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Combination of probiotic strains for the treatment of *Helicobacter pylori* infection in children

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Objective: Helicobacter pylori (H. pylori) is strongly linked with chronic gastritis and peptic ulcer disease. The organism has a high rate of eradication failure in children mainly due to the poor compliance, antibiotic resistance and side-effects. This study was aimed to investigate the role of a new probiotic preparation (Lactobacillus acidophilus, Lactobacillus rhamnosus, Lactobacillus bulgaricus, Lactobacillus casei, Streptococcus thermophilus, Bifidobacterium infantis and Bifidobacterium breve) in Helicobacter pylori infection.

Methods: A double-blind, randomized, placebo-controlled study conducted in a tertiary care hospital in Tabriz, Iran. A total of 80 H. pylori positive children were recruited. All patients underwent endoscopy and the Gastrointestinal Symptom Rating Scale. H. pylori infection was diagnosed by rapid urease test (RUT) and histopathology. The patients were treated with a triple drug protocol (omeprazole+amoxicillin+metronidazole) and randomly allocated to receive either probiotic or placebo. Eradication was confirmed by stool H. pylori antigen test 6-8 weeks after the completion of therapy. The side effects were recorded in each group.

Findings: Forty patients were allocated in each group. Three patients decided to discontinue the therapy and participation in the study. The reason for their non-adherence to treatment was adverse pharmacological events. Mean age of patients was 8.92 (range 2-14) years, 55 patients were boys (sex ratio 2.2:1). Probiotic preparation significantly increased the rate of eradication compared with the placebo (P=0.03). Significantly less patients in probiotic supplemented group complained of side effects (P=0.028) and there was no premature discontinuation in this group. Eradication rate was 87.5% and 70% in intervention and placebo group respectively. Probiotic combination increased eradication rate by 17.5% (odds ratio: 3, P=0.023). The overall eradication rate was 78.75%.

Conclusion: This study showed that probiotics when administered as an adjunct to the eradication therapy are able to reduce antibiotic-induced side effects. Moreover, they improve H. pylori-eradication rate in children.

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