

Improving Outcomes for NICU Infants with Human Milk

Professor Paula P. Meier, RN, DNSc, FAAN
Rush University Medical Center, Chicago (USA)

6th International Breastfeeding and Lactation Symposium, 15-16 April 2011 Amsterdam, The Netherlands

Human milk from the infant's own mother reduces the risk of short- and long-term morbidities that occur as a consequence of premature birth and hospitalization in the neonatal intensive care unit (NICU). Several studies indicate a dose-response relationship between the amount of human milk received and protection from costly and handicapping morbidities, which include: enteral feed intolerance, nosocomial infection, necrotizing enterocolitis, chronic lung disease, retinopathy of prematurity, adverse neurodevelopmental outcome and rehospitalization after the NICU hospitalization. These studies have formed the basis for official recommendations that prioritize the feeding of human milk during and after the NICU hospitalization.

Most NICU health care providers recognize the importance of human milk feedings, but it has proved more difficult to translate this information into evidence-based policies and procedures that direct lactation care in the NICU. This presentation will review the evidence and highlight best clinical practices to improve outcomes for NICU infants with human milk: 1) removing barriers to mothers' initiating lactation, 2) achieving and maintaining adequate maternal milk output, 3) handling human milk safely during its collection, storage, handling and feeding; and 4) facilitating exclusive feeding at the breast during or after the NICU stay.

Removing Barriers to Mothers' Initiating Lactation. Mothers of NICU infants confront two primary barriers to the initiation of lactation. First, despite the fact that several studies reveal mothers depend upon health care providers for information about the importance of their milk for their NICU infants, many physicians and nurses feel that they are pressuring or coercing vulnerable mothers into a feeding choice. Second, NICU care providers frequently adopt a "let's be on the 'safe side' and feed formula" for many maternal conditions and medications that are compatible with human milk feedings in the NICU. In contrast, formula significantly increases the risk of several morbidities, and is seldom on the "safe side" when compared to human milk in the NICU.

Achieving and Maintaining Adequate Maternal Milk Output. Mothers of NICU infants who are breast pump-dependent are significantly more likely than breastfeeding mothers of healthy infants to experience delayed onset of lactation and low milk volume. However, few studies have controlled for the numerous clinical variables that affect maternal milk output in NICU mothers, including: type of breast pump and breast pump suction patterns, correctly-fitted breast shields, evidence-based breast pumping instructions, use of maternal milk output targets, and nonpharmacologic interventions such as skin-to-skin care. A review of these strategies to help breast pump-dependent mothers "come to volume" will be provided.

Handling Human Milk Safely in the NICU. Techniques for collection, storage, handling and artificial feeding of human milk, all of which are necessary in the NICU environment, vary widely, and can compromise the quality and safety of human milk feedings. An overview of best practices for ensuring that human milk is optimal for feeding in the NICU will be provided.

Facilitating Exclusive Feeds at Breast. Although data reveal that many premature infants are discharged from the NICU receiving exclusive human milk, significantly fewer are feeding exclusively at the breast. In several countries, achievement of exclusive breastfeeding *after* rather than *before* NICU discharge reflects the trend toward earlier NICU discharge of premature infants, e.g., prior to their achieving term, corrected age. Procedures for transitioning premature infants from gavage to breast, including tasting milk from the emptied breast, and the use of nipple shields and test-weights, will be included.

These four topics will be presented with a focus on integrating research and practice for the use of human milk in the NICU. Clinical case studies, video inserts, and samples of parent educational materials from the Rush Mothers' Milk Club will be included.

Professor Paula P. Meier, RN, DNSc, FAAN

Dr. Paula Meier is the Director for Clinical Research and Lactation in the Neonatal Intensive Care Unit and is a Professor of Women's and Children's Health Nursing and a Professor of Pediatrics at Rush University Medical Center in Chicago. She has worked as a practitioner and researcher in the area of human milk, lactation, and breastfeeding for premature and NICU infants and their mothers since 1975. In 1996, Dr. Meier founded the Rush Mothers' Milk Club, a NICU-based lactation program that prioritizes "sharing the science" about human milk with infants' families.

Dr. Meier has conducted numerous externally-funded research projects, and currently serves as the principal investigator for a 5-year, \$2.76 million, NIH-funded study, "Health Outcomes and Cost of Human Milk Feedings for Very Low Birthweight Infants." She has published over 65 peer-reviewed manuscripts, and serves as a member of the International Society for Research in Human Milk and Lactation and of the Health Advisory Council for LaLeche League, International.