Cord blood cytokines are modulated by maternal farming activities and consumption of farm dairy products during pregnancy: the PASTURE Study.


Source

Department of Clinical Chemistry and Molecular Diagnostics, Philipps-University of Marburg, 35033 Marburg, Germany.

Abstract

BACKGROUND:

Traditional farming represents a unique model situation to investigate the relationship of early-life farm-related exposure and allergy protection.

OBJECTIVES:

To investigate associations between maternal farm exposures and cytokine production in cord blood (CB) mononuclear cells in a prospective multinational birth cohort of 299 farm and 326 nonfarm children and their families.

METHODS:

Supernatants from phorbol 12-myristate 13-acetate/ionomycin-stimulated CB mononuclear cells were assessed for the production of IFN-gamma, TNF-alpha, IL-5, IL-10, and IL-12.

RESULTS:

Significantly higher levels of IFN-gamma and TNF-alpha in farm compared with nonfarm children were found, whereas IL-5, IL-10, and IL-12 levels did not differ between study
groups. Maternal contact with different farm animal species and barns and consumption of farm-produced butter during pregnancy enhanced the production of proinflammatory CB cytokines, whereas maternal consumption of farm-produced yogurt resulted in significant lower levels of IFN-gamma and TNF-alpha in umbilical blood.

CONCLUSION:

Maternal exposure to farming activities and farm dairy products during pregnancy modulated cytokine production patterns of offspring at birth.

Copyright 2010 American Academy of Allergy, Asthma & Immunology. Published by Mosby, Inc. All rights reserved.
PMID: 19969338 [PubMed - indexed for MEDLINE]