



Probiotic Supplementation with Lactobacillus and Bifidobacterium for Necrotizing Enterocolitis Prevention in Very Low Birth Weight Preterm Infants

Paper number: 57

Acosta Hernández D, Díaz Madero S, Marín Romero M, De Luna Sánchez IG, Villa Bahena S, Martínez Casanova R. Hospital Español de México



BACKGROUND: The high morbidity of necrotizing enterocolitis (NEC) in very low birth weight infants (<1500 grams) requires the search for prevention strategies that are more effective than treatment. Current evidence supports the use of probiotics as protective factors.

OBJECTIVE: To determine if probiotic supplementation in VLBW infants represents a preventive factor for the development of NEC.

METHODS: Retrospective cohort study conducted with 145 VLBW infants, where the presence of NEC was evaluated in populations supplemented with Limosilactobacillus reuteri, Bifidobacterium lactis or not supplemented. The comparison among groups was performed with the chi-square test for maximum likelihood-ratio.

RESULTS: Of 66 supplemented patients, 86.4% did not present NEC (RR 0.23 [95% Ci: 0.12-0.43]; $p < 0.0001$) (Table 1).

In those not supplemented, the incidence of NEC was 59.5%. An NNT of 1.7 to 3.1 was obtained.

Table 1. Relationship between presentation of necrotizing enterocolitis (NEC) according to stages and the administration of probiotics.

| n (%) | NECROTIZING ENTEROCOLITIS | | | | | No N=32 |
|---|---------------------------|------------|-------------|------------|-------------|------------------|
| | IA N=25 | IB N=11 | IIA N=10 | IIB N=7 | IIIB N=3 | |
| L. reuteri 3 drops (6x10⁸ CFUs) N=31 | 2 (6.5) | 0 | 0 | 0 | 0 | 29 (93.5) |
| L. reuteri 5 drops (1x10⁹ CFUs) N=30 | 1 (3.3) | 2 (6.7) | 2 (6.7) | 1 (3.3) | 0 | 24 (80) |
| B. lactis 5 drops (1x10⁹ CFUs) N=5 | 0 | 1 (20) | 0 | 0 | 0 | 4 (80) |
| No Probiotic N=79 | 22 (27.8) | 8 (10.1) | 8 (10.1) | 6 (7.6) | 3 (3.8) | 57 (40.5) |

Likelihood Ratio Chi-squared test 46.9, 15gl: $p < 0.0001$

CONCLUSIONS: Despite the heterogeneity in clinical studies of probiotic supplementation, the evidence is strongly in favor of probiotic treatment for the prevention of NEC. This study found that supplementation from the first days of life with L. reuteri at doses of 600 million CFUs was more effective in preventing the presentation of NEC than higher doses.

1. Bi LW, et al. Which is the best probiotic treatment strategy to prevent the necrotizing enterocolitis in premature infants: A network meta-analysis revealing the efficacy and safety. Medicine. 2019; 98(41): e17521. 2. Sharif S, et al. Probiotics to prevent necrotising enterocolitis in very preterm or very low birth weight infants. Cochrane Database Syst Rev. 2020;10(10):CD005496. 3. Gutiérrez Escárate C, et al. Probiotic intervention to prevent necrotizing enterocolitis in extremely preterm infants born before 32 weeks of gestation or with a birth weight of less than 1500 g. Arch Argent Pediatr. 2021; 119(3):185-191. 4. van den Akker CHP, et al. Probiotics and Preterm Infants: A Position Paper by the European Society for Paediatric Gastroenterology Hepatology and Nutrition Committee on Nutrition and the European Society for Paediatric Gastroenterology Hepatology and Nutrition Working Group for Probiotics and Prebiotics. J Pediatr Gastroenterol Nutr. 2020; 70(5):664-680. 5. Wang H, et al. Probiotics to prevent necrotizing enterocolitis and reduce mortality in neonates: A meta-analysis. Medicine. 2023; 102(8): e32932.

