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LACTOBACILLUS REUTERI SHOWS PROMISE IN REDUCING SYMPTOMS OF INFANTILE COLIC

Despite 40 years of research, infantile colic remains one of the most common problems to occur within the first three months of life, affecting 3% to 28% of newborn children.¹ Colic is a behavioral disturbance characterized by uncontrolled, excessive crying and irritability wherein no specific cause can be identified.^{2,3} While there is no agreement as to what causes colic, evidence suggests that gastrointestinal, psychosocial, or neurodevelopmental disorders may play a role.⁴ Some experts believe a significant contributing factor may be aberrant intestinal microflora; in particular, lower counts of the intestinal probiotic bacteria *Lactobacilli* (part of the lactic acid bacteria group), which may affect both the gut motor function and gas production.⁵ Recent studies have reported not only a lower count of intestinal *Lactobacilli* in colicky infants than in healthy ones, but also a different colonization pattern.^{6,7} Fortunately, there is good news: current research has shown supplemental daily doses of the *Lactobacillus* species *Lactobacillus reuteri* may be a useful strategy for the management of colic.

BioGaia, a Sweden-based biotech company, has developed **Probiotic drops**, an oil suspension product containing a patented culture of *Lactobacillus reuteri* *Protectis*, the probiotic species uniquely adapted to reside in the human gastrointestinal tract. BioGaia Probiotic drops are the only probiotic currently available in drop formulation. This novel product delivers the probiotic in concentrated form and allows the convenience of administering the small dose to very young infants by simply placing five drops onto a spoon or directly into the mouth.

BioGaia Probiotic drops work by maintaining the delicate balance of good and bad bacteria in the digestive tract. *L. reuteri* binds easily to the



intestinal wall and, once attached, begins to “defend its territory,” helping to reduce the effects of harmful bacteria while improving gut function. *L. reuteri* has been shown to improve gut function and overall health by modulating metabolic activity, immunity and microbiota in the human intestine.^{8,9} As noted by Francesco Savino, MD, of the Department of Pediatrics, University of Turin, Regina Margherita Children’s Hospital (Turin, Italy), “recent studies have shown that *L. reuteri* exerts an anti-inflammatory effect on the intestinal environment, leading also to an improvement of gut dysmotility.^{10,11} Moreover, *L. reuteri* modulates the inflammation-associated visceral hypersensitivity response through the up-regulation of the Nerve Growth Factor (NGF), inhibiting visceral pain.”^{11,12}

Over the past decade, BioGaia’s *L. reuteri* strain has been studied in at least 37 clinical trials and was consistently shown to be safe in both healthy

and immunocompromised individuals. In fact, one such study conducted in Israel in 2003 found the strain to be particularly effective in boosting the immune system in daycare infants.¹³ The infants, aged 4-10 months, exhibited less febrile episodes and fewer GI illnesses.¹³ Recent data have also demonstrated safety after long-term dietary supplementation for newborns.¹⁴

James Versalovic, MD, Ph.D., Director of the Division of Molecular Pathology and Microbiology Laboratories at Texas Children's Hospital and Associate Professor of Pathology at Baylor College of Medicine (Houston, TX), believes that this probiotic is an effective adjunct for colic and has an impeccable safety record. "*L. reuteri* is part of the intrinsic microbiota of the human intestine, which probably explains why it is so safe. For me, that has been a very attractive feature. Dr. Versalovic further explains that *L. reuteri* has never been associated with a human infection. "I can't say that for all probiotics. Many clinical trials involving *L. reuteri* have shown that it can be considered not only safe, but safer than other probiotics. I find this very reassuring."

Dr. Savino and his colleagues at the University of Turin recently assessed the clinical efficacy of *L. reuteri*. This study, which involved 83 colicky breastfed babies, showed the drops significantly reduced crying times of infants with severe colic. The results of this trial, published in the January 2007 issue of *Pediatrics* revealed that a daily dose of *L. reuteri* (5 drops once daily, 30 minutes after breastfeeding) resulted in considerably less crying time within one week of treatment as compared to treatment with simethicone.^{1,12}

Forty-one infants were treated with the probiotic and 42 infants were treated with simethicone. Within 7 days of treatment, the average crying time for the probiotic group was reduced by 21% (197 minutes/day to 159 minutes/day), but the crying time for the simethicone group decreased by only 10% (197 minutes/day to 177 minutes/day) ($p < 0.05$).¹ By day 28, 95% of the babies receiving the probiotic drops had a positive response, with crying time reduced to 51 minutes per day. Only 7% of the infants in the simethicone group had a positive response and still had 145 minutes per day of crying time. No side effects were observed in either group.

Teresa del Moral, MD, Associate Professor of Clinical Pediatrics at the University of Miami School of Medicine, Department of Neonatology (Miami, FL), notes that lactic acid bacteria are one of the first natural bacteria cultures to colonize a newborn's intestines. "They are important for development of the immune system and they work to build immunity and aid nutritional uptake and health while keeping the balance between good and bad bacteria. Dr. del Moral goes on to say, "the *L. reuteri* strain of this bacterium has been shown to be effective for treating colic and we believe the mechanism of action has to do with digestion, yet we don't know exactly how it works. Furthermore, the BioGaia Probiotic drops are mixed with medium chain triglycerides, which are easy to digest, whereas other products may be mixed with something that is not easily digested by infants or children." Dr. del Moral also believes that BioGaia Probiotic drops could have benefits beyond treating colic, particularly in premature infants. "This

probiotic has the potential to deliver many benefits to this population, in terms of preventing infections and increasing the tolerance of feedings."

To Learn More

For more information about BioGaia Probiotic Drops, or any other BioGaia products, please call 1-877-776-0101, or visit the company's Web site at www.childrensprobiotics.com.

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