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Reviews on benefits of colostrum swabbing among the preterm infants

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Abstract

Background: An estimated 15 million babies are born pre term every year. Approximately 1 million children die each year due to complications of preterm birth. Premature infants, especially Very Low Birth Weight (VLBW) infants (<1500 g), are a group at high risk of infectious diseases in Neonatal Intensive Care Units (NICUs).

Conclusions: Oral swabbing of colostrum as the standard of care for infants <32 weeks gestation in the NICU as a cost-efficient, safe, and effective method of infection prevention for premature infants unable to feed orally.

Keywords: breast milk, colostrum, extremely low birth weight, human milk, infant, neonate, neonatal intensive care unit (NICU)

Introduction

In India, 3.6 million babies are born preterm among 27 million births, and over 300,000 of them die each year because of associated complications.

Extremely premature (birth weight < 1250 g) infants are at high risk for acquiring late-onset sepsis and necrotizing enterocolitis, which are associated with significant mortality and morbidity. Own mother's milk contains antimicrobial, anti-inflammatory, antioxidant, and immunomodulatory functions, enhance intestinal microbiota and promote intestinal maturation [1].

In the United States, 1 out of every 8 infants is born premature, and of those born very low birth weight (<1500 g), 30% will experience unintended complications effecting their neurologic, gastrointestinal, and/or respiratory health for life. Complications of prematurity including chronic lung disease, Retinopathy Of Prematurity, Sepsis, and Necrotizing Entero Colitis (NEC) all share a common beginning in an immature and exaggerated inflammatory response [8].

Colostrum may be an ideal “first immune stimulator” for premature infants; and indeed premature human colostrum has higher concentration of proteins, cytokines, and secretory immunoglobulins compared with term colostrum or mature milk by which the immunologic factor in OC may stimulate and protect the immature neonatal immune system [8].

Even a small amount of mother’s milk significantly reduces the use of parenteral fluids, decreases the risk of infection, and lessens the duration of hospitalization without adverse effect as it interacts with lymphoid tissue in the oropharynx and gut [3].

Breastmilk is introduced as early as possible directly into the infant’s mouth in order to gain the benefits and immune properties of colostrum and expressed breast milk even while nil by mouth [1].

This is one of the largest evaluations on the impact of early colostrum application on clinical and nutritional outcomes in Very Low Birth Weight (VLBW) infants from birth through discharge [4].

- **Feasibility and safety**
  The safety of colostrum application for VLBW infants shown that it does not lead to adverse clinical events like agitation, aspiration, bradycardia, or tachycardia or disrupt standard of care.

- **Nutritional outcomes**
  Reports have shown that these infants more often receive breast milk for their first feedings, may begin enteral feeds earlier, and may reach full feeds (100-150 ml/kg/day) more quickly and colostrum application may also reduce the amount of time an infant requires Total Parenteral Nutrition (TPN) and decrease the number of Peripherally Inserted Central Catheter (PICC)-line days.

- **Secondary outcome measures**
  Evidence suggests that colostrum may be an ideal “first immune stimulator” for premature infants; and indeed premature human colostrum has higher concentrations of proteins, cytokines, and secretory immunoglobulins compared with term colostrum or mature milk and colostrum application may stimulate and protect the immature neonatal immune system

Discussion

It is well known that the immune response is blunted and underdeveloped in the premature infant, but human milk supports the infant’s growth, function, and effectiveness. Thus, Own Mother’s Colostrum (OMC) administered oropharyngeally has potential to deliver oral immune therapy (C-OIT) even before enteral feedings have begun [9].

Conclusion

Evidence suggests that when healthcare providers convey the importance of human milk for infants, it empowers parents to support a pumping regimen to maintain a milk supply for their infant [2].

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