Abstract

Introduction: Prebiotics positively affect gut microbiota composition, thus improving gut function. These properties may be useful for the treatment of constipation. Objectives: This study assessed the tolerance and effectiveness of a prebiotic inulin/partially hydrolyzed guar gum mixture (I-PHGG) for the treatment of constipation in females, as well as its influence on the composition of intestinal microbiota and production of short chain fatty acids. Methods: Our study enrolled 60 constipated female health worker volunteers. Participants reported less than 3 bowel movements per week. Volunteers were randomized to treatment with prebiotic or placebo. Treatment consisted of 3 weeks supplementation with 15 g/d I-PHGG (fiber group) or maltodextrin (placebo group). Abdominal discomfort, flatulence, stool consistency, and bowel movements were evaluated by a recorded daily questionnaire and a weekly interview. Changes in fecal bacterial population and short chain fatty acids were assessed by realtime PCR and gas chromatography, respectively. Results: There was an increased frequency of weekly bowel movements and patient satisfaction in both the fiber and placebo groups with no significant differences. Total Clostridium sp significantly decreased in the fiber group (p = 0.046) and increased in the placebo group (p = 0.047). There were no changes in fecal short chain fatty acid profile. Conclusions: Consumption of I-PHGG produced clinical results comparable to placebo in constipated females, but had additional protective effects on gut microbiota by decreasing the amount of pathological bacteria of the Clostridium genera.

Keywords
Guar gum, Inulin, Gut microbiota, Shortchain fatty acids, Constipation.