PubMed

Display Settings: Abstract

J Clin Gastroenterol. 2012 Oct;46 Suppl:S52-5. doi: 10.1097/MCG.0b013e318264e918.

Mucosal permeability and immune activation as potential therapeutic targets of probiotics in irritable bowel syndrome.

Barbara G, Zecchi L, Barbaro R, Cremon C, Bellacosa L, Marcellini M, De Giorgio R, Corinaldesi R, Stanghellini V.

Department of Clinical Medicine and Centre for Applied Biomedical Research, University of Bologna, Bologna, Italy. giovanni.barbara@unibo.it

Abstract

There is increasingly convincing evidence supporting the participation of the gut microenvironment in the pathophysiology of irritable bowel syndrome (IBS). Studies particularly suggest an interplay between luminal factors (eg, foods and bacteria residing in the intestine), the epithelial barrier, and the mucosal immune system. Decreased expression and structural rearrangement of tight junction proteins in the small bowel and colon leading to increased intestinal permeability have been observed, particularly in postinfectious IBS and in IBS with diarrhea. These abnormalities are thought to contribute to the outflow of antigens through the leaky epithelium, causing overstimulation of the mucosal immune system. Accordingly, subsets of patients with IBS show higher numbers and an increased activation of mucosal immunocytes, particularly mast cells. Immune factors, released by these cells, including proteases, histamine, and prostanoids, participate in the perpetuation of the permeability dysfunction and contribute to the activation of abnormal neural responses involved in abdominal pain perception and changes in bowel habits. All these mechanisms represent new targets for therapeutic approaches in IBS. Probiotics are an attractive therapeutic option in IBS given their recognized safety and by virtue of positive biological effects they can exert on the host. Of importance for the IBS pathophysiology is that preclinical studies have shown that selective probiotic strains exhibit potentially useful properties including anti-inflammatory effects, improvement of mucosal barrier homeostasis, beneficial effects on intestinal microbiota, and a reduction of visceral hypersensitivity. The effect of probiotics on IBS is positive in most randomized, controlled studies, although the gain over the placebo is small. Identifying tailored probiotic approaches for subgroups of IBS patients represents a challenge for the future.

PMID:22955358[PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms

LinkOut - more resources