



Comprehensive Research Experience for Medical Students  
Summer Research Program 2019

Supervisor/Project Information Form

*Due February 20 2019 by email to [crems.programs@utoronto.ca](mailto:crems.programs@utoronto.ca)*

**Supervisor Name:**

Dr. Sunit Das

**Project Title:**

Should seizure prophylaxis be standard practice in the post-operative period following craniotomy for brain tumour resection?

**Hospital/Research Institution:**

St. Michael's Hospital

**Email:**

sunit.das@utoronto.ca

**Field of Research (2 keywords):**

Tumour surgery, seizure, prophylaxis

**Department:**

Neurosurgery

**School of Graduate Studies Appointment (IMS, LMP, IHPME etc)? Yes/No: Yes**    **If YES, please name:**

LMP, IMS

**Brief Project Description (< 300 words):**

While the risk of seizure following cranial surgery is well documented, the guidelines regarding use of prophylactic antiepileptic drugs (AED) for seizure prophylaxis in the post-operative period following craniotomy for brain tumour resection are vague<sup>1</sup>. Seizures can have a detrimental effect on patient quality of life (QoL) and independence, including ability to work and drive, potentially leading to income instability and license suspension, respectively<sup>2</sup>. Conversely, there are risks to antiepileptic medication use, such as headache, dizziness, cognitive slowing, gastrointestinal distress, and rash. Clinicians and patients would both benefit from greater clarity regarding these issues.

The purpose of this study is to determine if AEDs for seizure prophylaxis should be administered as a standard of care during the post-operative period in patients undergoing craniotomy for brain tumour resection. To address this question, we will first quantify the incidence of seizures in this patient population through a retrospective analysis of medical records of patients who have undergone craniotomy for brain tumour resection at St. Michael's Hospital from January 2008-December 2018. We will also complete a cost-benefit analysis to understand the economic viability of this treatment. This cost-benefit analysis will involve researching several impacting factors, including the cost of seizure prophylaxis to both the patients and the healthcare system, the extent of prescription insurance coverage available, the impact of seizures on financial stability, daily functioning and QoL, and the risk of untoward side effects with AED use.

We hope that this study will provide critical information about post-operative treatment options regarding seizure prevention, with the aim of improving the quality of future patient care.

**References:**

1. Al-Dorzi HM, Alruwaita AA, Marae BO, et al. Incidence, risk factors and outcomes of seizures occurring after craniotomy for primary brain tumor resection. *Neurosciences (Riyadh)* 2017; 22(2): 107-13.

2. Allers K, Essue BM, Hackett ML, et al. The economic impact of epilepsy: a systematic review. *BMC Neurology* 2015; 15: 245.