Editorial

Ability of probiotics to reduce functional abdominal pain in children

Running title: Probiotics and Functional abdominal pain disorders in Children

Ji Sook Park, M.D., Ph.D.

Department of Pediatrics, Gyeongsang National University Hospital, Jinju, Korea

Department of Pediatrics, Gyeongsang National University College of Medicine, Jinju, Korea

Institute of Health Sciences, Gyeongsang National University, Jinju, Korea

Address: 52727
15 Jinju-daero 816beon-gil, Chiram-dong, Jinju, Gyeongsangnam-do, Korea

Email: csassi@gnu.ac.kr

The author has no conflict of interest to declare.

Key message
The ability of probiotics to relieve pain caused by functional abdominal pain disorders (FAPD) in children is unclear.

*Lactobacillus reuteri* may effectively reduce pain caused by childhood FAPD.

Since the routine use of probiotics cannot be recommended due to a lack of clinical evidence, research into probiotic mixtures or symbiotics remains necessary.
Functional abdominal pain disorders (FAPD) in children are frequently encountered in clinics; however, adequate treatment options for them are lacking. The prevalence of FAPD is reportedly 0.2–23%, and its underlying etiology is poorly understood. The gut microbiota is an essential factor in the development of these functional disorders, and compositional alterations are correlated with many gastrointestinal illnesses. This randomized controlled clinical trial evaluated the ability of polymicrobial probiotics (PMP) and mono-strain probiotics (MSP) to relieve childhood functional abdominal pain according to Rome IV Diagnostic Criteria for Irritable Bowel Syndrome. Children were randomly assigned to receive PMP containing a mixture of $6 \times 10^9$ units of *Bifidobacterium lactis*, *Lactobacillus acidophilus*, *Bifidobacterium bifidum*, and *Lactobacillus rhamnosus* or MSP containing $8 \times 10^8$ units of *Lactobacillus reuteri* for 4 weeks. Pain scores in the PMP and MSP groups decreased at 7 weeks after study initiation. However, intergroup differences in pain scores were not significant at any time point. Due to the lack of a placebo group in this study, the reduction of pain intensity with time was insufficient to conclude the effectiveness of probiotics for childhood functional abdominal pain.

The use of probiotics has been an attractive clinical topic for controlling pain related to FAPD or other functional gastrointestinal disorders such as irritable bowel syndrome and functional constipation for several decades because dysbiosis is considered a contributing factor in many functional abdominal disorders. Recent studies of the effects of probiotics on childhood functional abdominal pain reported the efficacy of probiotics to be widely heterogeneous, and clinical evidence is still lacking due to the inclusion of diverse probiotic strains. Among them, *L. reuteri* might effectively reduce pain intensity in children. Dysbiosis seems an associated pathophysiological factor in FAPD, and previous randomized controlled trials suggested that *L. reuteri* may be able to reduce FAPD-related pain in children. However, recent recommendations do not encourage the routine use of probiotics to treat childhood functional gastrointestinal disorders due to a lack of evidence.
The current randomized clinical trial investigated the ability of multi- versus mono-strain probiotics to reduce FAPD-related pain in children. However, it failed to prove that multi-strain *L. reuteri* probiotics were more effective at relieving pain in children with FAPD than mono-strain probiotics; moreover, data on probiotic mixtures or synbiotics remained limited. Therefore, a well-controlled large-scale clinical study is required to further elucidate this issue.

**References**


