

The Role of Human Milk and Milk Fortifiers in Supporting the Health and Development of Preterm Infants

Objectives

- Outline how human milk, via its composition and bioactive factors, affects the gut-brain axis through the microbiome
- Describe the role of the various components of human milk and their potential impact on health and development especially related to preterm infants
- Summarize the study review findings presented regarding the potential risks of formula feeding on the development of necrotizing enterocolitis (NEC)
- Based on the review evidence presented, compare findings related to the addition of human-based, bovine-based, or soy-based milk fortifiers to human milk for feeding preterm infants

Content Outline

1. Intricacies of Human Milk Reaching from Immune System to Microbiome
 - 1.1 AAP policy recommendations regarding preterm infant diets
 - 1.2 Bioactive properties of human milk
 - 1.2.1 Proteins, carbohydrates, lipids
 - 1.3 Immunologic components in human milk
 - 1.3.1 Role of enteromammary pathway
 - 1.4 Use of pasteurized donor milk
 - 1.4.1 Pasteurization's impact on biological and nutritional components
 - 1.4.2 Evidence of positive impact of pasteurized donor human milk use
 - 1.5 Human milk microbiome
 - 1.6 Theory of placenta-gut-lung triangle
 - 1.7 Gut-brain axis
 - 1.8 Maternal factors affecting breast milk
 - 1.8.1 Neurodevelopmental outcomes in preterm infants
2. Reviewing Human Milk and Milk Fortifiers for Associations with NEC
 - 2.1 Brief description of risk factors and occurrence of NEC
 - 2.2 Use of human breast milk and human fortifiers vs formula feed with any fortifier
 - 2.2.1 Details of systematic reviews and meta analyses
 - 2.2.2 Details of randomized controlled studies and cohort studies
 - 2.2.3 Quality appraisal of systematic reviews/meta analyses
 - 2.2.4 Appraisal of randomized controlled trials and cohort studies
 - 2.3 Conclusions and recommendations

Reading Material Resources- Page 2

Reading Material Resources

Module WB2561 The Role of Human Milk and Milk Fortifiers in Supporting the Health and Development of Preterm Infants is based on the resources listed below. A copy of each resource is included with the module.

Enteral Nutrition- The Intricacies of Human Milk from the Immune System to the Microbiome, Wiggins JB et al., *Clinics in Perinatology* 49 (2022), 427-445

The association between human milk and human milk fortifiers and necrotising enterocolitis in preterm infants: A review, Magro S et al., *Journal of Neonatal Nursing* 29 (2023), 10-19