Interleukin-10 inhibits the production of inflammatory cytokines by antigen-stimulated mononuclear cells from asthmatic patients

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Bronchial asthma, characterized by chronic airway inflammation, involves many inflammatory cytokines. Interleukin (IL)-10 is a potent inhibitor of cytokine synthesis. Thus, the effects of IL-10 were examined on the production of granulocytemacrophage colony stimulating factor (GM-CSF), IL-5, IL-1β, IL-2 and interferon (IFN)-γ by antigen (Dermatophagoides farinae, Df)-stimulated mononuclear cells obtained from asthmatic patients who were sensitized with the antigen and from healthy subjects in vitro. Production of IL-5 and IL-2 was enhanced by Df antigen in the asthmatic subjects, but not in the healthy controls. In contrast, levels of GM-CSF, IFN-γ and IL-1β production were enhanced by the antigen in both groups. Exogenous IL-10 (10 ng/mL) inhibited the production of GM-CSF, IFN-γ and IL-1β induced by Df antigen in both groups and also inhibited the production of IL-5 and IL-2 induced by the antigen in the asthmatics subjects. The inhibition of GM-CSF production by IL-10 was stronger than that by IL-4. These results indicated that the responsiveness to the inhibitory effect of IL-10 on the production of inflammatory cytokines is not abrogated in asthmatic patients and that IL-10 may be useful in the treatment of bronchial asthma.

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