

Researchers test fecal transplantation to treat ulcerative colitis

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Two new studies led by researchers from the Farncombe Family Digestive Health Research Institute at McMaster University show that transplantation of fecal matter may be a useful tool in the fight against ulcerative colitis (UC).

Ulcerative colitis is a chronic, debilitating inflammatory bowel condition characterized by symptoms including bloody stools, diarrhea, abdominal pain, weight loss and malnutrition. It results from the development of abnormal immune responses to the normal [bacteria](#) in the digestive tract. It is difficult to treat and standard therapy doesn't always work.

There is currently great interest in treating UC with fecal microbiota transplantation (FMT), which involves transplanting gut fecal bacteria from healthy people into patients with UC.

A study recently published in *Inflammatory Bowel Diseases* found that UC can be controlled by the type of bacteria that inhabits the gut. The study was led by Elena Verdu, an associate professor of medicine with the Michael G. DeGroote School of Medicine.

"Our animal research provides insight that selected bacterial groups, involved in gut health, are important for protecting the colon against injury and inflammation," said Verdu.

Along the same theme, in research published on June 29, 2015 in *Gastroenterology*, professor of medicine Paul Moayyedi and his team

explored the safety and efficacy of FMT by conducting a placebo-controlled, randomized trial. They found that "FMT induces remission in a significantly greater percentage of patients with active UC than placebo," the authors wrote.

"Our study in patients with ulcerative colitis is the first randomized trial of fecal microbiota transplantation in adults with ulcerative colitis and shows that this therapy may work," said Moayyedi. "The effect of fecal transplant seems to be dependent on the sort of bacteria that is in the donor stool, which fits with the observations of Dr. Verdu's animal study."

In Verdu's study, mice were given [gut bacteria](#) from patients with severe UC and the effects were compared to those produced in mice that were given bacteria from a healthy person. The results identified a reduced amount of the bacterial families that are important for gut health in the feces of patients with severe colitis.

Second, they found that when mice were given these bacteria and then exposed to a toxin that causes gut injury, the resulting inflammation was higher in the mice with UC bacteria than in mice with bacteria from the healthy person, in whom the beneficial bacterial groups were abundant.

"The study also showed that the same protective effect could be achieved using the fecal material from the healthy person as with specific groups of bacteria that were isolated from the 'healthy' fecal matter," said Verdu. "This suggests that specific combinations of beneficial bacteria extracted from healthy people could be tested in future clinical fecal transplantation studies, and could potentially replace fecal matter."

Verdu said the implications of her study relate to the selection of healthy donors for fecal transplantation.

"In addition to screening for infections and disease, donors that harbour an abundance of the beneficial bacterial groups identified in our study could be selected to increase the chances of success of transplantation," said Verdu.

Moayyedi and his team, including McMaster professors Michael Surette and Christine Lee, recruited 75 patients with a flare up of their UC and randomized them to fecal transplant therapy given as an enema derived from stool donated by an anonymous healthy donor once per week for six weeks, or a placebo consisting of a water enema. They found 24 per cent were in remission in the [fecal transplant](#) group compared to five per cent in the placebo group. There were two main healthy donors, donor A and donor B - one of which was the healthy donor from Verdu's mouse study - and benefit seemed to be mostly related to those that received stool from donor B. The effect was also greater in those that had recently been diagnosed with UC.

"Many questions remain, but this provides interesting data suggesting that altering the gut microbial flora may be promising for treating [ulcerative colitis](#)," the authors noted.

Moayyedi added that the data suggests more research is needed using the FMT approach.

Provided by McMaster University

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