Title: Do “sugar swings” impact the brain software of people with Type 1 Diabetes?

Researchers:

Dr. Sylvain Iceta, Nominated Principal Investigator: Université Laval
Dr. Catherine Bégin, Co-Applicant: Université Laval
Dr. Anne-Sophie Brazeau, Co-Applicant: McGill University
Dr. Claudia Gagnon, Co-Applicant: Centre de recherche du CHUL (CRCHUL) University Laval
Dr. Rémi Rabasa-Lhoret, Co-Applicant: Clinical Research Institute of Montreal (IRCM)

Research area: Type 1 diabetes

Award: End Diabetes 100 Award, 2021-2024

Summary:

It has been reported that one out of 2 people aged over 60 years and living with type 1 diabetes (PWT1D) have alterations in cognitive functions. Cognitive functions are like the software required for the brain to decide or to influence behaviors. Modifications in the brain software can have important consequences on daily well-being, diet (e.g., urge to eat) and treatment decisions to manage diabetes. This in turn can lead to more difficulties to maintain adequate blood sugar levels, setting up a vicious circle. One factor that may affect both eating behaviors and cognitive functions is blood sugar variation (up and downs: “sugar swings”), but it has been poorly studied.

Our fully online project aims to compare two groups of PWT1D: a group with a low blood glucose variability and a group with a high blood glucose variability. Glucose variability will be determined with a glucose sensor (Freestyle® Libre or Dexcom G6) measuring blood sugar continuously. Using computerized tasks and self-reported measures, a wide range of cognitive functions and eating behaviors will be assessed. PWT1D will be also invited to participate in virtual interviews to gather information on how glycemic variability impact their life.

This project will contribute to highlighting the consequences of sugar swings in everyday life, especially how they disturb eating behaviors and brain function. A better knowledge of the mechanisms involved will also result in early detection and management of these issues. Our study will also seek patients’ perspectives that will help design suitable and meaningful recommendations.