

Potential new treatment for colitis

October 23 2013

A drug currently on the market to treat leukemia reversed symptoms of colitis in lab tests, according to recently published findings by medical researchers with the University of Alberta.

Faculty of Medicine & Dentistry researcher Shairaz Baksh published his team's discovery in the peer-reviewed journal, *PLOS ONE*.

His team discovered that a tumour-suppressor gene can also play an important role in the development of [colitis](#). When this gene quits working or is missing, the inflammation process is triggered and the body loses its ability to repair damaged colon tissue. This leads to severe discomfort and poor recovery following bouts of inflammation. Persistent inflammation is prevalent in inflammatory bowel disease (such as Crohn's disease and [ulcerative colitis](#)).

Baksh and his team wondered if they could interfere with the inflammation process and encourage the body to repair the damaged tissue, so the disease would be less severe and patients could recover more quickly from any flare-ups. The team used a leukemia drug (imatinib/gleevec) that has been on the market for years to treat normal mice and mice that were missing the tumour-suppressor gene.

"The treatment reversed the symptoms of colitis," says Baksh. "We are on the cusp of a new treatment for this condition that affects 150,000 Canadians. We are pretty excited about the impact of this finding.

"We are trying to inhibit colitis by preventing the inflammation that is

causing the damage. More importantly, by controlling or preventing the inflammation, we can reduce the likelihood that patients with ulcerative colitis develop colorectal cancer later in life. About half of these patients develop this type of cancer due to chronic inflammation.

"Our findings also suggest we may have identified novel biomarkers for the appearance and progression of inflammatory bowel disease."

His team is continuing its work in this area and has discovered that other drugs currently on the market have the same effect in reducing the [symptoms](#) of colitis in mice. He hopes to publish the new drug study results very soon, and suspects a new treatment for colitis could be a combination of two to three drugs already on the market.

A combination [drug](#) therapy would need to undergo further testing in the lab, but could go to clinical trials in about five years since the medications are already approved.

About 0.5 per cent of Canadians have colitis. The incidence is higher in Alberta than in other provinces and studies are currently underway to identify the hot spots in the province. Genetics, diet and environment each play an important role in the development of the disease. Symptoms include weight loss, rectal bleeding and weight loss. Patients with the condition have ulcerated and inflamed colons, which are shorter than average and cause a great deal of discomfort.

Baksh examines the link between inflammation and cancer. About one-third of cancers start due to chronic inflammation, he says. For example, about 40 to 50 per cent of patients with ulcerative colitis (a form of [inflammatory bowel disease](#)) later develop colorectal cancer; those with chronic bronchitis are prone to developing lung cancer; and acute pancreatitis often leads to pancreatic cancer. Hence, there is a great need to understand how [inflammation](#) is a "pre-condition" for cancer, says

Baksh.

Baksh is a researcher in the Department of Pediatrics, the Department of Biochemistry and the Division of Experimental Oncology.

His research was funded by Alberta Innovates – Health Solutions, the Hair Massacure and the Canadian Institutes of Health Research.

Tammy MacDonald, who founded the Hair Massacure fundraiser and helped fund this research, spoke of a young family member's diagnosis with [leukemia](#) in 2000 - a diagnosis that would have been a death sentence at one time.

"Today, due to ongoing research and clinical trials, the odds of beating many cancers have significantly increased. Still, we have not found a cure. We felt that continuing the journey of research will inevitably lead us there.

"Dr. Baksh is our chosen researcher. We are extremely thankful for his expertise, passion and accountability. Dr. Baksh's discovery and interest in colitis and inflammatory diseases, as it relates to pre-cancers, adds a more thorough approach to seeking proactive treatments that could prevent cancer."

Provided by University of Alberta Faculty of Medicine & Dentistry

Citation: Potential new treatment for colitis (2013, October 23) retrieved 27 April 2024 from <https://medicalxpress.com/news/2013-10-potential-treatment-colitis.html>

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