Is there an association between indoor allergens and the severity of atopic dermatitis

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Abstract

Background Atopic dermatitis (AD) is a multifactorial inflammatory skin disease with frequent hypersensitivity to allergens. However, the role of exposure to indoor allergens on AD severity is unclear. Methods Children aged 0-17 years with active AD from central Chile were recruited; disease severity was evaluated with SCORAD and POEM scores. A home environment survey was applied to parents. Bedroom dust samples were collected for all subjects and analyzed by multiplex assay to quantify dust mite (Der p1, Der f1), dog (Can f1), cat (Fel d1), and alternaria alternata (Alt a1) allergens. Results Twenty∎five children aged 3.9 ± 3.8 years were included. Fifty two percent were female. Mean SCORAD was 29 ± 14 (range 11-61), and mean POEM was 10.7 ± 6.2. No direct association was found between tobacco exposure, pet ownership, aerosol use, visible dust, or home carpets/rugs with SCORAD (all P > 0.05). Dust samples from all homes had Can f1 and FeI d1 allergens, regardless of pet ownership. Homes that had indoor dogs or cats had significantly higher amounts of these allergens (P < 0.001). Forty percent of homes had dust mite allergens, and none had alternaria alternata. Children with AD living in homes with elevated dust mite and animal dander allergen concentrations had higher SCORAD than those from homes with low allergen concentrations (40 ± 13 vs. 26 ± 13, P = 0.025). Conclusions High concentrations of indoor allergens may influence AD severity in children. Further studies assessing indoor allergens and allergen sensitization are warranted to fully evaluate the role of indoor allergens on AD..