Higher Maternal Diet Quality during Lactation is Associated with Lower Inflammatory Markers in Breast Milk

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Objective: Animal studies have demonstrated that maternal diet influences breast milk macronutrients and bioactive components. However, no human studies have assessed the relationship between maternal diet quality during lactation and inflammatory markers in breast milk. The aim of the present study was to explore associations between maternal postpartum diet and levels of C-reactive protein (CRP) and Interleukin-6 (IL-6) in breast milk at 1 and 3-months.

Methods: Participants were 174 mother-infant dyads from the Mothers and Infants LinKed for Health (MILK) study, who provided breast milk samples. Maternal diet was assessed at 1-month postpartum using the Diet History Questionnaire II with Healthy Eating Index-2015 (HEI-2015) total and 13 subcomponent scores calculated. Mixed effects models were used to examine associations between maternal diet quality and log-transformed breast milk CRP and IL-6 at 1 and 3-months after covariate adjustment.

Results: Higher scores on the “Whole Grains” and “Dairy” components of the HEI-2015 were associated with lower breast milk CRP at 1-month only (p=0.02) and from 1 to 3-months (p=0.04), respectively. Higher scores on the “Greens and Beans” and “Added Sugars” components were associated with lower breast milk IL-6 at 1-month only (p=0.03) and from 1 to 3-months (p=0.05), respectively.

Conclusions: This is the first human study to report that higher maternal diet quality during lactation may be related to lower CRP and IL-6 concentrations in breast milk. Additional research is needed to replicate these findings and determine the implications of varying levels of these inflammatory markers on infant growth.