A BETTER UNDERSTANDING OF DIABETES REMISSION FOLLOWING SURGICAL TREATMENT OF SEVERE OBESITY

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Innovative Canadian research program in bariatric surgery: The REMISSION Trial

Even if approaches targeting lifestyle must remain an important part of our intervention arsenal to reduce the burden of obesity and cardiometabolic risk in our society, the latter turn out to be rather ineffective in a portion of the population. This is the case in particular for individuals with severe obesity and established metabolic diseases. For these patients, weight loss surgery may represent a reasonable option which most of the time will lead to significant, sustained weight loss and resolution of comorbidities such as diabetes.

From the economic standpoint, the reduction in healthcare costs after treatment outweighs the cost of performing the surgery over a course of 5 years. Yet, much needs to be learned to adequately identify high-responders and low-responders to commonly performed surgeries. The REMISSION Trial will allow us to study the impact of common surgical approaches on the resolution of diabetes, and the mechanisms that underlie these effects.

The study involves collaboration with the Faculty of agricultural and food sciences and the Faculty of medicine at Université Laval as well as the Quebec Heart and Lung Institute Research Center (IUCPQ-Université Laval).

From left to right, Dr Laurent Biertho and Dr André Tchernof.

A multidisciplinary team at the service of individuals with severe obesity

ANDRÉ TCHERNOF

André Tchernof is professor in the School of Nutrition at Université Laval. After a training in Biochemistry and Physiology-Endocrinology at Université Laval he was trained at the post-doctoral level at the Molecular Endocrinology Laboratory of Laval University Medical Center and then at the University of Vermont. He is interested in the metabolic complications of obesity with a particular emphasis on the physiology of adipose tissue and their regional distribution in men and women. His work takes place in the context of the emerging secretory functions of adipose tissue and allows to link clinical observations to the cellular or molecular mechanisms underlying pathophysiological conditions such as obesity or the associated cardiometabolic complications.

LAURENT BIERTHO

Dr. Laurent Biertho underwent his training in biomedical sciences and medicine at Université de Liège in Belgium. He then was trained at the Mount Sinaï School of Medicine in New York and pursued his training in minimally-invasive surgery at McMaster University. After being appointed an Associate Professor position at McMaster in 2005, he obtained in 2006 an Associate professor position at Université Laval to develop minimally-invasive bariatric surgery at the Quebec Heart and Lung Institute. He has developed a recognized expertise on duodenal switch. The vast majority of the 600 bariatric operations performed every year at the Institute are now done with minimally-invasive approaches. In addition to his clinical activities, Dr. Biertho contributes to improvement and dissemination of knowledge through performing studies in bariatric surgery.

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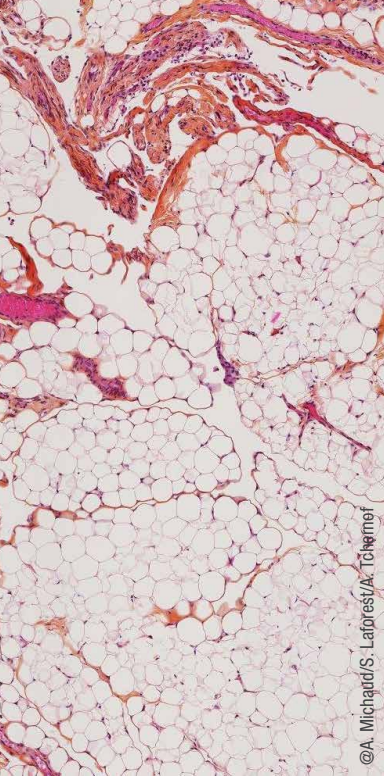
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Severe Obesity

The prevalence of obesity and overweight has steadily increased in men and women over the past decades. In Canada and the world, the number of obesity cases has doubled since 1980. A few studies seem to show that obesity may now be entering a period of relative stability, with smaller increases in adults and also possibly in children. But the prevalence of obesity remains elevated in many countries and still represents a major issue from the scientific and clinical standpoints. Hence, the World Health Organization estimated that more than 1.9 billion adults are overweight and more than 600 million are obese. This represents 39% and 13% of the world population. In Canada, estimates show that approximately 60% of the population is overweight and one out of 4 is obese.

Rapid increases in the number of individuals suffering from severe obesity, or morbid obesity, undoubtedly have a significant impact on our health care system and economy. For example, a 2010 report estimated that direct costs of overweight and obesity represented $6 billion yearly – 4.1 % of Canada's total health care budget. Severe obesity relates strongly to metabolic disease such as diabetes and cardiovascular disease and causes dramatic reductions in quality of life.

Bariatric surgery has gained acceptance as the only treatment with long-term efficacy for severe obesity. It can bring about long-lasting resolution of comorbidities such as type 2 diabetes, hypertension, sleep apnea and many other conditions. At the Quebec heart and Lung institute, more than 600 bariatric surgeries are performed each year.

Even if more than 350,000 bariatric operations are performed yearly throughout the world, access to bariatric surgery remains a challenge in Canada. Moreover, there has never been a formal comparison of diabetes remission rates following the most commonly-performed surgeries.

The REMISSION Trial will involve more than 400 patients and will last for 6 years

The REMISSION Trial (Reaching Enduring Metabolic Improvements by Selecting Surgical Interventions in Obese INdividuals) will allow for a detailed examination of the effects of three bariatric surgery approaches on the remission of type 2 diabetes as well as other obesity-related diseases. Moreover, the mechanisms that underlie these effects will be studied in detail.

The total funding reaches 3.2 million which comes from industrial as well as government sources: Johnson & Johnson Medical Companies (1.7 million), the Canadian Institutes of Health Research (1.25 million) and Fonds de la recherche du Québec santé ($250,000).

The study will involve the detailed follow-up of a group of more than 400 patients undergoing one of three surgical approaches as well as a group control undergoing medical treatment of diabetes. The study will span over 6 years.

The presence of the Research Chair in Bariatric and Metabolic Surgery at Université Laval and Quebec Heart and Lung Institute represented important leverage to secure government funding. The REMISSION Trial has the potential to transform clinical practice by allowing for a better selection of the right surgical approach as a function of the unique characteristics of each individual.


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Study of obesity and nutrition at Université Laval and bariatric surgery at IUCPQ-Université Laval

The long experience in the surgical treatment of obesity at the Quebec Heart and Lung Institute is recognized worldwide, with the development of a unique approach (biliopancreatic diversion with duodenal switch) and the introduction in the bariatric context of type of gastrectomy that has become the most frequently-performed surgery around 2013 (sleeve gastrectomy).

Université Laval ranks 18th among more than 30,000 research institutions around the world in terms of scientific publications on Obesity (ScienceWatch, Thomson Reuters, 2010).

Johnson & Johnson Medical Companies brings support to the treatment of patients suffering from severe obesity and diabetes

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Thanks to our collaborators

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