

MEETING ABSTRACT

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Mechanisms of asthma and allergic disease – 1084. Localization and up-regulation of CysLT₂ receptor in perennial allergic rhinitis

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Background

The cysteinyl leukotrienes (CysLTs) are lipid mediators that have been implicated in the pathogenesis of allergic rhinitis. Pharmacological studies using CysLTs indicate two classes of receptors named CysLT₁ and CysLT₂ receptor exist. The former is sensitive to the CysLT₁ receptor antagonists currently used to treat asthma and allergic rhinitis. We have previously reported the localization of CysLT₁ receptor by using immunohistochemistry and in situ hybridization. To clarify the expression of CysLT₂ receptor in human nasal mucosa, we investigated the expression and the localization of CysLT₂ receptor in human nasal mucosa by means of Western blot analysis and immunohistochemistry.

Methods

Human turbinates were obtained by turbinectomy from 12 patients with nasal obstruction refractory to medical therapy. CysLT₂ receptor expression on nasal mucosa was studied by Western blot analysis and immunohistochemistry. Also, to investigate the possible modulation of CysLT₂ receptor expression, human umbilical vein endothelial cells (HUVECs) were stimulated with IL-4 or IL-13, and CysLT₂ receptor expression were evaluated by Western blot analysis.

Results

About 40kDa band was detected in human turbinates by western blot analysis using anti-CysLT₂ receptor antibody. The expression level of CysLT₂ receptor protein was marked in patients with nasal allergy than in patients with non-allergic rhinitis. The immunohistochemical study

revealed that both vascular endothelial cells and vascular smooth muscles showed intense immunoreactivity for CysLT₂ receptor. IL-13 enhanced the levels of CysLT₂ receptor protein in HUVECs.

Conclusions

The results suggest a primary role for CysLT₂ receptor as the vascular responses in upper respiratory tract, and vascular CysLT₂ receptor expression can be regulated by Th2 cytokines.

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