3. Determine how seizure characteristics affect accuracy of qEEG reads

METHODS/STUDY POPULATION:

- Subjects: Nurses caring for patients admitted to the Neuro ICU at Duke University Hospital who are initiated on cEEG.
- Nurses evaluate qEEG display at the bedside on an hourly basis after undergoing a standardized qEEG training session. The standard practice of independent review of cEEG and treatment by the Neuro ICU team remains unchanged.
- Post-hoc review of cEEG data by two blinded, board-certified neurophysiologists will be performed for each patient. The raw cEEG data will be scored for the number of seizures present per hour, background, seizure duration, and seizure spatial extent.
- The time from first seizure occurrence to clinical recognition will be recorded.

RESULTS/ANTICIPATED RESULTS:

- Thus far, 91 patients with 583 1-hour blocks of nurse interpretations have been studied, with 6 patients experiencing seizures while on study. Enrollment will be completed on 1/17/20
- Preliminary data show a sensitivity of 95.8% (79.9%, 99.9%), specificity of 95.2 (93.1%, 96.8%), positive predictive value of 46.0% (36.9%, 55.4%), negative predictive value of 99.8% (98.7%, 99.9%), positive likelihood ratio of 19.8 (13.6, 28.9), negative likelihood ratio (0.04 (0.01, 0.3). All confidence intervals are 95%. False alarm rate is 0.05/hour.
- Further analyses are pending completion of enrollment in January 2020.

DISCUSSION/SIGNIFICANCE OF IMPACT: Nurse interpretation of real-time bedside qEEG for seizure detection is feasible in the Duke Neuro ICU. QEEG functions well as a screening tool with good specificity and low false alarm rate. Use of qEEG by nurses could lead to shorter time to seizure detection, which may improve patient outcomes. CONFLICT OF INTEREST DESCRIPTION: Safa Kaleem, BS: Research reported in this publication was supported by a Pfizer Foundation grant and the Duke Clinical Translational Science Institute (CTSI). The content is solely the responsibility of the authors and does not necessarily represent the official views of the Pfizer Foundation or the Duke CTSI. Jennifer H. Kang, MD: None to declare. Alok Sahgal, MD: None to declare. Christa B. Swisher, MD: Received speaker's honorarium from EISAI and UCB.

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Effects of Single-dose Preoperative Pregabalin on Postoperative Pain and Opioid Consumption in Cleft Orthognathic Surgery

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OBJECTIVES/GOALS: The current opioid epidemic has placed post-operative pain management under scrutiny. Limiting post-operative pain can decrease overall opioid usage in the recovery period, especially after orthognathic surgery. Several studies have illustrated the efficacy of pregabalin in decreasing postoperative pain and opioid usage in adults undergoing orthognathic surgery. We aim to study the effects of a single dose of preoperative pregabalin on postoperative pain and total opioid consumption after orthognathic surgery in individuals with cleft lip and palate. METHODS/STUDY POPULATION: This was a retrospective cohort study of consecutive patients who received Le Fort I midface advancement between June 2012 and July 2019 by one of two surgeons at a single institution. We took advantage of our institution's implementation, beginning in 2016, of a one-time dose of preoperative pregabalin for LeFort I midface advancement. All patients had diagnosed cleft lip and palate. The treatment group received a one-time preoperative dose of pregabalin. The control group did not receive pregabalin. Total morphine milligram equivalents (MME) consumption was calculated by adding intraoperative opioid administration and post-operative opioid consumption during admission. Postoperative pain control during admission consisted of oral oxycodone and intravenous (IV) hydromorphone or morphine. Duration of hospitalization and pain intensity assessed with the numeric pain rating scale (0-10) were also recorded. The mean postoperative pain assessment scores during admission was calculated for each patient. The median of these individual mean pain assessment scores for each group was subsequently computed. RESULTS/ANTICIPATED RESULTS: Twenty-three patients (14 males, 9 females) were included in this study; 12 patients received pregabalin (median dose: 150mg, range: 100-200mg). Mean age (years) at operation of the pregabalin (18.3 ± 1.9) and control groups (17.8 ± 1.9) were also equivalent ($p = 0.571$). Median hospital stay for both groups was 1.0 day. The pregabalin group had significantly lower consumption of total opioids during admission (total MME 70.95 MME; IQR: 24.65-150.17) compared to the control group (138.00 MME; IQR: 105.00-232.48) (MU = 31.00, $p = 0.031$). Although pain scores in the treatment group (3.21 ± 2.03) were lower than in the control group (3.71 ± 2.95), the difference was not statistically significant ($p = 0.651$, 95% CI [−1.75, 2.75]). DISCUSSION/SIGNIFICANCE OF IMPACT: Based on the results, a one-time preoperative oral dose of pregabalin before orthognathic surgery in patients with cleft lip and palate reduced total opioid consumption during admission. However, there was no difference in length of stay or pain scores within the two groups. A single preemptive oral dose of pregabalin should be considered an effective adjunct to pain management protocols in patients undergoing orthognathic surgery.

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Evaluating the Effect of Prebiotics on the Gut Microbiome Profile and Beta-cell Function in Newly-Diagnosed Type 1 Diabetes

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OBJECTIVES/GOALS: Type 1 diabetes (T1D) results from the autoimmune destruction of insulin-producing β-cells. Emerging data suggest that differences in intestinal microbiota might be critically involved both in autoimmunity and in glucose homeostasis. The prebiotic high amylose maize starch (HAMS) alters the gut microbiome profile and metabolites positively by increasing production of beneficial short chain fatty acids (SCFAs) that have significant anti-inflammatory effects. HAMS also improves glycemia, insulin sensitivity and secretion in healthy non-diabetic adults. Further, an acetylated and butyrylated form of HAMS (HAMS-AB) that increases beneficial SCFA production, namely acetate and butyrate, has been safe and effective in disease prevention in mouse T1D models. The

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