Effects of Supplementation of the Synbiotic Ecologic ® 825/FOS P6 on Intestinal Barrier Function in Healthy Humans: A Randomized Controlled Trial

[1]

Abstract

Background and Aims. Probiotics, prebiotics and synbiotics have been suggested as dietary strategies to improve intestinal barrier function. This study aimed to assess the effect of two weeks synbiotic supplementation on intestinal permeability under basal and stressed conditions. Secondary aims were the assessment of two weeks synbiotic supplementation on systemic immune function and gastrointestinal symptoms including defecation pattern.

Design. Twenty healthy adults completed a double-blind, controlled, randomized, parallel design study.

Intervention. Groups either received synbiotic (1.5 × 10¹⁰ CFU Ecologic® 825 + 10 g fructo-oligosaccharides (FOS P6) per day) or control supplements for two weeks.

Outcomes. Intestinal segment specific permeability was assessed non-invasively by oral administration of multiple sugar probes and, subsequently, assessing the excretion of these probes in urine. This test was conducted at baseline and at the end of intervention, in the absence and in the presence of an indomethacin challenge. Indomethacin was applied to induce a compromised gut state. Plasma zonulin, cytokines and chemokines were measured at baseline and at the end of intervention. Gastrointestinal symptoms and stool frequency were recorded at baseline and daily during intervention.

Results. Significantly more male subjects were in the synbiotic group compared to the control group (P = 0.025). Indomethacin significantly increased urinary lactulose/rhamnose ratio versus without indomethacin, both in the control group (P = 0.005) and in the synbiotic group (P = 0.017). Urinary sugar recoveries and ratios, plasma levels of zonulin, cytokines and chemokines, and gastrointestinal symptom scores were not significantly different after control or synbiotic intervention. Stool frequency within the synbiotic group was significantly increased during synbiotic intervention compared to baseline (P = 0.039) and higher compared to control intervention (P = 0.045).

Conclusion. Two weeks Ecologic® 825/FOS P6 supplementation increased stool frequency, but did not affect intestinal permeability neither under basal nor under indomethacin-induced stressed conditions, immune function or gastrointestinal symptoms in healthy adults.