No Effect of Anti-Interleukin-5 Therapy (Mepolizumab) on the Atopy Patch Test in Atopic Dermatitis Patients

Abstract:
Background: The atopy patch test (APT) is an in vivo model to study the induction of eczema by inhalant allergens in atopic dermatitis (AD) patients. Mepolizumab is a monoclonal antibody to interleukin-5, which reduces peripheral blood eosinophils. Previously, we reported that mepolizumab treatment did not result in clinical improvement in AD. The current study investigates the effect of mepolizumab therapy on the APT in the same patients. Methods: Mepolizumab treatment was given at days 0 and 7 in a double-blind placebo-controlled design. The APT was applied at days –2, 0, 14 and 28. Clinical evaluation of each APT was conducted 48 h after application at days 0, 2, 16 and 30. Skin biopsies were taken at days 0, 2 and 16 for eosinophil counts. Results: The mepolizumab-treated group showed no significant reduction in macroscopic outcome of the APT. Tissue eosinophils were reduced in the mepolizumab-treated group at day 16 compared with placebo; however, this was not significant. Conclusion: Mepolizumab therapy cannot prevent the eczematous reaction induced by the APT. Furthermore, the influx of tissue eosinophil numbers in the APT is not significantly inhibited after mepolizumab treatment compared with placebo, despite a significant
reduction in peripheral blood eosinophils.

**Stichworte:**
Anti-interleukin-5 antibody; Atopic dermatitis; Atopy patch test; Eosinophils; Mepolizumab; Skin biopsies

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