

Colostrum

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Expanded Commentary from the Faculty

Colostrum, often called a mother's first milk, is rich in nutrients such as oligosaccharides and lactoferrin as well as immune modulators such as cytokines. Typically, colostrum is administered enterally, bypassing the oral cavity, and thus is contraindicated in very small, very sick, clinically unstable, premature babies who are on ventilators. However, there is accumulating evidence that oropharyngeal administration of colostrum is beneficial for premature, low-birth-weight neonates. Likewise, there is growing acceptance of the benefits of this route of administration due to babies' dire need for the protective components found in colostrum.

Most of the research conducted to date on oral colostrum administration in preemies has been in the form of laboratory and observational studies. For instance, in one recently published retrospective cohort study conducted at Duke University Medical Center, it was found that applying 0.1 mL of fresh colostrum to each of a very-low-birth-weight premature infant's cheeks every 4 hours for 5 days over the first 48 hours after birth was both feasible and safe, and resulted in a higher average weight at 36 weeks (1,666 g vs 1,380 g for preemies who did not receive colostrum). Likewise, in a pilot study conducted at Rush University Medical Center, starting at 48 hours of life, 5 preterm infants received 0.2 mL of colostrum delivered to the oropharynx every 2 hours for 48 hours. There were no adverse effects of the treatment and administration was easy and inexpensive, according to the authors, who noted that even the smallest and sickest of extremely-low-birth-weight infants tolerated oropharyngeal administration.

Oral colostrum appears to block attachment of bacteria in the airway. We suspect that in the NICU, oropharyngeal administration of colostrum will result in a decrease in respiratory, systemic, and gastrointestinal infections among preterm infants, particularly necrotizing enterocolitis, which can be deadly in up to 25% of vulnerable infants who develop it. If we can mitigate complications that lead to poorer long-term outcomes, we can make a big impact on neonatal morbidity and mortality simply by incorporating this simple practice into NICU care. I anticipate that use of oral colostrum may also ultimately be shown to reduce the length of an infant's stay in the NICU.

As a result of the preliminary studies published to date, we have implemented oral colostrum care in our NICU. We apply it all over the mouth and upper airway several times a day, an approach that I expect will be fine-tuned as more data become available. Right now there are a lot of questions about the best protocol, so we need randomized clinical trials to definitely confirm the benefits and protocols identified in these early studies. I am aware of a couple of

studies that are soon to begin or are even recruiting to investigate the benefits of oral colostrum in premature infants.

Based on our experience, it would not be difficult for other clinicians to implement this change in their health care setting. I therefore advise other NICU clinicians to keep current with the literature, and look for information and trials that support such an approach and that offer recommendations on how best to administer it (see Suggested Readings below).

Group Discussion Items

- Have the group discuss its level of awareness to the ongoing research using colostrum to prevent infection in premature infants.
- Discuss your reactions to the 2 studies described by Dr. Moya.
- What is your reaction to Dr. Moya's hospital in North Carolina implementing this strategy?
- How does the approach Dr. Moya uses align with our current protocol(s)?
- What additional information would be needed for our institution to fully assess this strategy?
- Are there other concerns not addressed here?

Suggested Readings and Resources

1. Vanderbilt University. **Effect of colostrum on mucosal immunity in very low birth weight (VLBW) premature infants.** www.clinicaltrials.gov. Available at: <http://www.clinicaltrials.gov/ct2/show/NCT01776268?term=oral+colostrum&rank=2>.
2. Seigel JK, Smith PB, Ashley PL, Cotten CM, et al. **Early administration of oropharyngeal colostrum to extremely low birth weight infants.** *Breastfeed Med.* 2013; Epub ahead of print.
3. Rodriguez NA, Meier PP, Groer MW, Zeller JM, et al. **A pilot study to determine the safety and feasibility of oropharyngeal administration of own mother's colostrum to extremely low-birth-weight infants.** *Adv Neonatal Care.* 2010;10:206-212.