

Not all Probiotics are the Same: Gut Microbiota Modulation with a Multistrain Probiotics

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The highest incidence of invasive candidiasis infection (ICI) occurs in low birth weight infant with an estimated incidence of 4% and of 15% in extremely low birth weight infant. Low birth weight is an important risk factor. The other main risk factors associated with invasive candidiasis are the use of multiple antibiotics and central venous catheters, immunosuppression, parenteral nutrition, fungal colonization, and necrotizing enterocolitis. In this population, ICI cause high mortality, lead to significant neurodevelopmental impairment, and result in increase length of hospitalization and cost.^[1] Originality of the study is the use of probiotics combination Alkem Batch PWS3002C comprising *Bifidobacterium infantis*, *Lactobacillus acidophilus*, *Bifidobacterium longum*, and *Bifidum lactis*. These preparations are considered more effective than single probiotic strain, characterized instead by a single bacterial strain. In fact, a recent study showed that the use of a multistrain probiotics have an action of greater efficacy.^[2] Important focal point is gastrointestinal symptoms. Another interesting result of this study is that the control group presented a higher percentage of gastrointestinal symptoms than did the probiotic group, which showed an increased food tolerance, shortening the period of parenteral nutrition probably due to its changes in intestinal flora, improvement in mucosal barrier and anti-inflammatory properties. Reduction of stool fungal colonization is an important principal outcome parameter in the

probiotics group by reduced invasive fungal sepsis is an important outcome parameter in the probiotics group because reduced invasive fungal sepsis 55.4% in probiotics group versus 75% in the control group.^[3] Also the number of days to full enteral feeds and duration of hospitalization was less in probiotic group. *Candida albicans* is the most commonly isolated species, although *C. parapsilosis*. These species are commonly isolated in invasive candidiasis, while *C. glabrata* and *C. krusei* are isolated only in 3% of ICI. The published data show that fluconazole use since birth is highly effective in preventing both colonization and infection in preterm neonates. This can lead to a high prevalence of azole-resistant *Candida* species.^[4] In this study 35 (7%) newborns of control group presented *C. glabrata* infection, while the probiotics group presented only *C. albicans*. Loss of gut commensals, such as *Bifidobacteria* and *Lactobacilli*, due to the difficulties in oral feeding, translates into an increased susceptibility to pathogenic gut colonization. Probiotics are increasingly being used for their beneficial properties, considered to be particularly useful in reducing some symptoms related to gastrointestinal disorders.^[5] In particular, preparations of a multistrain, consisting of different bacterial strains but belonging to the same species or anyway similar species are considered more effective than single probiotic strain. Evidence regarding the potential beneficial effects of probiotics supplementation in preterm infants is encouraging. Further studies to assess clinically relevant outcomes are needed.

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References

1. Benjamin DK Jr, Stoll BJ, Gantz MG, Walsh MC, Sánchez PJ, Das A, *et al.* Neonatal Research Network. Neonatal candidiasis: Epidemiology, risk factors, and clinical judgment. *Pediatrics* 2010;126:e865-73.
2. Sepp E, Lõivukene K, Julge K, Voor T, Mikelsaar M. The association of gut microbiota with body weight

- and body mass index in preschool children of Estonia. *Microb Ecol Health Dis* 2013;24.
3. Pappu-Katikaneni LD, Rao KP, Banister E. Gastrointestinal colonization with yeast species and *Candida* septicemia in very low birth weight infants. *Mycoses* 1990;33:20-3.
 4. Kaufman DA, Manzoni P. Strategies to prevent invasive candidal infection in extremely preterm infants. *Clin Perinatol* 2010;37:611-28.
 5. Betta P. Intestinal Microbial flora: Effect of probiotics in newborn. *Gastroenterology "New Advances in the Basic and Clinical Gastroenterology"*, In: Thomas Brzozowski, InTech, editors.

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