits due to postoperative residual tumors are preferably needed earlier bevacizumab therapy that expecting improvement of neurological state and brain edema. There is a literature review indicating that the timing for administration of postoperative bevacizumab was at least 2 weeks. The authors assessed the safety, tolerability, efficacy for bevacizumab therapy less than 4 weeks later postoperatively. **METHODS:** Six patients of malignant gliomas with residual tumors and neurological deficits were treated by bevacizumab (10mg/kg every 2 weeks) therapy 2–3 weeks later postoperatively with chemoradiotherapy. Patients included 31-year-old female with thalamic-midbrain glioblastoma (initial), 11-year-old female with anaplastic ependymoma (recurrent), 71-year-old female with initial cervical cord anaplastic astrocytoma (initial), 88-year-old female bilateral frontal glioblastoma (initial), 27-year-old female with thalamic midbrain glioblastoma (initial) and 3-year-old female with brain stem glioblastoma (initial). **RESULTS:** All the patients did not experienced hemorrhage and impair wound healing. Every patient neurological state and perifocal brain edema following bevacizumab therapy demonstrated early improvement. Earlier bevacizumab therapy did not delay and cease postoperative chemoradiotherapy. **CONCLUSIONS:** Initiation of bevacizumab therapy 2–3 weeks later postoperatively seems to be safe and effective for malignant glioma patients with worse neurological state due to residual tumor and perifocal edema. The optimal interval which balances the risk of complications and the risk of tumor progression should be considered.

COT-23

INITIAL EXPERIENCE OF TREATMENT FOR GLIOBLASTOMA BY NOVO-TTF

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PURPOSE: In 2018, Optune (TTF) became available covered by public insurance for patients with glioblastoma, based on the effectiveness of the US