Diet during pregnancy and lactation in relation to offspring allergy

Background

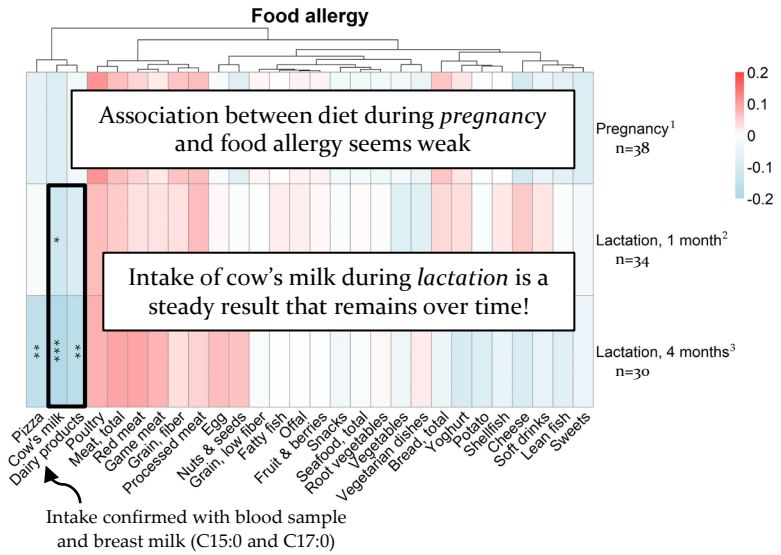
- Allergy is one of the most common chronic diseases in childhood, affecting up to 30% of children in industrialized countries.
- While the etiology of allergies is not yet completely understood, it appears to reflect complex interactions of genetic and various environmental and lifestyle factors.
- Maternal diet during pregnancy and lactation have been discussed as potential lifestyle factors that can modify the risk of allergy in the offspring.
- *The aim* was to assess and compare the dietary intake of pregnant and lactating women using questionnaires, validate it with dietary biomarkers in erythrocytes and breast milk, and relate these data to doctor diagnosed allergy in the offspring at 12 months of age.

Materials and Methods

- Data from the Swedish birth cohort NICE
- Repeated semi-quantitative food frequency questionnaire
  Gestational week 34, 1 month and 4 months postpartum
- Doctor's diagnosed allergy at 12 months
- Analysis of fatty acids in erythrocytes (GC-FID) and in breast milk (GC-MS)
- Partial Spearman correlation with diet and allergy
  Adjusted for heredity, siblings, birth season and total energy intake
- Unsupervised hierarchical cluster analysis

Results

- 508 mother-child couples included in the statistical analyses.
- The prevalence of allergy at 12 months of age were 7.7% with food allergy, 6.5% with atopic eczema and 6.5% with asthma.
- A higher maternal consumption of cow's milk during lactation was significantly associated with lower prevalence of food allergy in the offspring.
- Higher maternal consumption of fruit and berries during lactation was significantly associated with increased prevalence of atopic eczema in the offspring.
- Intake of cow's milk correlated with the proportions of pentadecanoic acid (15:0) and heptadecanoic acid (17:0) in breast milk and pentadecanoic acid in breast milk was in turn associated with lower prevalence of offspring food allergy.



Conclusions

- Maternal intake of cow's milk during lactation, as confirmed by measurements of dietary biomarkers in maternal blood and breast milk samples, is associated with lower prevalence of physician-diagnosed food allergy by 12 months of age.
- Our results suggest that maternal diet modulate the infant's immune system, affecting subsequent allergy development.

Reference

Stråvik M, Barman M, Hesselmar B, Sandin A, Wold AE, Sandberg AS. *Maternal intake of cow's milk during lactation is associated with lower prevalence of food allergy in offspring*. Nutrients. 2020 Dec;12(12):3680.

Acknowledgements

We thank all participating families, and everyone involved in the work leading up to this publication. For more detailed information see the original article (listed above).

Contact

PhD student Mia Stråvik: mia.stravik@chalmers.se
https://www.chalmers.se/en/Staff/Pages/mia-stravik.aspx

Food Science Sweden

Chalmers | LTH | RISE | SLU | OrU