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Probiotics associated with reduced risk of diarrhea from antibiotic use: study

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Consumption of probiotics (live microorganisms, which may occur naturally in foods such as yogurt, intended to confer a health benefit when consumed) is associated with a reduced risk of antibiotic-associated diarrhea, a common adverse effect of antibiotic use, according to a review and meta-analysis of previous studies published in the May 9 issue of *JAMA*.

"The use of antibiotics that disturb the gastrointestinal flora [microbes] is associated with clinical symptoms such as diarrhea, which occurs in as many as 30 percent of patients. Symptoms range from mild and self-limiting to severe, particularly in Clostridium difficile infections, and antibiotic-associated diarrhea (AAD) is an important reason for nonadherence with antibiotic treatment," according to background information in the article. Potentially, probiotics maintain or restore gut microecology (microbial ecology) during or after antibiotic treatment. "There is an increasing interest in probiotic interventions, and evidence for the effectiveness of probiotics in preventing or treating AAD is also increasing," the authors write.

Susanne Hempel, Ph.D., of RAND Health, Santa Monica, Calif., and colleagues conducted a study to evaluate the available evidence on probiotic use for the prevention or treatment of AAD. Reviewers searched databases to identify randomized controlled trials (RCTs) involving AAD and probiotics (Lactobacillus, Bifidobacterium, Saccharomyces, Streptococcus, Enterococcus, and/or Bacillus). A total of 82 RCTs met inclusion criteria.

The majority of the RCTs used Lactobacillus-based interventions alone or in combination with other genera (a subdivision of a family of organisms); strains were poorly documented. Of all included trials, 63 reported the number of participants with diarrhea and the number of participants randomized to both treatment groups. Across 63 RCTs (n = 11,811 participants), probiotic use was associated with a 42 percent lower risk of developing diarrhea compared with a control group not using probiotics. The result was consistent across a number of subgroup and sensitivity analyses. The treatment effect equates to a number needed to treat of 13.

The researchers note that there exists significant heterogeneity (differences across studies) in pooled results and the evidence is insufficient to determine whether this association varies systematically by population, antibiotic characteristic, or probiotic preparation.

"In summary, our review found sufficient evidence to conclude that adjunct probiotic administration is associated with a reduced risk of AAD. This generalized conclusion likely obscures heterogeneity in effectiveness among the patients, the antibiotics, and the probiotic strains or blends. Future studies should assess these factors and explicitly assess the possibility of adverse events to better refine our understanding of the use of probiotics to prevent AAD," the authors conclude.

More information: *JAMA*. 2012;307[18]:1959-1969.