Frequent Moderate to Severe Viral Respiratory Illnesses during Infancy Significantly Influence the Development of Asthma but not Immunologic and Clinical Markers of Atopy during Early Childhood


Rationale: To test the hypothesis that exposure to infections in early life may confer protection against the development of allergies and/or asthma (so-called hygiene hypothesis), we prospectively examined the influence of the frequency of viral respiratory illnesses during infancy on the development of asthma and other markers of atopy by age 6.

Methods: Nasal lavage specimens were collected during infancy at study visits and symptomatic illnesses from the children in the Childhood Origins of ASThma (COAST) project and analyzed by culture and RT-PCR for the presence of virus. Twenty-six children experienced frequent (≥5) moderate to severe illnesses (MSI) in year 1, and 52 children had no MSIs. The frequency of viral illness was compared to results of skin prick tests (SPT) performed at 5-year study visits, RAST (Unicap® 100) performed at age 6, and the number of children diagnosed with active atopic dermatitis and asthma at age 6.

Results: Children with ≥ 5 MSIs during infancy had a higher incidence of asthma at age 6 relative to those with 0 illnesses (42% vs. 14%, p=0.02). No significant differences were found between children with frequent MSIs and children with no MSIs relative to the incidence of positive SPT (48% vs. 48%, p=0.96), positive RAST (53% vs. 36%, p=0.24), or active atopic dermatitis (41% vs. 24%, p=0.18).

Conclusion: In this high-risk birth cohort, frequent moderate to severe respiratory illnesses during infancy significantly influenced the development of asthma in early childhood but did not affect immunologic or clinical markers of atopy.

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