

Best practices for the initiation of lactation in the NICU

Prof. Paula Meier

Rush University Medical Center, Chicago, United States

Little research has focused on the transition from secretory differentiation (SD) to secretory activation (SA; milk coming in; lactogenesis II) in breast pump-dependent mothers with premature infants in the newborn intensive care unit (NICU). A series of publications by our Rush University (Rush) NICU Human Milk Research Team has revealed that: 1) the primary predictor of receipt of mothers' own milk (MOM) at NICU discharge is achievement of coming to volume (CTV; ≥ 500 mLs pumped MOM by postpartum day 14); 2) pumping behaviors and maternal complications predict achievement of CTV; 3) MOM biomarkers [sodium (Na), potassium (K) and Na:K ratio] on days 3 and 5 predict achievement of CTV; 4) Achievement of SA as measured by MOM Na and Na:K is quickly reversed following minor decreases in pumping frequency during days 1-14 postpartum; and 5) daily increase in pumped milk volume (mL/d) is significantly less for maternal prepregnancy BMI ≥ 27 than maternal prepregnancy BMI < 27 during days 1-7 postpartum, and is a risk factor for delayed and/or impaired SA. This presentation will highlight the biology of the first 14 days postpartum in breast pump-dependent mothers with premature infants in the NICU, and review best practices that have been associated with achievement of SA and CTV by our team and others. The potential utility of point-of-care measures of MOM Na and K in the clinical setting will be discussed.

References

- Chertok IRA, Haile ZT, Shuisong S, Kennedy M. (2020). Differences in human milk lactose and citrate concentrations based on gestational diabetes status. *Breastfeeding Medicine* 15: 798-802.
- Hoban R, Patel AL, Medina-Poeliniz C, Lai CT, Janes J, Geddes DT, Meier PP. (2018). Human milk biomarkers of secretory activation in breast pump-dependent mothers of premature infants. *Breastfeeding Medicine* DOI: 10.1089/bfm.2017.0183.
- Hoban R, MD MPH, Medina Poeliniz C, Somerset E, Lai CT, Janes J, Patel AL, Geddes D, Meier PP. (2021). Mother's Own Milk Biomarkers Predict Coming to Volume in Pump-dependent Mothers of Preterm Infants. *Journal of Pediatrics* 228: 44-52.
- Medina-Poeliniz C, Engstrom JL, Hoban R, Patel AL, Meier PP. (2020). Measurement of Secretory Activation for Research and Practice: An Integrative Review. *Breastfeeding Medicine* 15(4).
- Meier PP, Patel AL, Hoban R, Engstrom JL. (2016). Which breast pump for which mother: an evidence-based approach to individualizing breast pump technology. *Journal of Perinatology*, 36, 493-499.
- Meier PP, Johnson TJ, Patel AL, Rossman B. (2017). Evidence-based methods that promote human milk feeding of preterm infants. *Clinics in Perinatology*, 44(1), 1-22.

Parker LA, Sullivan S, Cacho N, Englemann C, Krueger C, Mueller M. (2020). Indicators of secretory activation in mothers of preterm very low birthweight infants. *Journal of Human Lactation*. DOI: 10.1177/0890334420980424.