Differences In Milk Adiponectin Concentration Between Women with and without Gestational Diabetes.

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Background: While it is clear that prenatal exposure to gestational diabetes has negative health consequences, recent studies suggest that the offspring of gestational diabetic mothers who are breast-fed have a poorer metabolic prognosis. Thus, identification of factors that differ in the milk from gestational diabetic mothers may provide clues to novel therapeutic strategies to reduce later obesity. Adiponectin is a likely protective candidate because it is associated with lower adiposity and favorable metabolic profiles including reduced risk of gestational diabetes. Further, adiponectin is present in human milk. Therefore, the purpose this project was to compare the concentrations of milk adiponectin in gestational diabetic mothers to healthy control mothers.

Methods: To accomplish this goal, we recruited mothers with gestational diabetes from the Cincinnati area. Height and weight measurements and milk and serum samples were collected during a home visit at approximately 1 week postpartum. Milk adiponectin concentration was obtained using radioimmunoassay on skimmed milk at 1:3 dilution. 16 control milk samples were used for comparison from the Research Human Milk Bank (RHMB).

Results: Four subjects were enrolled from June through September. Two milk samples from gestational diabetic mothers were obtained from RHMB. Adiponectin levels were 45.2 ± 12.1 versus 41.7 ± 11.8 ng/mL for GD versus control mothers. This difference was not statistically different ($p = 0.55$). Further, BMI did not appear to be related to milk adiponectin concentration ($p > 0.50$).

Conclusion: Milk adiponectin concentration in gestational diabetic mothers was not lower than the control group. Given this small sample size, additional samples will be required to confirm these findings. However, if milk adiponectin truly does not differ between the two groups, proteomics analyses will be used to identify other candidate proteins with differences.