

Review article

Emerging role of probiotics and antimicrobials in the management of irritable bowel syndrome

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Abstract

Objective:

To review the potential role of probiotics and antimicrobials for management of functional bowel disorders (FBDs), with a focus on irritable bowel syndrome (IBS).

Research design and methods:

Relevant adult data were identified via PubMed, with additional references obtained by reviewing bibliographies from selected articles.

Results:

Probiotic treatment involves colonizing the intestines with beneficial microorganisms, whereas antimicrobial therapy involves modulation of the bacterial load and/or host response. A meta-analysis reported that all probiotic species evaluated improved flatulence compared with placebo; some, but not all, species improved abdominal pain and abdominal bloating/distension; and no species evaluated improved stool frequency or consistency, straining during stool evacuation, sense of incomplete evacuation, or fecal urgency. Two additional meta-analyses reported that probiotics significantly improved overall IBS symptoms. Individual studies have demonstrated potential benefits of probiotics for functional constipation symptoms. The nonsystemic antimicrobials neomycin and rifaximin have been evaluated in patients with IBS and other FBDs. Neomycin may improve global IBS symptoms and provide bowel normalization versus placebo, but the risk of ototoxicity and the development of clinically relevant bacterial resistance may limit its use for recurrent symptoms. In phase 3 randomized studies, rifaximin-treated patients were significantly more likely than placebo-treated patients to achieve adequate relief of global IBS symptoms and abdominal bloating. Although preliminary data suggest that development of clinically relevant bacterial resistance is unlikely with rifaximin, prospective data are needed, and a phase 3 study is ongoing. Limitations of evidence for probiotics include small populations analyzed and lack of clarity in optimal dosing regimen; antimicrobial evidence would benefit from better understanding of the effects of repeated treatment in patients with IBS.

Conclusions:

Probiotics and nonsystemic antibiotics have a place in IBS management. Additional studies are needed to establish optimal regimens and identify subgroups of patients most likely to benefit from these therapies.

Introduction

Functional bowel disorders (FBDs) are conditions with chronic or recurrent gastrointestinal (GI) tract symptoms that are not associated with identifiable structural or biochemical abnormalities^{1–3}. Irritable bowel syndrome (IBS) is a common FBD that is characterized by abdominal pain or discomfort in association with altered bowel function (i.e., constipation [IBS-C], diarrhea [IBS-D], or both [mixed; IBS-M])^{1,2,4}. Depending on epidemiologic sampling methods, IBS has been estimated to affect between 1% to more than 20% of adults and occurs 1.5 times more frequently in females versus males^{2,5,6}. In addition, IBS is