COVID-17. TUMOR TREATING FIELDS FOR GLOBLASTOMA THERAPY DURING THE COVID-19 PANDEMIC: EXPERT CONSENSUS ON USE AND EXPERIENCE
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BACKGROUND: The COVID-19 pandemic has had an incalculable impact on national health care systems and this is especially evident in treatment decision-making for cancer patients. Glioblastoma (GBM) patients are among the most vulnerable due to increased incidence in the elderly (median age 64 years, peak between 73–84 years) and the short survival time. A virtual meeting was convened on May 9, 2020 with a panel of international neuro-oncology experts with hands-on experience using Tumor Treating Fields (TTFields). The objective was to assess the risk-to-benefit and to provide guidance for using TTFields in GBM during the COVID-19 pandemic. PANEL DISCUSSION: Topics discussed included support and delivery of TTFields during the COVID-19 pandemic, concomitant use of TTFields with chemotherapy, and any potential impact of TTFields on the immune system in an immunosuppressed GBM population. Special consideration was given to TTFields’ use in elderly patients and in combination with radiotherapy regimens (standard versus hypofractionated). Finally, we discussed the need to better capture COVID-19 positive brain tumor patients to analyze longitudinal outcomes and subtle changes in treatment decision-making during the pandemic. EXPERT CONSENSUS: TTFields is a ports of home-use device used via telemedicine and safely used in GM patients during the COVID-19 pandemic. TTFields has no known immunosuppressive effects and is a reliable treatment modality with a relatively favorable side-effect profile. This is important during a crisis when all non-surgical treatments may be limited, especially for elderly patients and patients with multiple co-morbidities. It is too early to estimate the full impact of COVID-19 on the global healthcare system and on patient outcomes and strongly recommended the need to collaborate with existing COVID-19 registries (i.e., CCL19, ESOM, CoCARE, etc.) to follow CNS tumor patients. These efforts would have implications in assessing lessons-learned from this crisis and future guideline development.

COVID-18. POTENTIAL TO HARNESS SARS-COV-2 NEUROTROPISM IN THE DELIVERY OF ONCOLOGY VIRONOTHERAPY FOR THE TREATMENT OF HIGH-GRADE GLIOMA
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BACKGROUND: High-grade gliomas (HGG) pose therapeutic challenges stemming from blood brain barrier, infiltrative growth, suppressed immune function, and tumor heterogeneity. Oncolytic viruses (OVs) are gaining traction for addressing these challenges. There is evidence that the SARS-CoV-2 glycoprotein spike binds the ACE-2 receptor in nasal epithelium and reaches the brainstem and thalamus via afferent transport through the olfactory pathway, making it an attractive candidate for OV therapy. Prior studies on chimerization of pathogenic virus-derived glycoprotein with non-pathogenic virus or another virus (e.g., SARS-CoV-2) could enhance the safety of a wild-type virus while improving the safety profile of the resulting OV. We review, 1) the engineering of chimeric OVs used in the treatment of HGG; 2) potential for a novel chimeric virotherapy in which the SARS-CoV-2 glycoprotein spike can be used to deliver OV therapy intranasally; and 3) areas which warrant further investigation to develop this approach for clinical use. METHODS: We...
performed an extensive review of chimeric OVs and specific modifications engineered to optimize safety and efficacy. Additionally, we assessed potential to use these principals to engineer the SARS-CoV-2 glycoprotein spike onto non-oncologic, replication capable, chimeric for noninvasive, intranasal delivery. RESULTS: Viruses with patho-
genic properties in wild-type have been successfully used as components of OVs and have demonstrated potential in both preclinical and clinical trials. Concomitant with non or wild-type virulence, notable toxicities were not observed in clinical trials, highlighting the potential of viral pseudotyping as a safe therapeutic approach. CONCLUSIONS: The proposed method to utilize the SARS-CoV-2 glycoprotein in a novel chimeric poses advantages including 1) potential for non-invasive delivery, 2) therapy without need for maximal or uniform tumor coverage due to replication compet-
tence, 3) ability to reach infiltrative glioma cells, 4) potential to reach the brainstem, and 5) stimulation of host immunity through tumor cell lysis and antigen presentation

COVID-19 COGNITION, CANCER, AND COVID: DELIVERING DIRECT-TO-TOMED TELE-NEUROPSYCHOLOGY SERVICES TO NEURO-ONCOLOGY PATIENTS
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BACKGROUND: The COVID-19 pandemic altered the delivery of healthcare services globally with a rapid adoption of teleneurology to meet patient and provider needs. Tele-neurology is critical for neuro-oncology patient populations, who may be at an increased risk of infection, yet require continuity of care. An im-
portant aspect of neuro-oncology care includes neuropsychological assess-
ment, which can be challenging to complete outside of a structured testing environment. Teleneuropsychology (TPN) has been explored under prolonged conditions and proven feasible and reliable. Conducting TPN visits directly to the patients’ home (DTH-TNP) had minimal study prior to the pandemic, but was implemented to reduce COVID-19 exposure. METHODS: We used survey, the examination of patient acceptance and clinician feasibility of DTH-TNP at two regionally diverse medical institutions routinely providing neuro-
psychological assessments services to neuro-oncology patients from April to August 2020. Massachusetts General Hospital (MGH) and Virginia Commonwealth University (VCU). RESULTS: 45 patients voluntarily re-
responded (MGH=30, VCU=15) and 98 percent (MGH=100%, VCU=93%) of respondents were satisfied with the DTH-TNP experience. Nine percent (MGH=7%, VCU=13%) reported challenges (e.g., technological issues) during the appointment. Eighty-nine percent (MGH=90%, VCU=87%) would recommend the virtual visit to others. Patients perceived reduced risk of infection (MGH=77%, VCU=87%) and time traveling to clinic (MGH=87%, VCU=80%) as favorable aspects of DTH-TNP. 43 clinician surveys collected at MGH indicated that clinicians were able to achieve the goals of their appointment in 91% of clinical encounters. Common issues reported by clinicians included trouble connecting (7%) to the telemedicine platform and environmental disruptions (12%). DISCUSSION: This pre-
liminary data suggests neuro-oncology patients and clinicians find DTH-
TNP to be an acceptable and feasible practice, while also recognizing its
limitations. This study is limited in that voluntary patient surveys are subject to bias. These results suggest that further study of DTH-TNP (e.g., reliability, validity, and limitations) for neuro-oncology patients is warranted. Future directions are discussed.

COVID-20 COVID-19 INFECTION DURING CHEMOTHERAPY FOR MALIGNANT GLIOMA: OUTCOMES AMONG 3 PATIENTS
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BACKGROUND: Chemotherapy may increase risk of SARS-CoV-2 infection and COVID-19 severity. METHODS: A patient developed COVID-19 during chemotherapy for glioma. We retrospectively identified others diagnosed with COVID-19 during temozolomide or lomustine for glioma. RESULTS: (1) A 64 year-old woman (index patient) with anaplastic oligodendroglioma received PCV 22 months previously. Baseline White Blood Cell (WBC) count was 4.2 and Absolute Neutrophil Count (ANC) was 2.7 K/µL, KPS was 90 without comorbidities. For recurrence she ini-
tiated temozolomide but developed fever on cycle 1 day 2. SARS-CoV-2 PCR was positive. Further temozolomide was held. She is recovering as an outpatient. (2) A 27 year-old man with anaplastic astrocytoma received con-
current RT and temozolomide then 1 cycle of PCV. WBC was 8.3, ANC 5.2, and KPS 90. Obesity, asthma, and pre-diabetes were comorbidities. Hypoxia/hypoguesia and low-grade fever began, in retrospect, during concurrent RT/temozolomide. PCR for SARS-CoV-2 was negative 2 months after symptom onset; serology detected both IgG and IgM when WBC was 6.6 and ANC 4.0. Cycle 2 of adjuvant temozolomide was held until fever resolved (spontaneously); hypoxia/hypoguesia per-
sist. (3) A 53 year-old man with glioblastoma previously received RT/ temozolomide, then lomustine and bevacizumab for progression. WBC was 8.1, ANC 4.0, and KPS 60. He was obese, fever present. Symptoms pro-
duced on lomustine cycle 2 day 38. SARS-CoV-2 PCR was positive. He was hospitalized and chemotherapy held; symptoms resolved 12 days after onset, but PCR continued to show detectable virus 32 days later. PCR became negative after treatment restarted uneventfully. All patients were comorbidities. Hyposmia/hypogeusia and low-grade fever began, in current RT/temozolomide then 1 cycle of adjuvant temozolomide. Baseline

COVID-22 COVID-19+ GLIOMA PATIENT CARE: LESSONS FROM A 5-PATIENT CASE SERIES
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Gloma patients, like other cancer patients, are at an increased risk of COVID-19 infections, but there are no specific guidelines on how their care should be modified during this pandemic. The challenge to develop such guidelines is largely related to the limited number of reported cases and lack of studies on this particular patient population. We present a 5-patient case series of glioma, detailing their baseline characteristics, treatment courses, lab abnormalities, and the changes made to their care after they developed COVID-19. Two patients were rehabilitation facility residents. The most common lab ab-
normality was lymphopenia seen in 4/5 patients. Other abnormalities included elevated ferritin/total bilirubin/CRP/LDL/Hypercalcemia/D-dimer, thrombocytopenia/leukopenia, and low sodium/vitamin D. Chest x-ray find-
ings were normal in 3/5 patients and showed ground glass opacity in 1 patient. COVID-19 screening during different phases of glioma therapy is recommended. Therapy interruptions or shortening duration of treatment particularly of temozolomide given its risk on lymphopenia may be needed. Lymphopenia thresholds, MGMT promoter methylation status, and resi-
dence in rehabilitation facilities may help stratify glioma patient COVID-19 risks further. Patients and their family will need to be involved in therapies’ risk-benefit discussions during this pandemic.

COVID-23 PLANNED-USE GLUCARICIDASE FOR OUTPATIENT HIGH DOSE METHOTREXATE (HD-MTX) ADMINISTRATION IN PATIENTS WITH CNS LYMPHOMA (CNSL) DURING THE COVID-19 PANDEMIC
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Infection with SARS CoV-2 virus has resulted in a global pandemic of COVID-19, a respiratory illness with a crude mortality rate of 3–4%. Risk of death is higher in the elderly and in patients with underlying comorbid conditions. When local incidence of COVID-19 is high, hospital resources are scarce and elective admissions and procedures are placed on hold. Pa-
patients with CNSL receiving first-line HD-MTX require admission for moni-
toring and aggressive hydration to prevent toxicity. This study explores the feasibility of planned-use glucaricidase, a recombinant bacterial enzyme that rapidly reduces serum MTX levels, to facilitate outpatient administration of HD-MTX. Eligible adult patients had isolated CNSL and had previously tolerated inpatient HD-MTX. MTX 3.5 mg2 was administered in the out-
patient setting with hydration. Patients returned 24 hours after MTX ad-
mistration. To date, seven outpatient HD-MTX treatments were adminis-
tered eight days later. One patient was asymptomatic, tested positive during a routine pre-chemotherapy screening, and initiation of temozolomide was delayed by two weeks after a negative repeat test. All four symptomatic patients were rehabilitation facility residents. The most common lab ab-
normality was lymphopenia seen in 4/5 patients. Other abnormalities included elevated ferritin/total bilirubin/CRP/LDL/Hypercalcemia/D-dimer, thrombocytopenia/leukopenia, and low sodium/vitamin D. Chest x-ray find-
ings were normal in 3/5 patients and showed ground glass opacity in 1 patient. COVID-19 screening during different phases of glioma therapy is recommended. Therapy interruptions or shortening duration of treatment particularly of temozolomide given its risk on lymphopenia may be needed. Lymphopenia thresholds, MGMT promoter methylation status, and resi-
dence in rehabilitation facilities may help stratify glioma patient COVID-19 risks further. Patients and their family will need to be involved in therapies’ risk-benefit discussions during this pandemic.

NEURO-ONCOLOGY • NOVEMBER 2020 i25

Abstracts