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THE BENEFITS OF INTRODUCING PROBIOTICS IN CHILDREN RECEIVING ENTERAL NUTRITION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Aim: To evaluate whether probiotics help improve the outcomes (feed intolerance, sepsis, time to reach full feeds, risk of necrotising enterocolitis (NEC) and mortality, duration of hospitalization and weight gain) of children receiving enteral feeds and to determine whether a single or a combination of probiotics work best.

Method: A systematic review was done in accordance with the guidelines in Cochrane Handbook for Systematic Reviews and Interventions. An electronic search through 3 databases (EMBASE, Medline, CINAHL) were conducted and references from papers reviewed were cross-checked. Expert contents were also sought for further information. The review included randomised controlled trials (RCT), systematic reviews and case reports. Data obtained from RCTs were pooled into a meta-analysis.

Results: 39 citations were identified (n=28,756) out of which 23 were RCTs (n=4855). A meta-analysis of the pooled data estimated a significant reduction in feeding intolerance (OR 0.33, 95% CI 0.23-0.46, p<0.00001), abdominal distension (OR 0.50, 95% CI 0.31-0.80, p=0.004), sepsis on clinical grounds (OR 0.55, 95% CI 0.38-0.80, p=0.002), risk of NEC (OR 0.45, 95% 0.34-0.60, p<0.00001), mortality (OR 0.47, 95% CI 0.35-0.64, p<0.00001) and time to achieve full enteral feeding (MD -2.83, 95% CI -4.80, -0.87, p=0.005) in the probiotic group. Incidences of vomiting & diarrhoea, blood cultured sepsis, duration of hospitalization and weight gain did not differ significantly. There was no adverse effects noted but five case reports described bacteraemia. Comparatively, administration of the multiple-strain probiotics yielded more benefits than single-strains.

Conclusion: Probiotics improve feeding intolerance, abdominal distension, clinical sepsis, risk of NEC & mortality and shorten the time to achieve full feeds when administered enterally in children. Multiple-strain probiotics seem more beneficial than single-strains. However, larger trials involving a wider range of age group should be conducted to assess the types of probiotics, dose and duration for supplementation.