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Bronchial asthma and interleukin-5

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Keywords

Asthma, eosinophils, IL-5

Context

Allergic bronchial asthma is an inflammatory disease characterized by eosinophilia. This inflammatory response is believed to be due to an imbalance between Th1 and Th2 responses. Th1 cells produce predominantly interferon-? and interleukin (IL)-2, whereas Th2 cells produce IL-4, -5, -9 and -13. Increased production of IL-5 causes eosinophilia, whereas IL-4 and IL-13 enhance the production of IgE. In asthma, there is an increase in IL-5 production, and it is known that increased serum IL-5 is associated with a fall in the FEV_1 (forced expiratory volume in 1 s). Hence, it is logical to think that monoclonal antibody to IL-5 could be of benefit in asthma.

Significant findings

Although monoclonal antibody to IL-5 lowered the number of blood eosinophils for up to 16 weeks and the number of sputum eosinophils at 4 weeks, no significant change in the late asthmatic response or in airway hyperresponsiveness to histamine was noted. Hence, the authors suggested that eosinophils might not have a major role in the pathobiology of asthma.

Comments

The negative results of this study suggest the following: eosinophils might not be important mediators of asthma; several other cytokines might also be involved in the pathogenesis of asthma and, hence, neutralizing IL-5 alone is not adequate to inhibit the pathology of asthma; a combination of IL-12 and antibody to IL-5 might need to be given in asthma treatment to see a significant beneficial result. Had the levels of IgE been measured they might have provided some clue as to why the treatment did not

work. It is possible that more frequent administration of antibody to IL-5 is necessary to prevent late asthmatic reaction.

Methods

Double-blind, randomized, placebo-controlled, human trial in mild asthma; intravenous infusion of humanized monoclonal antibodies; inhaled allergen challenge.

Additional information

References

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