

STRONG CHILDREN'S RESEARCH CENTER

Summer Research Scholar

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ABSTRACT

Title: Maternal APRIL and BAFF Levels in Human Milk From Urban and Rural Communities

Background: Studies have demonstrated that individuals practicing a traditional farming lifestyle have a lower prevalence of allergy.¹ Yet, the mechanisms of protection are not fully understood. We have previously found that OOM infants and their mothers have elevated IgA levels in feces, plasma, and saliva. IgA is found in high concentrations at mucosal surfaces, including human milk (HM) and is suggested to be associated with protection against allergies.³ Several mediators are known to induce IgA production including a proliferation-inducing ligand (APRIL) and the B-cell activating factor of the TNF family (BAFF). Whether the variations in IgA we have previously observed are due to differences in inducers of IgA production remains unknown.

Objective: Determine levels of APRIL and BAFF in HM from our cohort, which includes the following populations: the Old Order Mennonites (OOM), a traditional farming community whose infants are low risk for allergy, and infants born to atopic families from urban/suburban Rochester, NY (ROC), who are at high risk for developing allergies.

Methods: APRIL and BAFF levels were measured in ROC (n=66) and OOM (n=67-68) HM samples collected at 6-weeks postpartum by ELISA.

Results: APRIL levels were higher in ROC mothers compared to OOM mothers, while BAFF concentrations remained the same. There were no differences in APRIL and BAFF levels in mothers of infants who did or did not develop allergy. However, BAFF levels were significantly elevated in mothers without asthma. There was no correlation between 6-week APRIL and BAFF levels and infant fecal IgA at 6 months.

Conclusion: IgA-inducing factors may not be responsible for elevated IgA in the OOM. These differences could be potentially due to other factors, such as variations in the gut microbiome.

References

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