

Pediatrician Opportunities To Guide Maternal Diet In The Neonatal Intensive Care Unit (NICU)

Kathleen Copp, BS¹, Emily A. DeFranco, D.O., M.S.^{1,2}, Jeannie Kleiman BS³, Lynette K Rogers, Ph.D.⁴, Ardythe L. Morrow, PhD², and Christina J. Valentine, MD,MS, RD, FAAP^{1,5}

¹ Department of Obstetrics and Gynecology, University of Cincinnati College of Medicine, Cincinnati, Ohio

² Center for Prevention of Preterm Birth, Perinatal Institute, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio ³Department of Infectious Diseases, Cincinnati Children's Hospital ⁴Center for Perinatal Research, Nationwide Children's Hospital, Columbus, OH ⁵Research and Development, Mead Johnson Nutrition, Inc., Evansville, IN

Introduction: Human milk feeding is common in the neonatal intensive care unit but is associated with growth limitations. Commercial nutrient fortification is common practice as preterm infants are on limited volume; however opportunities exist to improve maternal diet and impact the baseline nutrition of the milk. For specific nutrients, the mammary gland depends on maternal diet; these include fat soluble vitamins A and D, water soluble vitamins B1, B2, B6, and B12, and key lipids such as docosahexaenoic acid (DHA), choline, and iodine.

Hypothesis: Our hypothesis was that key nutrients for lactation in the NICU mother's diet would be less than the dietary guidelines in the United States (US).

Methods: This was a secondary analysis of the nutritional data collected during a randomized control trial. 16 lactating women provided 3-day detailed food diaries at four time points over the course of the study. Diet records were analyzed with Nutritional Data Systems for Research nutritional analysis program. Mean dietary intakes of selected nutrients were calculated and compared to current Dietary Reference Intakes (DRI).

Results: Mean dietary intake of several important nutrients were significantly lower compared to the DRI for lactating mothers: vitamin A 58% of DRI (753.1±327.9µg), vitamin D 44% of DRI (6.57±4.21µg), fatty acid DHA 5% of current expert recommendations (0.05±0.02g), and choline 58% of DRI (317.1±135mg), p-values <0.05. Maternal intake of vitamins B1, B2, B6 and B12 were sufficient in accordance with the DRIs. When mean intake was stratified by singleton versus twin gestation, mothers to twins consumed an adequate intake and significantly more total protein, vitamin A, thiamin, riboflavin and vitamin B-12; however, the DRI are based on singleton pregnancies and they still had statistically insufficient intake of DHA.

Conclusions: Women providing breast milk for singleton premature infants did not consume sufficient vitamin A, D or fatty acid DHA in accordance with current Daily Reference Intakes and guidelines. Twin mother's diets were adequate except for DHA, but these guidelines are based on singleton pregnancies and remain poorly understood for twin needs. The pediatrician can have a role in unique maternal dietary education to impact lactation and nutrient delivery to the infant.

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