survival estimates and Cox Proportional Hazards Regression were performed, adjusting for sex, histology, age group, region, and urban-rural residence. Rural residence was defined using Statistics Canada's "Rural and Small Town" definition of living in a region with a population of less than 10,000 people. Results: No significant difference between urban and rural residence was identified in crude KM survival estimates. Though not significant, 5-year survival was generally better among rural residents than urban residents, except for rural residents with anaplastic astrocytoma. There remained no significant difference for Cox hazard ratios after adjustment for age, sex, or region. Conclusions: This is the first study to examine the effect of urban-rural residence on brain cancer survival. No significant differences for any histology were found, indicating equitable access to care for brain cancer patients in Canada, regardless of their location of residence.

PC3 – 179

Analysis of Glioblastoma Physical Characteristics in Patients Benefiting from Tumor Treating Electric Fields Therapy

P.P. San[1], J. Timmons, E. Lok, K.D. Swanson, E.T. Wong
[1]*Harvard Medical School/Beth Israel Deaconess Medical Center*
ewong@bidmc.harvard.edu   psan@bidmc.harvard.edu

Tumor treating electric fields (TTFields) are an established treatment for glioblastoma patients. But the anatomical and physical characteristics of the brain and tumor contributing to treatment efficacy are unknown. We contoured gross tumor volume (GTV) using ScanIP and measured tumor size according to the RANO criteria on 5 patients with recurrent glioblastomas who benefited from TTFields (cohort 1) and 5 who did not (cohort 2). Tumor surface area and geometric centroid distance (GCD) from the bilateral ventricles were computed. Wilcoxon rank sum test was used to compare these physical parameters between the two cohorts. The results showed that the respective median GTV was 11.6cm3 and 38.1cm3 (P=0.0591), while the respective median GCD was 5.0cm and 5.3cm (P=0.6761), in cohort 1 and 2. The tumor size had a median of 8.2cm2 in cohort 1, as compared to a median of 53.9cm2 in cohort 2 (P=0.0591). The surface area had a median of 56.2cm2 in cohort 1, as compared to a median of 214.0cm2 in cohort 2 (P=0.4034). After removing an outlier from cohort 1 and another from cohort 2, the respective median GTV was 9.7cm3 and 41.3cm3 (P=0.1003), and the respective median surface area was 46.5cm2 and 236.0cm2 (P=0.0304). The respective median surface area/GCD was 13.3cm and 38.9cm (P=0.0304) and the respective median GTV/GCD was 2.7cm2 and 8.5cm2 (P=0.0304). The data suggest that the ratio of surface area/GCD and GTV/GCD, which are proportional to the tissue capacitance, may be an important parameter for optimizing TTFields efficacy in the treatment of glioblastoma.

PC3 – 180

Is Conventional and Perfusion MRI Useful in Predicting Histopathology Defined Percentage of Recurrence in High Grade Gliomas

T.B. Nguye, University of Ottawa, Ottawa, ON
thnguyen@toh.on.ca

New enhancing lesions after surgery and chemoradiation for high grade glioma commonly contain variable proportions of tumor recurrence (TR), tissue necrosis and treatment related changes. Our purpose is to determine whether the pattern of contrast enhancement and perfusion MR parameters correlate with the percentage of TR in these lesions. Methods: We prospectively enrolled 30 patients with high grade gliomas who presented with a new enhancing lesion suspicious for tumor recurrence. Each patient underwent conventional MRI with DCE and DSC perfusion MRI. The pattern of enhancement was classified by a blinded neuroradiologist in 5 different categories (solid, focal nodular, peripheral rim, hazy, punctate). A hot spot region-of-interest analysis was performed for each parametric map (Ktrans, AUC, Vp, corrected CBV). TR percentage was defined histopathologically. The lesions were categorized into predominant TR (=tumor>70%), predominant treatment related changes (T=<35%) and mixed lesions (35 %< T=<70%). Differences between the groups were assessed via Kruskal-Wallis and Mann-Whitney U tests. Results: There were 32 lesions (4 predominantly treatment related lesions,5 mixed lesions,23 predominant tumor recurrence). There is no significant difference in the enhancement pattern between the three groups (p=0.18).Statistically significant difference was only seen for corrected CBV between the three groups (p=0.01), mainly between the mixed and predominant tumor groups. The rest of the perfusion parameters did not show a statistically significant difference between the groups(p>0.05). Conclusion: Corrected CBV might be useful in predicting the proportion of tumor recurrence in post-treatment high grade gliomas.

PC3 – 190

Impact of Functional Magnetic Resonance Imaging on Clinical Decision Making and Outcomes in Patients with Low Grade Gliomas

E. Kosteniuk[1], J.C. Lau, J.F. Megyesi
[1]*School of Medicine and Dentistry, University of Western Ontario, London, ON*
skosteniuk2018@meds.uwo.ca

This study aims to evaluate the impact of preoperative functional magnetic resonance imaging (fMRI) on low grade glioma (LGG) patients' outcomes and surgical planning. Methods In this retrospective matched cohort study of a single surgeon's patients, we are comparing two groups of LGG patients (WHO grade II) based on exposure to fMRI. Sixteen LGG patients who underwent fMRI were selected, and 32 control (non-fMRI exposed) patients are being selected through propensity score matching from a pool of 764 brain tumour patients. To assess the impact of fMRI data on clinicians' decision making process, neurosurgeons within a single centre are completing questionnaires regarding treatment options for each LGG fMRI patient based on clinical data and structural imaging before and after fMRI. Results Within the group of 16 LGG patients who have undergone fMRI studies over a 12-year period, most patients presented with seizures (81 percent), and most lesions were left-sided (81 percent) and frontal (75 percent). Patients underwent either craniotomy (50 percent), stereotactic biopsy (25 percent) or nonsurgically management (25 percent). In surgical patients, between presurgical assessment and eight week post-surgical follow-up, mean modified Rankin scale improved from 1.80 (sd 0.79) to 1.50 (sd 0.97). In our cohort, 5-year

mortality was 12.5 percent (mean follow-up duration 5.46 years). Conclusions Data analysis is ongoing with plans to compare relevant patient demographics and outcomes, and to analyse questionnaires to elucidate how surgeons incorporate fMRI data into their therapeutic approach.

PC3 – 191

doi:10.1017/cjn.2016.387

Assessment of Preoperative Functional MRI Measurement of Language Lateralisation in Brain Tumour Patients

E. Kosteniuk[1], J.C. Lau, J.F. Megyesi
[1]*School of Medicine and Dentistry, University of Western Ontario, London, ON*   skosteniuk2018@meds.uwo.ca

This study aims to evaluate reliability of clinical functional magnetic resonance imaging (fMRI) in identifying language lateralisation index (LI), verified with Edinburgh handedness inventory (EHI), in brain tumour patients. Methods In this retrospective study, 31 of a single surgeon's brain tumour patients over a 12 year period have been selected. Lesion type varied, 12 (39 percent) were high grade gliomas, 10 (32 percent) low grade gliomas, 3 (10 percent) meningiomas, and 6 (19 percent) other types. Patients underwent language fMRI paradigms for preoperative assessment, and a neuroimaging analyst was able to identify an LI value for at least one Brodmann area (BA). For each paradigm, a neuroimaging analyst attempted to calculate LI for Wernicke's area (BA 22) and Broca's area (BA 44 and 45). Results Of 113 total LI values, 66 (58 percent) were concordant to EHI-predicted hemispheric dominance. Reliability of language LI appears dependent upon the type of language task performed. Verb generation correctly identified Broca's area in 18 patients (64 percent) and Wernicke's area in 11 patients (61 percent), sentence completion correctly identified Broca's area in 18 patients (72 percent) and Wernicke's area in 9 patients (60 percent), and naming correctly identified Broca's area in 7 patients (47 percent) and Wernicke's area in 3 patients (27 percent). Conclusions Results show limited correlation between language LI determined by fMRI and EHI. The main limitation of this study is that language LI is being compared to EHI, rather than gold standard measure of hemispheric dominance (e.g. Wada).

OTHER CLINICAL

PC3 – 128

doi:10.1017/cjn.2016.388

Clinical Profile and Treatment Outcomes of Patients with Primary CNS Lymphoma in a Tertiary Hospital in the Philippines: An Eight-Year Retrospective Review

M.C. Concepcion Sales[1]
[1]*Philippine General Hospital, Manila, Philippines*
macarmelamd@yahoo.com

Primary CNS Lymphoma (PCNSL) is an unusual extranodal form of Non-Hodgkin's lymphoma with a locally aggressive course but a rare tendency to disseminate systemically. It has been documented in that the clinical characteristics and response to treatment among Asians is comparable to the Western population yet no studies done locally are available. Objectives: This study aims to determine the clinico-pathologic profile of patients diagnosed with PCNSL seen at Philippine General Hospital (PGH) from January 2006 to September, 2014 and to evaluate the patients' response to the following treatment modalities: 1) Combination chemotherapy 2) Chemo-RT 3) Single agent chemotherapy and 4) no specific anti-lymphoma treatment. Methodology: This is a descriptive and retrospective study that included all cases of histologically-proven PCNSL seen at the PGH from January 2006 to September, 2014. The clinical profile, imaging studies and biopsy findings were obtained from the patient records. The survival rates at the end of one and two years of diagnosis were computed. Results and Conclusion. Among patients diagnosed with PCNSL at PGH, there is a higher incidence of PCNSL among males with a male to female ratio of 1.4:1 and have a younger onset with a median age of 50.2 years. Most patients presented with signs of increase ICP and majority had solitary cortical lesions with histopathologic diagnosis of diffuse large B cell lymphoma. Patients who did not undergo any form of treatment had a mean survival of 10 months. Immunocompromised patients had a shorter life-span with a mean survival of 7.5 months. Treatment of combination chemotherapy with HD-MTX and Rituximab had the most favorable outcome followed by HD-MTX only with a 2 year survival rate of 100% and 66% respectively while patients who underwent chemo-RT had a 2 year survival rate of 33% with a high incidence of neurocognitive delay.

PC3 – 129

doi:10.1017/cjn.2016.389

Primary Intracranial Round Cell Sarcoma in an HIV Patient: A Case Report and a Review of Literature

M.C. Concepcion Sales[1]
[1]*Philippine General Hospital, Manila, Philippines*
macarmelamd@yahoo.com

Primary intracranial sarcoma among patients diagnosed with HIV is rare. Case reports published have shown that there is an increasing number of cases of leiomyosarcoma, hemangiopericytoma and rhabdomyosarcoma among these patients. Further, there are also few reports that sarcomas may present atypically, sometimes mimicking a brain abscess. We report a case of a 26 year old male, newly diagnosed HIV, who presented with bilateral chronic suppurative otitis media associated fever, headache and vomiting. Neuroimaging showed with multiple rim enhancing masses on the left temporal, parietal and occipital areas and bilaterally sclerosed mastoid air cells. Initial impression was an otogenic abscess. Burrhole craniotomy and evacuation of the cystic masses was done. Histopathologic examination revealed a small round blue cell sarcoma. Different immunostains were done to differentiate the various subtypes of sarcomas possible. Patient was discharged improved but did not consent to chemotherapy or radiotherapy.

PC3 – 130

doi:10.1017/cjn.2016.390

A Meta-Analysis on the use of High-Dose Methotrexate Only Versus Combination Chemotherapy for the Treatment of Newly-Diagnosed Patients with Primary CNS Lymphoma