CHRD 2022: Abstract & Poster Submission Form

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Presenter Status

- ○ Undergraduate Students
- ◉ Masters Student
- ○ PhD Student
- ○ Post-Doctoral Fellows
- ○ Residents
- ○ Non-Trainee

Research Category

- ◉ Basic Science
- ○ Clinical
- ○ Community Health / Policy

Role in the project

- ☑ Design
- ☐ Perform Experiments
- ☑ Analyze Data
- ☑ Write Abstract
- ☐

Title

Investigating the relationship between infant feeding practices and immune biomarkers in the CHILD Cohort Study

Background

Human milk consumption is associated with immune system development; however, the impact of infant feeding practices on this relationship is unclear.

Objective

This study aims to understand how human milk feeding duration, exclusivity, and method (e.g. directly from the breast, or pumped and bottled) are related to immune development in the first year of life.

Methods

We studied a subset of 670 one-year-old infants from the CHILD Cohort Study. Human milk feeding duration and feeding method at 3 months were derived from hospital birth records and parent questionnaires. The Olink Target 96 Inflammation assay measured 92 serum biomarkers that reflect immune system activity and development. Associations were investigated by Wilcoxon rank-sum test and Spearman's rank correlation with adjustment for multiple comparisons.

Results

The mean (± standard deviation) duration of human milk feeding was 11.3±6.5 months and 35.2% received some pumped milk at 3 months of age. Of the 92 biomarkers assessed, 76 were detectable in >50% of infant serum samples and included in subsequent analyses. Fibroblast Growth Factor 21 (FGF-21), Cluster of Differentiation 244 (CD244), and Chemokine Ligand 6 (CXCL6) were positively correlated with human milk feeding duration ($r = 0.26, 0.16, 0.13$, respectively; all $p<0.01$). These biomarkers were also higher among infants that received only direct human milk (vs. only formula) at 3 months of age (mean ± standard deviation: 55.9±66.2%, 14.9±3.0%, 21.4±0.3% higher, respectively; all $p<0.01$). For FGF-21, intermediate levels were observed among infants that received pumped milk.

Conclusion

Infant feeding practices are associated with certain immune biomarkers in serum at one year of age. Infant (e.g. sex), maternal (e.g. age), and early life (e.g. birth mode) factors will be incorporated in further analysis. This research will help us understand how infant feeding practices are related to immune system development and how human milk shapes the immune system.

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Authors

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