

75 Intra-regional Variation in Peak Tree Pollination in Greater NY

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RATIONALE: Tree pollen counts are influenced by both precipitation and temperature.

We compared peak tree pollen counts based on location, precipitation and temperature in urban and suburban Northeast, Southeast and Midwest. Representative cities were Brooklyn, NY, Armonk, NY, Atlanta, GA, Huntsville, AL, St. Louis, MO and Fargo, ND.

METHODS: A retrospective analysis was done on data from the National Allergy Bureau from January 1, 2004 through August 30, 2007. Peak tree pollen counts were obtained from graphic data and compared to precipitation and temperature data obtained from the National Climatic Data Center.

RESULTS: Peak tree pollen counts increased by five fold (4,500 to 20,000 pollen per cubic meter of air) between April, 2005 through April, 2006 in Armonk, NY. There was no significant change in peak tree pollen counts in Brooklyn, NY (826 to 700). In 2006, tree pollen peaked in early April for Armonk, NY and late April for Brooklyn, NY. Monthly precipitation and temperature patterns were similar for 2006. Peak tree pollen counts remained stable in the Southeast and Midwest for the time period studied.

CONCLUSION: Although the temperature and precipitation patterns within the greater NY area were similar, there was tremendous intra-regional variation in magnitude and timing of peak tree pollen counts. We hypothesized that there may be local factors, such as concentrated earlier pollinating tree species in suburban NY, which are not present in urban NY. Neither suburban nor urban tree pollen counts should be used alone to represent an entire metropolitan area.

76 Atopic Human IgE Binding to *Platanus* sp. Aeroallergens Identified by The Halogen Immunoassay

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RATIONALE: *Platanus* species (Plane Tree and Sycamore) are associated with allergy and respiratory irritation. They produce 3 main types of bioaerosol particles: pollen, leaf hairs (stellate trichomes) and fibers from fruiting bodies. The Halogen Immunoassay, which can identify allergenic particles capable of binding specific IgE, was used to investigate IgE binding to *Platanus* bioaerosols.

METHODS: The study was conducted in a locality where *Platanus* is common. Sera was collected from 10 subjects with atopy and a positive skin prick test (SPT) to *Platanus* allergen extract, and 10 subjects with atopy and a negative SPT to *Platanus*. Sera from non-atopics were used as controls. Bioaerosols were collected locally using environmental bioaerosol samplers (Burkard traps) and by direct sampling from local *Platanus* trees. The Halogen Immunoassay was used to identify bioaerosol particles that bound IgE present in the serum of each individual.

RESULTS: Sera from all 10 *Platanus* SPT positive subjects contained IgE which bound to 40.4% (mean) of airborne *Platanus* pollen grains. Serum from only 1 of the 10 *Platanus* SPT negative subjects displayed IgE binding to *Platanus* pollen, and to only to 4% of the *Platanus* pollen grains identified. No IgE from any serum sample was identified as binding to *Platanus* trichomes or fibers from fruiting bodies. Sera from both *Platanus* SPT positive and negative subjects displayed IgE binding to other bioaerosols including grass, tree and weed pollen and fungal spores.

CONCLUSIONS: IgE from sensitised individuals exhibits specific binding to *Platanus* pollen but not to *Platanus* trichomes or fibers from fruiting bodies.

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77 Comparison of Capture Media for Air Sampling

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RATIONALE: Various types of adhesive media are used for preparing tapes or slides for capturing airborne particles for spore trap samplers. Each adhesive has different physical properties and may not be appropriate for all locations or all seasons. This study compared the capture efficiency of two adhesives commonly used for preparing Burkard slides and drums.

METHODS: Two Burkard spore traps were positioned approximately four meters apart on the roof of a five-story building at Ochsner Clinic Foundation in New Orleans, LA. The tapes for one sampler were prepared using Dow Corning High Vacuum Grease (HVG) and tapes for the second sampler were prepared using Lubriseal (LUB). Slides from 1 July to 7 Aug 2007 were analyzed to determine the spore capture during high summer temperatures. Spore concentrations were log transformed prior to statistical analysis.

RESULTS: Samples prepared using HVG trapped significantly higher levels of total spores. Mean concentrations of total spores for the period were 7232 spores/m³ using HVG and 6232 spores/m³ using LUB ($t = 2.42$; $p < 0.05$). During this period ascospores and basidiospores were the most abundant spores in the atmosphere. Although total ascospore and total basidiospore concentrations were higher with HVG, the differences were not significant. Concentrations of *Cladosporium*, *Alternaria*, *Penicillium*/*Aspergillus* and smut spores were significantly higher using the HVG.

CONCLUSION: During the summer in New Orleans, Dow Corning High Vacuum Grease trapped significantly more total spores than Lubriseal. Additional research is needed to determine if similar results would be obtained in colder temperatures and different meteorological conditions.

78 Is Pigeon Allergy Common Among Asthmatic Latina Women in New York City?

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RATIONALE: Recent data has shown that pigeon allergen can be recovered in homes of inner-city Chicago. Within another inner-city environment, we investigated the prevalence of pigeon allergy among Latina women with self-report of asthma who live in predominately low-income neighborhoods of New York.

METHODS: Serum samples were collected from asthmatic mothers ($n = 115$) of children enrolled in a birth cohort study and were analyzed for IgE against pigeon feathers, cockroaches, mice, dust mites, cats, tree mix, grass mix, and ragweed (Phadia UniCap, Portage, MI). IgE ≥ 0.35 IU/ml was considered allergen-specific sensitization.

RESULTS: 68% were sensitized to any of the measured aeroallergens, specifically pigeons (4%), cockroaches (53%), mice (18%), dust mites (49%), cats (40%), tree mix (23%), ragweed (28%), and grass mix (25%). Of the five women sensitized to pigeon feathers, none were CAP class ≥ 3 (i.e., ≥ 3.5 IU/ml) which is indicative of a stronger allergic reaction. However, four of the five pigeon-sensitized women were also sensitized to all of the other tested aeroallergens, and the fifth woman was sensitized to cat, cockroach, and mouse allergens.

CONCLUSIONS: Compared with sensitization to other aeroallergens in New York, pigeon allergy was less common and did not represent an independent sensitization. Nevertheless, our data suggest that overlooked allergens may play a role in asthma for those asthmatics with multiple sensitizations.

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