

Boehm *et al.*, Supplementation of a bovine milk formula with an oligosaccharide mixture increases counts of faecal bifidobacteria in preterm infants. *Arch Dis Child Fetal Neonatal Ed.* 2002; 86:F178-81.

Abstract

Background: The establishment of a balanced intestinal microflora which may protect against infection is desirable for the preterm infant.

Objective: To investigate the effect of a preterm formula milk supplement consisting of oligosaccharides in similar proportions to human milk on the faecal flora and stool characteristics of preterm infants.

Study design: To resemble the effect of human milk, an oligosaccharide mixture consisting of 90% galacto-oligosaccharides and 10% fructo-oligosaccharides was used to supplement a standard preterm formula at a concentration of 10 g/l. This supplemented formula was studied in 15 preterm infants, and the results were compared with those found in 15 infants fed a formula supplemented with maltodextrin as placebo. A group fed fortified mother's milk was investigated as a reference group (n = 12). On four days during a 28 day feeding period (1, 7, 14, and 28), the faecal flora was investigated, and stool characteristics, growth, and possible side effects were recorded.

Results: During the study period, the number of bifidobacteria in the group fed the oligosaccharide supplemented formula increased to the upper range of bifidobacteria counts in the reference group. The difference between the supplemented and non-supplemented groups was highly significant ($p = 0.0008$). The stool characteristics were also influenced by the supplement: the stool frequency after 28 days was significantly lower in the control group than in the oligosaccharide supplemented group ($p = 0.0079$) and the reference group ($p < 0.0001$). Over the study period, the stool consistency in the control group became harder, but remained fairly stable in the other two groups. There was no effect of the different diets on the incidence of side effects (crying, regurgitation, vomiting) or on weight gain or length gain.

Conclusion: Supplementing preterm formula with a mixture of galacto- and fructo-oligosaccharides at a concentration of 10 g/l stimulates the growth of bifidobacteria in the intestine and results in stool characteristics similar to those found in preterm infants fed human milk. Therefore prebiotic mixtures such as the one studied may help to improve intestinal tolerance to enteral feeding in preterm infants.