Personalized 'cocktails' of antibiotics, probiotics and prebiotics hold promise in treating IBS, pilot study finds

April 26 2024

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Personalized "cocktails" of antibiotics, probiotics and prebiotics hold great promise in the treatment of a common form of irritable bowel syndrome (IBS), according to research presented at the ESCMID Global Congress (formerly ECCMID) in Barcelona, Spain (27–30 April).

Post-infection IBS (PI-IBS) is a form of irritable bowel syndrome that occurs after gastroenteritis or food poisoning.

Lead researcher Professor Maurizio Sanguinetti, of the Università Cattolica del Sacro Cuore, Rome, Italy, says, "Estimates vary, but research indicates that approximately 10–30% of individuals who experience acute gastroenteritis develop PI-IBS. Symptoms such as diarrhea, constipation, bloating and abdominal pain can persist for months or even years after the initial infection.

"Treatment focuses on managing symptoms and improving quality of life. It typically involves a combination of dietary modifications, lifestyle changes, anti-diarrheal drugs, probiotics and other medications and psychological therapies, such as cognitive behavioral therapy.

"But symptoms can vary widely among individuals and may not always respond to conventional therapies, which means it can be challenging to treat. Given that gastroenteritis can disrupt the gut microbiota, the restoration of a healthy microbiota is a potential avenue of treatment."

To investigate its potential, Professor Sanguinetti and colleagues conducted a pilot study in which 13 PI-IBS patients (eight males and five females; mean age, 31 years) were treated with targeted gut-microbiota therapy.

Nine of the patients (69.2%) had diarrhea-dominant IBS (IBS-D) and

four (30.8%) constipation-dominant IBS (IBS-C). Bloating and abdominal pain were present in 69.2% (9/13) and 76.9% (10/13) of patients, respectively.

First, the patient's gut microbiota was analyzed. Genetic profiling was used to identify the bacteria present in fecal samples and so the gut. The abundance of the different types of bacteria was also measured.

Of patients, 23% (3/13) had lower than expected bacterial diversity, while 23% (3/13) had high levels of Proteobacteria. These are pro-inflammatory bacteria and an increase in their numbers could worsen PI-IBS. A total of 61.5% (8/13) had low levels of Akkermansia, a "protective" bacterium, and 69% (9/13) had low levels of Bifidobacterium, another "protective" microbe.

Some 38.5% (5/13) of the patients had low levels of Firmicutes and 54% (7/13) had low levels of short-chain fatty acid-producing bacteria, both of which are also protective.

Then, a personalized therapy was designed for each patient, based on their results, with the goal of rebalancing their gut microbiota.

These consisted of short courses of the antibiotics rifaximin (9/13, 69% of patients) or paromomycin (4/13, 31%) to reduce levels of potentially harmful bacteria, followed by prebiotics and/or postbiotics to enhance the numbers of protective bacteria and compete with the harmful bacteria for space and resources.

The prebiotics were inulin and psyllium (9/13; 69%), the probiotics were Bifidobacterium (5/13; 38.5%), Lactobacillus (7/13; 54%), Escherichia coli Nissle 1917 (2/13; 15%) and multi-species-based (5/13; 38.5%).

Symptoms such as abdominal pain, bloating, constipation and diarrhea

were assessed using the gastrointestinal symptoms rating scale (GSRS).

Twelve weeks after the start of treatment, 93% (12/13) of patients experienced an improvement in symptoms and 38.5% (5/13) achieved total remission.

Professor Sanguinetti says, "A precision medicine approach, in which testing and careful analysis of the gut microbiota allows the development of personalized treatments holds great promise in the treatment of post-infection IBS.

"While rigorous larger-scale studies are needed to confirm these preliminary findings, this type of testing will likely soon be widely used in the treatment of post-infection IBS and other similar conditions."

Provided by European Society of Clinical Microbiology and Infectious Diseases

Citation: Personalized 'cocktails' of antibiotics, probiotics and prebiotics hold promise in treating IBS, pilot study finds (2024, April 26) retrieved 7 May 2024 from https://medicalxpress.com/news/2024-04-personalized-cocktails-antibiotics-probiotics-prebiotics.html

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