Neuro-oncology

P.040

Moncton brain tumour tissue biorepository: diagnostic and therapeutic initiatives for glioma research in New Brunswick

V Charest (Moncton) T Dao (Moncton) P Morin (Moncton) P Whitlock (Moncton) D Charest (Moncton)*

doi: 10.1017/cjn.2017.125

Background: Improving diagnostic and therapeutic tools associated with glioblastoma multiforme (GBM), an aggressive brain tumour, is crucial as average patient survival remains slightly over a year. Challenges include early diagnosis and acquired drug resistance. Improving these challenges notably require a multidisciplinary team and a dedicated brain tumour specimen collection initiative. We hypothesize that implementing such an approach in Moncton would provide significant benefits to GBM patients and researchers in New Brunswick. *Methods:* A Brain Tumour Tissue Repository was instigated to collect and preserve primary tumour specimens. Storage of circulating samples from patients undergoing temozolomide (TMZ) therapy was also performed. In parallel, molecular leads were investigated in different GBM models to identify therapeutic targets. *Results:* Collection of 7 primary specimens was accomplished in 2016. Over 15 primary samples are housed in the tumour biorepository to date with circulating samples collected from 3 patients. Additionally, numerous deregulated non-coding RNAs were identified by qRT-PCR in GBM models and shown to be modulated following TMZ treatment warranting further investigation. *Conclusions:* Overall, these results provide novel therapeutic leads for GBMs and, most importantly, highlight the instigation of a New Brunswick-based brain tumor biorepository which will undoubtedly strengthen brain tumour research in the Maritimes.

P.041

Adult craniopharyngioma: case series, systematic review and meta-analysis

C Dandurand (Vancouver) AA Sepehry (Vancouver) MH Asadi Lari (Vancouver) R Akagami (Vancouver) PA Gooderham (Vancouver)*

doi: 10.1017/cjn.2017.126

Background: The optimal therapeutic approach for adult craniopharyngioma remains controversial. Some advocate for gross total resection (GTR), while others support subtotal resection followed by adjuvant radiotherapy (STR + XRT). *Methods:* MEDLINE (1946 to July 1st 2016) and EMBASE (1980 to June 30th 2016) were systematically reviewed. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline was followed. At our institution, from 1975 to 2013, 33 patients were treated with initial surgical resection for adult onset craniopharyngioma. 22 patients were included in the present case series. *Results:* Eligible studies (n=21) were identified from the literature in addition to a case series of our institutional experience. Three groups were available for analysis: GTR, STR + XRT, and STR. The rates of recurrence were 17 %, 27 % and 45%, respectively. This differs from childhood population. The difference in risk of recurrence after GTR vs. STR + XRT did not reach significance (OR: 0.63, 95% confidence interval: 0.33-1.24, P = 0.18). This maybe because of low pooled sample size (n=99) who underwent STR+XRT. *Conclusions:* This is the first and largest meta-analysis examining rate of recurrence in adult craniopharyngioma. Thus, when safe and feasible, a goal of gross total resection should be favored. Each patient should be considered on a case-by-case basis.

P.042

The use of functional MRI in low grade glioma surgery - a Canadian survey

J Megyesi (London) S Kosteniuk (London) J Lau (London)*

doi: 10.1017/cjn.2017.127

Background: The goal of a brain tumour operation is maximal safe resection. No widely used guidelines for the use of functional magnetic resonance imaging (fMRI) in these patients currently exist. In this study we are trying to determine if and how Canadian neurosurgeons use fMRI in the management of patients with low grade glioma (LGG). *Methods:* A 15-25 minute survey was created using an online survey tool. In Part One of the study the survey was distributed to neurosurgery consultant and resident staff at the London Health Sciences Centre (LHSC). In Part Two of the study the survey is being distributed to members of the Canadian Neurosurgical Society. The survey consists of two sections - background and case-based decision making. *Results:* There were six surveys from the LHSC staff. On average respondents indicated that they obtain fMRI for 9% of LGG patients, though 67% indicated that they were comfortable ordering and interpreting fMRI studies. In the case-based section, fMRI data did not tend to affect respondents' preferred treatment, confidence in their treatment, or their predicted risk of surgical treatment. *Conclusions:* In this limited survey of LHSC neurosurgical staff there was no regular use of fMRI in LGG patients. We await the results of a national survey of Canadian neurosurgeons.

P.043

Presence of infiltrative glioblastoma cells in an isolated area of diffusion restriction

*B Clarke (Halifax) MH Schmidt (Halifax) GE Pickett (Halifax)**

doi: 10.1017/cjn.2017.128

Background: Diffusion weighted imaging (DWI) has useful diagnostic and predictive value in the assessment of glial tumors. Most studies evaluating the use of DWI in glioblastomas have done so in regions that overlap with abnormal T2/fluid attenuation inversion recovery (FLAIR) signal or contrast enhancement. Isolated DWI abnormalities, which do not overlap with contrast enhancing lesions, are less commonly described. Their relationship with the tumour, and implications for prognosis, are not well understood, though it has been speculated that these lesions may represent infiltrative tumour cells. To our knowledge, this is the first reported case where the presence of infiltrative tumour cells in an area of diffusion restriction has been confirmed via biopsy. *Methods:* A ring enhancing lesion and isolated DWI hyperintensity from a newly diagnosed patient were biopsied separately. *Results:* Pathological specimens from both targets were identified as glioblastoma (WHO Grade IV), negative for IDH-1 R132H mutation, with methylated MGMT promoter. *Conclusions:* In patients with glioblastoma, DWI hyperintensities distant from