MET-6
NEOADJUVANT FRACTIONATED STEREOTACTIC RADIOTHERAPY FOLLOWED BY PIECEMEAL RESECTION FOR METASTATIC BRAIN TUMOR
Kei Nakane1, Katsuhiko Hasegawa1, Hirofumi Nakamasa2, Shoichi Iuchi2, Toshihiko Asakura1, Yuichi Harada1, Nakamasa Hayashi1, Division of Neurosurgery, Shizuoka Cancer Center, Shizuoka, Japan; 2Radiation and Proton center, Shizuoka Cancer Center

BACKGROUND: Large brain metastases which require resection are treated with surgery followed by whole brain radiation therapy or postoperative stereotactic radiosurgery (SRS). Recently a novel strategy using neoadjuvant stereotactic radiosurgery (Na-SRS) followed by surgery was reported, demonstrating lower rates of postoperative leptomeninxal dissemination (LMD) and symptomatic radiation necrosis (RN). We treated with neoadjuvant fractionated stereotactic radiotherapy (Na-SRT) followed by surgery for large brain metastasis with piecemeal resection.

METHODS: Twelve patients received Na-SRT followed by surgery between July 2019 and April 2021. Na-SRT dose was based on lesion size and was standard dosing. Surgery generally followed within 7 days after radiotherapy. The mean tumor diameter was 3.6 cm (2.6–4.9). Median PTV, GTV volume were 21.7 ml, 15.5 ml, respectively. The median SRT dose was 30 Gy/5f, and the median time from SRT to surgery was 4 days (1–7). As preoperative adverse event, intracranial hypertension and partial seizure grade 2 (CTCAE v5.0) occurred, but controlled with methylprednisolone and anticonvulsant. Grade 3 and more adverse events were not occurred. Gross total removal was performed in 95.2%. Event cumulative incidence as follows: cavity local recurrence 4.8% (subtotal removal case); distant brain failure 13.3%; LMD 4.8%; and postoperative RN. The median intracranial progression free survival was 7 months, and median overall survival was 8.4 months. CONCLUSIONS: Na-SRT followed by piecemeal resection is safety and feasible, and may have therapeutic value for deep large brain metastasis and eloquent lesion. Further prospective investigations in multiple institutional settings are warranted.

Key words: fractionated stereotactic radiotherapy | pre-surgical irradiation | brain metastases

MET-8
CHEMOTHERAPY ALONE FOR BRAIN METASTASES FROM SMALL CELL LUNG CANCER -COMPARISON WITH EGFR-TKI-
Toshikazu Ichihara1, Masato Takeuchi2, Hirofumi Nakamasa1, Hisao Shimizu1, Hironori Hayashi1, Manabu Muto2, Syngyoji Tsuchiya1, Hirofumi Asahina2, Satoko Mizuno2, Yuzo Hasegawa1, Taiki Setoguchi1, Junji Hoonso1, Tsukasa Sakaida1, 1Division of Neurosurgical, Chiba Cancer Center, Chiba, Japan; 2Division of Respiratory, Chiba Cancer Center, Chiba, Japan

Background: Because of the invasive nature of small cell lung cancer (SCLC), the effectiveness of local therapy for brain metastases (BM) from SCLC had been limited. In this article, we retrospectively evaluated the efficacy of chemotheraphy against non-treated BM from SCLC (SCLC-CHT) in comparison with TKI for BM from EGFR-mutated NSCLC (EGFR-TKI) Material and Methods: Un-treated 218 BM, including 58 SCLCs and 160 EGFR-mutated NSCLCs were enrolled. The primary endpoints were maximum response of BM and the duration of effect, and the secondary endpoints were times to the first and maximum responses, patterns of progression and overall survival after the diagnosis of BM. Results: The objective response rate (69%) and disease control rate (92%) of BM after SCLC-CHT were inferior to those after EGFR-TKI. BCIRG001 (85%, 97%), but were sufficiently satisfactory. Both the times to the first response (0.8m, 95% CI:0.6–0.9) and to the maximum effect after treatment (1.6m, 0.9–1.9) with SCLC-CHT were shorter than with EGFR-TKI (0.9m,0.9–1.0, P=0.011, and 2.4m, 1.9–2.8, P<0.0004), but the duration of the response was conversely shorter with SCLC-CHT (5.1m, 4.2–5.6) than with EGFR-TKI (12.3m,9.2–15.1, P<0.0001). The dominant pattern of recurrence was local progression in the both groups. The risk of local progression after SCLC-CHT was lower than after EGFR-TKI (12.3m,9.2–15.1, P<0.0001), but the risk of CNS death was not different (0.92, 0.45–1.89,P=0.85). Conclusions: BM from SCLC-CHT well and quickly responded to CHT, but the duration of response was short. These responses of BM against CHT was comparable to that of extracranial disease. For the better control of BM and survival of patients, ingenuity to prolong the effect of CHT is required.

Key words: small cell lung cancer | brain metastases | chemotherapy

MET-11
RECENT ADVANCES IN TARGETED THERAPIES AND IMMUNOTHERAPY FOR METASTATIC BRAIN TUMORS
Yuichi Ando1; 1Department of Clinical Oncology and Chemotherapy, Nagoya University Hospital, Nagoya, Japan

This presentation outlines CQ2 of Chapter 2 from the forthcoming updated version of the Clinical Practice Guidelines for Brain Tumors, edited by the Society. These guidelines discuss chemotherapy and other drug therapies for metastatic brain tumors in adult patients. First, there is no noteworthy change in the principle of prioritizing local treatment of symptomatic metastatic brain tumors or those that require local treatment in the near future. However, with recent advances in molecular-targeted drugs and/or immune checkpoint inhibitors, many physicians now consider starting systemic treatment prior to local treatment of brain metastases, even in patients with solid tumors that were once considered insensitive to chemotherapy, given that their symptoms are well-controlled and do not require urgent treatment. In the treatment of non-small cell lung cancer (NSCLC), the molecular subtypes of metastatic brain tumors with EGFR mutations and ALK fusion genes have yielded favorable responses to molecular-targeted drugs. Because small molecule drugs are well delivered to the central nervous system, systemic drug therapy with such targeted drugs is commonly selected for patients with untreated metastatic brain tumors. A recent phase II trial showed the effectiveness of anti-PD-1 antibody pembrolizumab for metastatic brain tumors from NSCLC. Because untreated metastatic brain tumors from renal cell carcinoma are prone to bleeding, local treatment of brain metastases should be prioritized before systemic treatment, even if the patient is symptomatic. Regardless of BRAF mutation status, immune checkpoint inhibitors alone or in combination (nivolumab and ipilimumab) are effective against malignant melanoma with brain metastases; moreover, a combined treatment with BRAF and MEK inhibitors is effective against BRAF-mutation-positive malignant melanoma with brain metastases. A novel HER2 inhibitor, tucatinib (unapproved), is expected to be effective against metastatic brain tumors from HER2-positive breast cancer.

Key words: metastatic brain tumor | molecular-targeted drug | immune checkpoint inhibitor

MENINGIOMA (MNG)

MNG-2
MENINGIOMA WITH ASEPTIC MENINGITIS
Hideki Nakajima1, Takuo Tsuchiya1, Shigeto Shimizu1, 1The Department of Neurosurgery, Suzuki General Hospital, Mie, Japan

The patient, a woman in her seventies, visited the Department of Neurology at our hospital one month ago with transient right hemiparesis, and was referred to our department because a CT scan showed a 4cm extra-axial lesion in the left convexity. She was judged to have symptomatic epilepsy associated with the lesion and was started on antiepileptic drugs. The lesion showed low signal on T1WI, equal signal on T2WI, and homogeneous contrast on Gd contrast T1WI, suggesting a meningioma, but the surrounding left frontal lobe subcortical space was also contrasted, suggesting the possibility of seeding or other diseases. After that, the contrast area of the subcortical space increased in a short period of time, and the control of epileptic seizures was poor. Preoperative spinal fluid examination showed an elevated cell count and findings of asptic meningitis. A left parietal craniotomy was performed to remove the extraaxillary tumor as much as possible. The subcortical space of the left frontal lobe adjacent to the tumor was covered with extensive pale yellow apparentlly cerebrospinal fluid like tissue. The pathological diagnosis of the extramedullary tumor was angiomatous meningioma (WHO Grade 1), and the pale yellow tissue that filled the subcortical space was necrotic tissue containing neutrophils and no tumor component. IgG4 was positive in about 10% of the tumor cells. In the patient, the postoperative course of the patient was good, the contrast area of the left frontal lobe subcortical space was reduced on MRI, asptic meningitis was improved, and she was discharged home with no neurological deficits. The patient has been under outpatient observation for 2 years without recurrence of asptic meningitis or appearance of contrast enhancing lesions in the subcortical space. This case is thought to be a possible IgG4-related disease, and we report it with a discussion of the literature.

Key words: meningioma | IgG4-related disease | asptic meningitis