Can the Use of HEPA Cleaners in Homes of Asthmatic Children and Adolescents Sensitized to Cat and Dog Allergens Decrease Bronchial Hyperresponsiveness and Allergen Contents in Solid Dust?

**PURPOSE OF THE STUDY.** Because pet allergies are associated with asthma, the authors investigated whether high-efficiency particulate-arresting (HEPA) filtration had any effect on reducing indoor allergens and bronchial hyperreactivity in children with asthma who were sensitized to cat and dog.

**STUDY POPULATION.** A total of 30 children with asthma (age: 6–17 years) who were sensitized and exposed to cat and/or dog allergen(s) at home completed the study. The children did not have dust mite or mold sensitivities, and those being treated for asthma stayed on treatment throughout this time.

**METHODS.** This was a randomized, controlled trial in which the children were assigned to 1 of 2 groups. For 12 months, 1 group was exposed to HEPA air cleaners that were placed in the living room and bedroom, and the other group was exposed to paper sham filters. Filters were on for >50% of the time. Pulmonary function testing and cold-air challenges were performed at baseline, 6 months, and 12 months into the study. Serum eosinophil cationic protein, specific immunoglobulin E (IgE) and IgG4 antibodies to CDE and rFeld1b y ImmunoCAP (Phadia, AB Uppsala, Sweden) and for IgE to rFeld1b yImmunoCAP were selected as control subjects. Seventy-five healthy, age-matched, CDE-skin-test–negative children and adults were selected; all had positive skin-prick test results to cat dander extract (CDE). Higher Immunoglobulin E Antibody Levels to Recombinant Fel D 1 in Cat-Allergic Children With Asthma Compared With Rhinocconjunctivitis

**PURPOSE OF THE STUDY.** To measure immunoglobulin E (IgE) and IgG4 antibodies to an engineered recombinant major cat allergen, rFel d 1, among sera from cat-allergic children and adults.

**STUDY POPULATION.** One hundred forty cat-allergic children and adults with rhinoconjunctivitis and/or asthma were selected; all had positive skin-prick test results to cat dander extract (CDE). Seventy-five healthy, age-matched, CDE-skin-test–negative children and adults were selected as control subjects.

**METHODS.** Sera from the 140 patients were tested for IgE and IgG4 antibodies to CDE and rFel d 1 by ImmunoCAP (Phadia, AB Uppsala, Sweden) and for IgE to rFel d 1 by enzyme-linked immunosorbent assay.

**RESULTS.** Ninety-eight percent of patients (all but 1) and none of the control subjects had evidence of specific IgE to rFel d 1. Specific IgE results to rFel d 1 and CDE correlated strongly ($r_s = 0.85; P < .001$) among the 140 patients; however, results to rFel d 1 were, on average, 30% higher ($P < .0001$). IgE responses to rFel d 1 among children with asthma were higher (median: 19.4 kU/L), compared with children with rhinoconjunctivitis only.
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*Pediatrics* 2009;124;S115

DOI: 10.1542/peds.2009-1870P

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