

S48-2 Roles of histamine in exacerbated allergic dermatitis

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In atopic dermatitis, inflammation induced by antigen-nonspecific stimuli such as an infection and scratching further enhances the allergic inflammation induced by the antigen exposure. Here, we established a novel dermatitis model in mice ear lobes and analyzed roles of histamine using specific antagonists for histamine receptors. After sensitization with picryl chloride (PiCl) by painting on ear lobes of cyclophosphamide-treated mice, 12-*O*-tetradecanoylphorbol 13-acetate (TPA) was painted twice at the same site, and then, allergic inflammation was induced by painting PiCl. The application of TPA shifted the PiCl-induced allergic inflammation from a delayed-type response to a biphasic response, increased the infiltration of eosinophils and mast cells at the inflammatory site. In this model, the PiCl-induced increase in the thickness of the ear lobe in the immediate-phase was suppressed by the histamine H1 antagonist pyrilamine. In contrast, the increase in the swelling in the late-phase and the infiltration of eosinophils were suppressed by the H3/H4 antagonist thioperamide. The inhibitory effect of the combined treatment with pyrilamine and thioperamide on the allergic dermatitis was as potent as that of cyclosporin A. These findings suggest that the combination of an H1 antagonist with an H4 antagonist might be a new strategy for the suppression of atopic dermatitis.

Hirasawa et al., Int. Arch. Allergy Immunol. (2009) 148: 279-288