

Elevated IL-3 and IL-12p40 levels in the lower airway of infants with RSV-induced bronchiolitis correlate with recurrent wheezing

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Abstract

Respiratory Syncytial Virus (RSV) is the first cause of hospitalization due to bronchiolitis in infants. RSV bronchiolitis has been linked to asthma and recurrent wheezing, however the mechanisms behind this association have not been elucidated. Here, we evaluated the cytokine and chemokine profiles in the airways in infants with RSV bronchiolitis. Nasopharyngeal Aspirates (NPA) and Bronchoalveolar Lavage Fluids (BALF) from infants hospitalized due to RSV bronchiolitis and healthy controls were analyzed for cytokine and chemokine production. We observed elevated levels of Th2 cytokines (IL-3, IL-4, IL-10 and IL-13), pro-inflammatory cytokines and chemokines (IL-1 β , IL-6, TNF- β , MCP-1/CCL2, MIP-1 α /CCL3 and IL-8/CXCL8) in BALF from infants with RSV bronchiolitis, as compared to controls. We found a direct correlation of IL-3 and IL-12p40 levels with the development of recurrent wheezing later in life. These results suggest that IL-3 and IL-12p40 could be considered as molecular predictors for recurrent wheezing due to RSV infection.