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50 Years Ago in The Journal of Pediatrics-Poliomyelitis antibodies in human colostrum and milk

Christina J. Valentine, M.D., M.S., R.D. [Assistant Professor] and

Division of Neonatology, The Center for Research in Human Milk and Lactation

Elizabeth P. Schlaudecker, M.D., M.P.H. [Assistant Professor]

Division of Infectious Diseases, Global Health Center, Cincinnati Children's Hospital, 3333 Burnet, Cincinnati, OH 45229

Human milk was always thought to have specific factors to protect infants from poliovirus, but it wasn't until this landmark study that definitive antibodies to the virus were described both in the mother's milk and serum.¹ These investigators sampled the milk and sera of four women in the colostrum phase and four women on the thirteenth day postpartum, and identified anti-poliovirus antibody using neutralization assays and micro-immunodiffusion methods. Similar methods of radial immunodiffusion and enzyme-linked immunosorbent (ELISA) assays are still used today to identify antigen-specific antibodies in the milk after viral exposure. More specifically since the article 50 years ago, a functional relevance can be observed. Anti-influenza IgA in human milk can be identified by ELISA at a higher concentration with resultant fewer febrile illnesses in infants of women vaccinated with influenza vaccine during pregnancy compared to controls²; however, further study is needed to determine the exact mechanisms of human milk immunologic protection against these infectious diseases. New methods in the laboratory have recently been described by Lemay et al³ can determine pathways involved in the mammary gland by identifying the transcriptome in the milk fat globule. These remarkable findings will not just describe the milk properties but provide the opportunity to design interventional trials on the mother to influence milk production in beneficial ways for the infant.

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