

**Thomas Koonce, MD, MPH; Anne Mounsey, MD; Kate Rowland, MD**  
Department of Family Medicine, The University of North Carolina at Chapel Hill (Drs. Koonce and Mounsey); Department of Family Medicine, University of Chicago (Dr. Rowland)

PURLs EDITOR

**John Hickner, MD, MSc**  
Cleveland Clinic

# Colicky baby? Here's a surprising remedy

When distraught parents seek your help because their breastfed infant won't stop crying, recommend probiotics.

## PRACTICE CHANGER

Suggest that parents of colicky breastfed infants try probiotics (*Lactobacillus reuteri*), which can significantly reduce daily crying time with no adverse effects.<sup>1</sup>

## STRENGTH OF RECOMMENDATION:

**A:** A good-quality randomized controlled trial (RCT).

Savino F, Cordisco L, Tarasco V, et al. *Lactobacillus reuteri* DSM 17938 in infantile colic: a randomized, double-blind, placebo-controlled trial. *Pediatrics*. 2010;126:e526-e533.

## ILLUSTRATIVE CASE

The parents of an otherwise healthy 10-week-old breastfed baby girl bring her in for the second time in 2 weeks because of her inconsolable crying. Physical examination and work-up remain normal, and you again diagnose colic. What can you suggest to help decrease the baby's crying, other than the usual dietary advice?

**C**olic affects up to 28% of infants, causing considerable stress for parents and for their health care providers.<sup>2</sup> Indeed, in the first 3 months of a baby's life, crying is the No. 1 reason for pediatric visits.<sup>3</sup> Parents often perceive—incorrectly—that the inconsolable crying is either a sign of serious illness or a result of poor parenting skills.<sup>4</sup>

## A distressing problem, with few remedies

Despite the ubiquity and frustration that accompany colic, its exact etiology remains un-

clear and effective treatments remain elusive. With very little quality evidence to support interventions for colicky infants, we often have nothing more than grandmotherly advice to offer parents of babies with this vexing condition.

Current guidelines recommend only one strategy for breastfeeding mothers: a low-allergen diet.<sup>5</sup> However, recent studies suggest that low counts of intestinal lactobacilli may play a role in colic and have documented improved symptoms after treatment with lactobacilli compared with treatment with simethicone.<sup>6-8</sup> Infant formulas that contain probiotics are now available, as a result.

Although the results of the recent studies have been promising, they were not double-blinded or placebo-controlled. The study detailed here is the first to provide compelling evidence for a safe intervention for colicky breastfed infants.

## STUDY SUMMARY

### Lactobacilli cut crying time

In a randomized, double-blinded, placebo-controlled trial, Savino et al randomly assigned 50 exclusively breastfed colicky infants ages 2 to 16 weeks to receive either *L reuteri* DSM 17 938 (10<sup>8</sup> colony-forming units) or placebo daily for 21 days. Diagnosis of colic was made according to the modified Wessel's criteria—fussy crying for ≥3 hours per day for ≥3 days per week in the week before enrollment. Their mothers were told to

avoid ingesting cow's milk during the course of the study.

Term infants adequate for gestational age were eligible for inclusion in the study. Exclusion criteria included evidence of chronic illness or gastrointestinal disorders, any intake of probiotics and/or antibiotics in the week preceding recruitment, and any formula feeding.

Parents and providers were blinded during the study, and they reported daily crying time, stool characteristics, adverse events, and growth patterns. An identical looking and tasting triglyceride oil without live bacteria was used in the placebo group. Each infant received 5 drops of *L reuteri* or placebo each morning 30 minutes before the morning feeding.

The primary outcome was a reduction of average crying time to <3 hours a day by Day 21. A secondary outcome was the number of infants in each group who experienced a 50% decrease in the daily average crying time from baseline on Days 7, 14, and 21 of the study.

Initially, the babies were divided equally between the control and intervention groups, but 4 participants in the control group were later excluded from analysis (1 had fever, 1 had reflux, and the parents of 2 infants did not complete the analysis).

At the time of enrollment, no significant differences were noted between the intervention and control groups regarding type of delivery, sex, age, family history of gastrointestinal disorders, growth parameters, and median daily crying time (370 minutes for the probiotics group vs 300 minutes for the placebo group).

By Day 21, the number of infants with crying times >3 hours was significantly lower in the treatment group compared with the placebo group (4 vs 12, respectively;  $P=.009$ ). At all stages in the study, crying time for those in the treatment group was less than in the placebo group; median crying times for the intervention group were 95, 60, and 35 minutes per day, vs 185, 150, and 90 minutes for the controls, at 7, 14, and 21 days, respectively.

The number of infants with a 50% reduction in crying time was significantly greater in the treatment group than in the placebo group on Days 7, 14, and 21 (TABLE), although both groups saw an increase in the number of children whose average crying time had dropped

TABLE

## Babies respond\* to probiotics

Day of study	<i>L reuteri</i> n=25 (%)	Placebo n=21 (%)	P value
7	20 (80)	8 (36)	.006
14	24 (96)	13 (62)	.007
21	24 (96)	15 (71)	.036

\*An infant with a decrease in daily average crying time of 50% from baseline was defined as a responder.

by 50% as time went by. The number needed to treat to reduce crying time by 50% on Day 21 was 4.

There were no differences between the groups in growth, weight gain, frequency of stools, or incidence of regurgitation or constipation. No adverse events related to the treatment were reported.

### WHAT'S NEW

#### We have an evidence-based remedy that's safe and effective

This study represents the first randomized, double-blinded, placebo-controlled investigation of probiotics to reduce infant colic. The researchers' focus on patient-oriented outcomes and their solid study design move the notion of probiotics' efficacy from conjecture to evidence. Furthermore, the study documents the safety of the intervention in the treatment group. This study increases our evidence-based armamentarium for treating colic, and family physicians should consider prescribing probiotics for healthy breastfed infants with colic.

### CAVEATS

#### Will it work for bottle-fed infants?

This study was conducted in *exclusively* breastfed, healthy infants whose mothers avoided dietary cow's milk, which limits its applicability to a more general infant population. The study was funded by the makers of the probiotic, but the rigorous study design with random allocation, double-blind design, and intention-to-treat analysis makes bias unlikely. Although



#### Have you recommended probiotics for infants with colic?

- Frequently
- Sometimes
- Rarely or never
- No, but I will now
- Other \_\_\_\_\_

Go to [jfponline.com](http://jfponline.com) and take our instant poll

no adverse effects were reported during this study, there is little available evidence about the long-term effects of probiotics in infants. As *L reuteri* are naturally occurring gut bacteria, however, it seems unlikely that it would be harmful in the long term.

**CHALLENGES TO IMPLEMENTATION**

**Parents will need to purchase the probiotics**

As with any non-FDA-regulated product, it will be important to guide patients toward reputable manufacturers to ensure homogeneity of dosing. A 29-day supply of BioGaia probiotic

drops (100 million units once a day), which costs \$37 according to the manufacturer's Web site, <http://www.biogaia.com/consumer/biogaia-probiotic-products/probiotic-drops>, should be affordable for most parents. Otherwise, little stands in the way of using this therapy to reduce the crying and subsequent stress associated with infant colic. **JFP**

**ACKNOWLEDGEMENT**

The PURLs Surveillance System is supported in part by Grant Number UL1RR024999 from the National Center for Research Resources, a Clinical Translational Science Award to the University of Chicago. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Center for Research Resources or the National Institutes of Health.

**References**

1. Savino F, Cordisco L, Tarasco V, et al. *Lactobacillus reuteri* DSM 17938 in infantile colic: a randomized, double-blind, placebo-controlled trial. *Pediatrics*. 2010;126:e526-e533.
2. Keefe MR, KajrlsenKA, Lobo ML, et al. Reducing parenting stress in families with irritable infants. *Nurs Res*. 2006;55:198-205
3. Forsyth BWC, McCarthy PL, Leventhal JM. Problems of early infancy, formula changes, and mothers' beliefs about their infants. *J Pediatr*. 1985;106:1012-1017.
4. Lehtonen LA, Rautava PT. Infantile colic: natural history and treatment. *Curr Probl Pediatr*. 1996;26:79.
5. Cincinnati Children's Hospital Medical Center. Best evidence statement (BEST). Maternal dietary antigen avoidance in lactation. Available at: <http://www.cincinnatichildrens.org/svc/alpha/h/health-policy/best.htm>. Accessed December 14, 2010.
6. Savino F, Cresi F, Pautasso S, et al. Intestinal microflora in breast-fed colicky and non-colicky infants. *Acta Paediatr*. 2004;93:825-829.
7. Savino F, Bailo E, Oggero R, et al. Bacterial counts of intestinal *Lactobacillus* species in infants with colic. *Pediatr Allergy Immunol*. 2005;16:72-75.
8. Savino F, Pelle E, Palumeri E, Oggero R, et al. *Lactobacillus reuteri* (American type culture collection strain 55 730) versus simethicone in the treatment of infantile colic: a prospective randomized study. *Pediatrics*. 2007;119:e124-e130.

 From *The Journal of Family Practice*  
An Online Audiocast:

# Clinical conversations: Managing patients with lumbar spinal stenosis

Neurosurgeon Dr. Terence P. Doorly shares his recommendations for treating and managing lumbar spinal stenosis (LSS) in family practice with Dr. Stephen A. Brunton.

> To listen to the audiocast, view the transcript, or download slides, visit [www.jfponline.com/Pages.asp?AID=8874](http://www.jfponline.com/Pages.asp?AID=8874)

> To read the companion supplement, visit [www.jfponline.com/supplements.asp?id=8873](http://www.jfponline.com/supplements.asp?id=8873)



**FACULTY**

**Stephen A. Brunton, MD, FAFAP**, Adjunct Clinical Professor, Department of Family Medicine, University of North Carolina, Chapel Hill, North Carolina

**Terence P. Doorly, MD**, Associate Chief of Neurosurgery, The North Shore Medical Center, Salem, Massachusetts; Medical Director, Neurosurgery and Spine, The Musculoskeletal Center, Peabody, Massachusetts