

Sharif S, Meader N, Oddie SJ, Rojas-Reyes MX, McGuire W. Probiotics to prevent necrotising enterocolitis in very preterm or very low birth weight infants. *Cochrane Database of Systematic Reviews* 2020, Issue 10. Art. No.: CD005496.

Background: Intestinal dysbiosis may contribute to the pathogenesis of necrotising enterocolitis (NEC) in very preterm or very low birth weight infants. Dietary supplementation with probiotics to modulate the intestinal microbiome has been proposed as a strategy to reduce the risk of NEC and associated mortality and morbidity.

Objectives: To determine the effect of supplemental probiotics on the risk of NEC and mortality and morbidity in very preterm or very low birth weight infants.

Search methods: As per standard Cochrane search strategy. RCTs and quasi-RCTs comparing probiotic supplementation with placebo or no probiotics in very preterm or very low birth weight infants were included.

Qualitative analysis : 6314
Studies screened and
ROB(Cochrane tool) analysis
done for included studies

56 trials included for
qualitative synthesis

10,812
neonates

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



Probiotics to Prevent Necrotising Enterocolitis in Very Preterm Infant- Neonatologist Perspective

Results:

- **Probiotics** may **reduce the risk of NEC: RR 0.54**, 95% CI 0.45 to 0.65 (54 trials, 10,604 infants; I² = 17%); RD -0.03, 95% CI -0.04 to -0.02;
Number needed to treat for an additional beneficial outcome (NNTB) 33(95% CI - 25 to 50)
- Sensitivity meta-analysis of trials -**reduced risk of NEC: RR 0.70**, 95% CI 0.55 to 0.89 (16 trials, 4597 infants; I² = 25%); RD -0.02, 95% CI -0.03 to -0.01; NNTB 50 (95% CI 33 to 100)
- Meta-analyses showed that probiotics probably **reduce mortality -RR 0.76**, 95% CI 0.65 to 0.89; (51 trials, 10,170 infants; I² = 0%); RD -0.02, 95% CI -0.02 to -0.01; NNTB 50, 95% CI 50 to 100)
- Probiotics probably **reduce late-onset invasive infection -RR 0.89**, 95% CI 0.82 to 0.97; (47 trials, 9762 infants; I² = 19%); RD -0.02, 95% CI -0.03 to -0.01; NNTB 50 (95% CI 33 to 100)
- Meta-analysis-probiotics may have little or **no effect on severe neurodevelopmental impairment** (RR 1.03, 95% CI 0.84 to 1.26 (five trials, 1518 infants; I² = 0%).

Discussion: A recent Network metanalysis (Rebecca L Morgan et al; *Gastroenterology* Aug 2020, DOI: 10.1053/j.gastro.2020.05.096) supported this effect of probiotics and also suggested about types of strains-Among interventions with moderate- or high-quality evidence for efficacy compared with placebo, combinations of 1 or more *Lactobacillus* spp and 1 or more *Bifidobacterium* spp, *Bifidobacterium animalis* subspecies *lactis*, *Lactobacillus reuteri*, or *Lactobacillus rhamnosus* significantly reduced severe NEC (OR, 0.35 [95% CI, 0.20-0.59]; OR, 0.31 [95% CI, 0.13-0.74]; OR, 0.55 [95% CI, 0.34-0.91]; and OR, 0.44 [95% CI, 0.21-0.90], respectively).

Key Message:

- Probiotics may reduce the risk of NEC
- Probiotics probably reduce mortality and late onset sepsis.

EXPERT COMMENT



- Probiotics certainly effective in reducing NEC, and large enough high-quality studies would likely show a decrease in mortality.
- Probiotics can be considered for routine use in preterm < 32 weeks and < 1500 gms for NEC prevention. (Start when tolerating 1 ml every 2 hours and continue till 36-37 weeks)
- *Lactobacillus* spp and 1 or more *Bifidobacterium* spp may be most effective combination in reducing NEC than single strain probiotics

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Reference

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