

Benzaldehyde suppresses murine allergic asthma and rhinitis

Young Hyo Kim

Inha University, Republic of South Korea

To evaluate the antiallergic effects of oral benzaldehyde in a murine model of allergic asthma and rhinitis, we divided 20 female BALB/c mice aged 8–10 weeks into non allergic (intraperitoneally sensitized and intranasally challenged to normal saline), allergic (intraperitoneally sensitized and intranasally challenged to ovalbumin), and 200- and 400-mg/kg benzaldehyde (allergic but treated) groups. The number of nose-scratching events in 10 min, levels of total and ovalbumin-specific IgE in serum, differential counts of inflammatory cells in bronchoalveolar lavage (BAL) fluid, titers of Th2 cytokines (IL-4, IL-5, IL-13) in BAL fluid, histopathologic findings of lung and nasal tissues, and expressions of proteins involved in apoptosis (Bcl-2, Bax, caspase-3), inflammation (COX-2), antioxidation (extracellular SOD, HO-1), and hypoxia (HIF-1 α , VEGF) in lung tissue were evaluated. The treated mice had significantly fewer nose-scratching events, less inflammatory cell infiltration in lung and nasal tissues, and lower HIF-1 α and VEGF expressions in lung tissue than the allergic group. The numbers of eosinophils and neutrophils and Th2 cytokine titers in BAL fluid significantly decreased after the treatment ($P < 0.05$). These results imply that oral benzaldehyde exerts antiallergic effects in murine allergic asthma and rhinitis, possibly through inhibition of HIF-1 α and VEGF.

Biography

Young Hyo Kim is an Assistant Professor at the Department of Otorhinolaryngology, Inha University, College of Medicine. His special research interests are allergy (clinical, basic and transitional research) and space medicine. He has published more than 35 papers in the international reputed journals (Science Citation Index journals).

inhaorl@inha.ac.kr

Notes: