Low Neonatal Toll-like Receptor 4-Mediated Interleukin-10 Production Is Associated With Subsequent Atopic Dermatitis


PURPOSE OF STUDY. To determine whether decreased Toll-like receptor (TLR)-mediated cytokine production at 1 month of age is associated with development of atopic dermatitis (AD) or respiratory syncytial virus lower respiratory tract infection (RSV LRTI). The first month of life is a period of rapid development of the TLR system, and disruption of this development early in life may lead to dysfunction of innate and adaptive immunity and predispose to atopy.

STUDY POPULATION. Healthy term neonates (N = 291) from a birth cohort study in the Netherlands. Subjects were enrolled prospectively and followed for 12 months.

METHODS. At 1 month of age, subjects’ serum concentrations of immune cells were measured by absolute leukocyte count and flow cytometry. After TLR stimulation in vitro, cytokine responses were measured via ELISA. Subjects were assessed for subsequent development of AD and RSV LRTI during the first year of life. AD diagnosis was determined by physician questionnaire at 1 year, and RSV LRTI was determined by reported respiratory symptoms and RSV-positive nasal-throat sample.

RESULTS. Overall, 15% of subjects developed AD and 14% developed RSV LRTI during the first year of life. AD was significantly associated with increased natural killer cells, decreased basophils, and dendritic cells and a 1.8-fold lower TLR4-mediated interleukin (IL)-10 production (P < .001). RSV LRTI was not associated with either significant changes in the innate immune cell profile or TLR-mediated cytokine production.

CONCLUSIONS. This study found the development of AD, but not RSV LRTI, to be associated with distinct differences in the innate immune system early in life. Decreased TLR-4–mediated IL-10 production may have a causal role in development of AD.

Chronic Urticaria: Etiology and Natural Course in Children


PURPOSE OF THE STUDY. Chronic spontaneous urticaria (CSU) in childhood is infrequent, and information about the disease is limited. The study investigated its etiologic factors, natural course, and predictors of prognosis.

STUDY POPULATION. All children aged 18 years or younger in a cohort from Turkey who were diagnosed with CSU during an 8-year period.
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