



Effects of Respiratory Syncytial Virus Infection on Dendritic Cells and Cysteinyl Leukotrienes in Lung Tissues of a Murine Model of Asthma

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Background: Pulmonary dendritic cells (DCs) play critical roles in both allergy and in viral infection. Levels of cysteinyl leukotrienes (cysLTs) increase after allergen sensitization and viral infection and can modulate the migration and functions of DCs. The present study examines the effects of respiratory syncytial virus (RSV) infection on numbers of DCs and cysLT concentrations in lung tissues of mice sensitized with mite allergen.

Methods: We examined Control, Dermatophagoides farinae allergen sensitized (Df), RSV infected (RSV) and Df allergen sensitized and RSV infected (Df-RSV) Balb/c mice. We then determined the number of CD11c-positive DCs and the LT concentration in lung tissues of the mice and examined lung pathology and cytokine profiles in thoracic lymph nodes.

Results: Infection with RSV significantly enhanced allergic airway inflammation in Df mice with concomitant increases in Th1 and Th2 immunity. The number of DCs and the cysLT concentrations were significantly increased in the lungs of Df and RSV mice and more so in Df-RSV, than in Df mice.

Conclusions: The present findings suggest that RSV infection increases the number of DCs and the cysLT concentrations in lung tissues of asthma patients, both of which could result in enhanced allergic airway inflammation.

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