Comprehensive Research Experience for Medical Students

Summer Research Program 2021

Supervisor/Project Information Form

Due February 24, 2021 by email to crems.programs@utoronto.ca

Supervisor Name: Sunit Das

Project Title: Brain metastases in the setting of oligometastatic disease

Hospital/Research Institution: St. Michael's Hospital

Email: sunit.das@utoronto.ca

Field of Research (2 keywords): Cancer, population research

Department: Surgery, Division of Neurosurgery

School of Graduate Studies Appointment (IMS, LMP, IHPME etc)? Yes/No: Yes

If YES, please name: IMS
**Brief Project Description (<300 words):**

Oligometastatic diseases occupy a unique space along the cancer continuum, where curative therapies may halt the progression to extensive systemic metastatic disease and prolong cancer-free survival.¹ This paradigm has been demonstrated in the treatment of liver oligometastases in primary colorectal cancer and lung oligometastases in primary breast cancer.² Interestingly, intracranial oligometastases have been reported, yet outside of these anecdotal observations, little is known about their incidence and clinical outcomes. This project aims to:

1. Define the incidence of intracranial oligometastatic disease in patients with primary lung cancer, breast cancer, and melanoma with stable/limited systemic disease or no evidence of systemic disease
2. Define survival in patients with intracranial oligometastatic disease
3. Identify possible prognostic factors for survival in patients with intracranial oligometastatic disease

To accomplish these goals, we propose a retrospective cohort study using data from the Institute for Clinical Evaluative Sciences (ICES). The first aim will describe the incidence of intracranial oligometastatic disease in patients with stable/limited systemic disease or no evidence of systemic disease. The second aim will compare the overall survival (OS) and progression-free survival (PFS) in patients with intracranial oligometastatic disease versus those with systemic metastases in addition to intracranial metastatic disease (IMD). The second study will also aim to identify patient-specific factors that may influence survival in patients with intracranial oligometastatic disease. The findings of this study may guide surveillance and treatment practices in cancer patients with varying degrees of intracranial involvement.