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The effect of a multispecies synbiotic mixture on the duration of diarrhea and length of hospital stay in children with acute diarrhea in Turkey: Single blinded randomized study

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Abstract

Probiotics have been successfully used for the treatment of acute diarrhea in children and this effect depends on the strains and dose. The aim of this study was to assess the effect of a synbiotic mixture on the duration of diarrhea and the length of hospital stay in children with acute watery diarrhea. This is a prospective randomized, multicenter single blinded clinical trial in hospitalized children with acute watery diarrhea. All children were treated with conventional hydration therapy with or without a daily dose of a synbiotic (2.5×10^9 CFU live bacteria including *Lactobacillus acidophilus*, *Lactobacillus rhamnosus*, *Bifidobacterium bifidum*, *Bifidobacterium longum*, *Enterococcus faecium*, and 625 mg fructooligosaccharide) for 5 days. The primary endpoint was duration of diarrhea and duration of hospitalization was the secondary endpoint. Among 209 eligible children, 113 received the synbiotic mixture and 96 served as a control. The duration of diarrhea was significantly shorter (~ 36 h) in children receiving the synbiotic group than the controls (77.9 ± 30.5 vs. 114.6 ± 37.4 h, $p < 0.0001$). The duration of hospitalization was shorter in children receiving the synbiotic group (4.94 ± 1.7 vs. 5.77 ± 1.97 days, $p = 0.002$). The effect of synbiotic mixture on diarrhea started after 24th hours and stool frequency significantly decreased after 24th and 48th hours. The percentage of diarrhea-free children is significantly higher in synbiotic group at 48th and 72nd hours of synbiotic group. In conclusion, this study showed a reduction in diarrhea duration by approximately 36 h and a reduction in the duration of hospitalization with approximately 1 day in children with acute diarrhea with this synbiotic mixture.

Keywords: Synbiotic, Probiotic, Diarrhea, Hospitalization, Children.