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The Ottawa Epilepsy Program: region-wide coordinated and multidisciplinary care in the 21st century

N Porter (Ottawa) *K Muir* (Ottawa) *A Rezazadeh* (Ottawa) *S Whiting* (Ottawa), *T Fantaneanu* (Ottawa)*

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Background: Epilepsy is the most common chronic neurological illness worldwide, affecting more than 330, 000 people in Canada, 10, 000 of which reside in the Ottawa area. Despite facing higher mortality, stigma and social barriers, PLE (people living with epilepsy) incur treatment gaps even in high income countries like ours. Our goal was to address this burden locally with the creation of novel, community-integrated, care delivery for PLE in our area; we describe its inception. **Methods:** A transition program bridging pediatric and adult institutions was created to address the care continuity gap in 2017. Following a meeting of key stakeholders in the region in 2019, the community group was integrated into the model of care and the city-wide program was created incorporating adult, pediatric, transition and community pillars. A patient friendly website was launched in 2020 (ottawaepilepsyprogram.ca). **Results:** 170 patients were followed in the transition program since 2017. Adult and pediatric pillars have referred 70 patients to the community program between 2019-2020, 48 between 2020-2021. Through this, PLE are able to access the Clinic to community (C2C) and UPLIFT programs for social support services and mental health, respectively. **Conclusions:** An interconnected region-wide program can support PLE and foster innovative care integration across disciplines.

P.019

A machine learning approach to asymmetric burst suppression and refractory status epilepticus outcome

G Farhani (London) *N Farhani* (Winnipeg)*, *MC Ng* (Winnipeg)

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Background: Treatment of refractory status epilepticus (RSE) is often titrated to achieve EEG burst suppression. However, optimal burst suppression characteristics are largely unknown. We used an unsupervised machine learning algorithm to predict RSE outcome based on the quantitative burst suppression ratio (QBSR). **Methods:** We conducted principal component analysis (PCA) as a linear combination of 22 QBSR features from non-anoxic adult RSE patients at the Winnipeg Health Sciences Centre. We also determined the most predictive components that significantly differed between survivors and non-survivors. **Results:** Using 135,765 QBSRs from 7 survivors and 10 non-survivors, PCA identified a predominantly non-survivor cluster of 8 patients (75% non-survivors). The first 2 PCA components comprised 75% data variance. The most important first component feature was skewness of QBSR distribution in the right or left hemisphere (0.52 each). The most important second component feature was third QBSR quantile of the left hemisphere (0.49). Only right hemispheric QBSR features significantly differed between groups: QBSR skewness for the first component (Benjamini-Hochberg adjusted p=0.038) and average QBSR for the second component (0.32, Benjamini-Hochberg adjusted p=0.046). **Conclusions:** Our pilot study shows that RSE patient survival may be impacted by QBSR, with differential hemispheric EEG burst suppression characteristics predicting poor RSE outcome.

P.020

The North American AED Pregnancy Registry: A Canadian Subgroup Analysis (1997-2019)

J Hébert (Toronto)* *SN Conant* (Boston) *LB Holmes* (Boston), *E Bui* (Toronto)

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Background: This study aims to provide data on the care of pregnant women with epilepsy (pWWE) that is directly applicable to the Canadian context. **Methods:** Between 1997 and 2019, pWWE from Canada and the USA who enrolled into the North American AED Pregnancy Registry (NAARP) completed a questionnaire on their AED (anti-epileptic drug) usage. Enrollment rates to NAARP were compared between the two countries, and between the different Canadian provinces using population-based enrollment rate ratios (PERR). The AED prescription pattern among Canadian pWWE was analysed and compared with the USA. **Results:** During the study period, 10,215 women enrolled into NAARP : 4.1% (n=419) were Canadian, below the expected population-based contribution (PERR=0.42; $p<0.01$). Within Canada, the three northern territories (PERR=0; $p<0.01$), Prince-Edward Island (PERR=0; $p<0.01$), and Quebec (PERR=0.41; $p<0.01$) had the lowest enrollment rate ratios. Lamotrigine was the most commonly prescribed AED among canadian pWWE; they were, however, more likely to be on polytherapy (25%; p=0.13), on Carbamazepine (24%; $p<0.01$) or valproic acid (21%; $p<0.01$) than their American counterparts. **Conclusions:** Greater enrollment of Canadian women to NAARP, through enhanced clinician referrals, in particular from underrepresented provinces/territories, could lead to more accurate population-specific data and help identify gaps in the care of this vulnerable patient population.

P.021

Electdetect: An Artificial Neural Network for the Detection of Artifacts in intracranial EEG Recordings From Patients with Epilepsy

M Istasy (Toronto)* *AG Schjetnan* (Toronto) *O Talakoub* (Toronto), *T Valiante* (Toronto)

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Background: Intracranial electroencephalography (iEEG) recordings are obtained from the sampling of sub-cortical structures and provide extraordinary insight into the spatiotemporal dynamics of the brain. As these recordings are increasingly obtained at higher channel counts and greater sampling frequencies, preprocessing through visual inspection is becoming untenable. Consequently, artificial neural networks (ANNs) are now