Probiotic Use Cut GI Infections in Preschoolers

BY DENISE NAPOLI

Preschool-aged children taking a multispecies probiotic showed a significant reduction in gastrointestinal infection, both over the short and long term, according to a Taiwanese study.

Although single-strain probiotics did not have such an effect on gastrointestinal diseases, consumption of *Lactobacillus casei rhamnosus* reduced the incidence of respiratory infections, the investigators said, and the long-term use of *Lactobacillus rhamnosus* T cell-1 may decrease the incidence of bacterial infection overall.

"This investigation strongly suggests that there is a need for rational probiotic selection and detailed evaluation prior to application in food or health care products," wrote Dr. Jun-Song Lin of the department of pediatrics at the Buddhist Tzu Chi General Hospital in Hualien, Taiwan, and colleagues (Vaccine 2009;27:1073-9).

The study randomized 1,062 preschool children ages 5 years or younger into four groups receiving commercially available probiotic oral pills. Overall, 986 children completed the study.

A total of 285 children received *L. casei rhamnosus* 5 days a week, while 222 children received *Lactobacillus rhamnosus* T cell-1 for 5 days per week. A third group of 286 children took a multispecies probiotic with a mixture of 12 bacterial strains for 5 days per week, and 193 patients served as controls.

The investigators' goal was to assess the three probiotics' short- and long-term efficacy in preventing viral infectious disease, gastrointestinal disease, respiratory disease, and bacterial infectious disease.

Efficacy was assessed after 3.3 months of treatment and then again at 7.3 months of treatment. Intervention began when children entered preschool, a time when the incidence of all diseases typically increases.

The researchers saw no difference in the number of gastrointestinal diseases between baseline and the intervention

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period in the single-strain group. However, children in the multiple-strain probiotic group "experienced a significant reduction in gastrointestinal infection both during the short term … and the long term," the researchers noted.

The degree of reduction was 42% after 3.3 months of treatment and 44% after 7.3 months of treatment, wrote Dr. Lin and associates.

Bacterial infections were significantly reduced in the long term by an average of 1.8 times in the group of children that took *L. casei rhamnosus*, and by an average of 1.92 times for the group taking *L. rhamnosus* T cell-1. The multispecies probiotic supplement, however, had no significant effect on the prevention of bacterial infections, the researchers said, which might be caused by antagonism among the different strains in the supplement.

In the *L. casei rhamnosus* group, the incidence of viral infectious diseases was 18% lower than among the control group over the short term. That effect possibly resulted from "probiotics positively influencing systemic organs by modulating immune function, stimulating virus-specific antibody production, and affecting intestinal mucosa absorption and secretion," the authors said.

The incidence of respiratory infections was also reduced both in the short and long term for the *L. casei rhamnosus* group by 17% and 18%, respectively, compared with the control group.

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