Medical Xpress

Cause of common chronic diarrhea revealed in new research

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Bile acid diarrhoea can have a big impact on people's lives, as they always need to be near a toilet.

(PhysOrg.com) -- A common type of chronic diarrhoea may be caused by a hormone deficiency, according to new research published in the November issue of *Clinical Gastroenterology and Hepatology*. The authors of the paper, from Imperial College London, with collaborators from King's College London and the University of Edinburgh, say their results could help more doctors recognise this type of diarrhoeal illness, and may lead to the development of more effective tests and treatments to help improve the lives of many people suffering with chronic diarrhoea.

Chronic idiopathic bile acid diarrhoea affects an estimated one in 100 people in the UK and it can cause people to have up to ten watery bowel

movements a day, often for months at a time. This type of diarrhoea occurs when an overload of bile acid reaches the colon and causes excess water to be secreted into the bowel.

Today's study suggests that bile acid diarrhoea is caused by the body producing too much bile acid, because of a deficiency in a hormone called FGF19, which normally switches off bile acid production. The authors of the study say that new hormone-based treatments could be developed in the future to treat the condition and doctors could potentially test people's hormone levels to diagnose it.

Dr Julian Walters, lead author of the study from the Division of Medicine at Imperial College London, said: "Bile acid diarrhoea is a common condition, likely to affect more people than Crohn's disease or ulcerative colitis, yet until now we did not understand exactly what causes it. People with bile acid diarrhoea need to use the toilet urgently many times during the day and night. This can have a big impact on their lives, at home, at work and while they are travelling, as they always need to be near a toilet.

"If they are diagnosed, we have treatments that can remove bile acid from the colon, alleviate the symptoms and improve their quality of life. However, the current test used to diagnose the condition is not available in many countries and requires patients to attend the hospital twice. This means many people are not diagnosed. Our new findings mean that in the future doctors may be able to diagnose the condition by doing a quick and simple blood test," added Dr Walters.

Bile acid is produced by enzymes in the liver, to help the body digest fats. Its production is controlled by a hormone called Fibroblast Growth Factor 19 (FGF19). Over 90% of the bile acid is absorbed from the intestine back into the blood and is then reused. In healthy people, when bile acid is absorbed by the intestine, the body makes more FGF19 to

stop new bile acid from being produced.

However, results of today's study suggest that people with bile acid diarrhoea make less FGF19, so the hormone 'switch' fails to stop the liver from producing more bile acid than the body needs. Because of this, more is produced than the intestine can absorb. This then irritates the colon and the resulting watery secretion causes diarrhoea.

The researchers say that testing the amount of FGF19 in people's blood could lead to a fast, easy and cheap way of diagnosing bile acid diarrhoea. They also hope today's findings will help scientists develop new treatments to increase the production of FGF19 and reduce the amount of bile acid being made in patients.

The researchers tested the amount of bile acid being produced in the livers of 17 patients diagnosed with bile acid diarrhoea and 19 healthy controls. They did this by measuring the amount of a molecule called C4 in the blood, which indicates how much bile acid is being made. The results showed that the people with bile acid diarrhoea were producing an average of nearly three times more bile acid than the controls, with 51 nanograms of C4 per millilitre of blood in the patient group, compared to 18 nanograms per millilitre in the control group.

The researchers then measured the amount of FGF19 in the patients and controls. The results showed that the people with bile acid diarrhoea were producing around half the level of the hormone than the controls, with 120 picograms of FGF19 per millilitre of blood levels in the patient group, compared to 231 picograms per millilitre in the control group.

These results suggest that there is a significant link between bile acid production and decreased levels of FGF19 in people with bile acid diarrhoea. The researchers say that, following this small study, further research is needed to see if these findings can be replicated.

Source: Imperial College London (news : web)