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Editor's Desk

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Beware of Protein pump inhibitors - linked to SIBO

Proton pump inhibitors treat peptic ulcer disease as they can cause acid suppression in the stomach. Small intestinal bacterial overgrowth is characterized by an excessive overgrowth of bacteria in the small intestine.

Motility disorders, structural anomalies, and reduced gastric acid output are some of the common causes linked to SIBO. Research shows even PPI s are linked to SIBO.

We often see PPIs co-prescribed with non-steroidal anti-inflammatory drugs (NSAIDs) to prevent NSAID-induced gastroduodenal injury. Emerging research indicates that PPI-induced gut dysbiosis promotes NSAID-induced small intestinal injury rather than suppressing it and it is a big concern now.

Understanding Guts Dysbiosis:

"Alterations'' in intestinal bacteria' variety, density, and metabolic activity are referred to as the term Microbial dysbiosis. Small intestine bacterial overgrowth (SIBO) is a form of small intestinal dysbiosis characterized by aberrant microbial density and associated with an increase in atypical species.

The term "dysbiosis" has been recently linked to disorders like diabetes mellitus, obesity, non-alcoholic fatty liver diseases, as well as autoimmune diseases.

PPI Causing SIBO -The Association and Connection:

The first report of a putative link between PPIs and small intestinal bacterial overgrowth (SIBO) was reported in 2008. Scientific research continues to reinforce from that time, that chronic acid suppression and resulting hypo-chlorhydria associated with PPI usage modify the intraluminal environment, allowing the bacterial flora in the small intestine to flourish. Several studies showed hypochlorhydria increased bacterial colonization in the stomach and duodenum, predisposing individuals to SIBO development.

In a recently published retrospective analysis, PPI usage was found to be substantially greater among patients with positive culture findings compared to those with negative culture results (52.6 percent vs 30.2 percent, respectively). It was reported that long-term use of PPIs increases the risk of small intestine bacterial overgrowth (SIBO) in yet another 2018 meta-analysis of 19 trials (N = 7,055)

Combating PPI-induced SIBO: Probiotics are living organisms that have a beneficial effect on the host's gut microbiome, and they can modulate and repopulate the intestinal microbiota.

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As per Research highlights, there is a potential opportunity for Probiotics when treating a patient with SIBO. Of course, the focus should first be on detecting and eliminating any underlying cause and then on correcting any nutritional deficits

Decoding the Mechanism of action of Probiotics in SIBO:

Probiotics directly or indirectly act on intestinal physiology by modulating the endogenous environment and immune system. Probiotics have also been shown to lower pro-inflammatory cytokines, modify gut microbiota, maintain intestinal epithelial integrity, and change visceral hypersensitivity. Probiotics act by preventing disease-causing bacteria from colonizing through nutritional competition, immune system activation, and the creation of antitoxins.

Probiotics in SIBO:

According to recent research, probiotics are beneficial in lowering bacterial load and alleviating symptoms in SIBO patients. Probiotics may boost the efficacy of antibiotics, as evidenced by recent research in which patients were treated with rifaximin and probiotics (Lactobacillus casei). Patients on combined therapy had better relief in their symptoms than those treated with antibiotics monotherapy. Both Lactobacillus casei and Lactobacillus acidophilus strains were beneficial in treating chronic diarrhea caused by bacterial overgrowth as per the study. Another study by Khalighi et al showed the use of probiotics as maintenance therapy is beneficial in patients whom SIBO was confirmed and who were on antibiotics.

Those in the probiotic group compared to the control group saw a substantial reduction in discomfort, bloating, belching, and diarrhea. Noteworthy was a complete alleviation of stomachache reported in the probiotic group.

Considering the extensive wealth of evidence from various studies, probiotics and prebiotics, definitely can play a major role in modulating gut flora favorably in PPI-induced SIBO.

Summary and Way Forward:- Probiotics (living microorganisms with positive physiological or therapeutic characteristics) and prebiotics (dietary components that foster the growth of beneficial bacteria) have shown promising results in managing PPI-induced SIBO, with clinical evidence supporting Lactobacillus-containing species.

Replacing antibiotic therapy with probiotics is acknowledged unanimously as a significant step forward considering the risks of continuous antibiotic therapy in treating PPI-induced SIBO.

With the available scientific evidence, the management of PPI-induced SIBO can be tackled with probiotics.

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