



Researchers at the University of Montreal are finding answers for cystic fibrosis –related diabetes (CFRD), an increasingly common complication affecting nearly 40% of adults with cystic fibrosis.

August 2011 — Approximately one in 10 Canadians (10%) is diagnosed with diabetes. For adults with cystic fibrosis, this figure increases to four in 10 (40%). A daunting statistic, which has become more apparent as the Canadian CF population continues to grow older.

CFRD is a unique form of diabetes that can lead to further health complications, including weight loss, reduced lung function, and eye, nerve and kidney damage, as well as increased health care expenses. Research has shown that unexplained decreases in lung function can occur up to two years before CFRD is diagnosed. Like cystic fibrosis, diabetes can be treated but not cured.

Researchers at the University of Montreal, under the direction of Dr. Yves Berthiaume, have been looking for answers to this complex disease and its connection to cystic fibrosis. Their research is uncovering important answers. In 2004, the University of Montreal established one of the world's largest adult cohorts of CFRD. Over 200 patients are included and have been followed for over eight years. This research is providing better strategies to prevent and treat CFRD.

“As a mother of two adult children with cystic fibrosis, I know that this research is fundamental. As the cystic fibrosis community ages, CFRD adds yet another huge burden to individuals with CF. I know because my daughter Megan has CFRD which she has been living with for 10 years, and my son has a 40% chance of also contracting the disease. Anything to prevent CFRD, or improve how they live with it, is a priority in my books”, says Debra Berlet, a concerned parent and President, Cystic Fibrosis Canada.

Research using CF mouse models shows that CFRD may be caused by an increased sensitivity of the cells in the pancreas that regulate blood sugar, to the negative effects of inflammation caused by cystic fibrosis. Focusing on this link may mean CFRD could be avoided.

As well as searching for the cause, the team is also focused on prevention of CFRD. Thanks to the cohort study group, researchers found a link between blood sugar levels and the number of circulating white blood cells (cells involved in inflammation). The goal is to target changes in blood sugar in order to prevent the inflammation, thus preventing CFRD from developing.

As part of the research, Dr. Berthiaume's team is interested in benefiting patients directly and quickly. They have undertaken a study of 60% of the cystic fibrosis population in Quebec by reviewing best practices in diagnosing and treating CFRD across six CF clinics. The goal is to improve the detection of CFRD to start treatments early, and connect their research findings to the treatment.

In 2011/12 Cystic Fibrosis Canada provided \$225,000 to the University of Montreal for CFRD research. This research may unlock the door not just for cystic fibrosis related-diabetes, but for the over 285 million individuals living with diabetes world-wide.

