

Birch-naïve, oak-allergic subjects' response to birch pollen in an environmental chamber

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Abstract

BACKGROUND: Oak and birch pollens are known to have strong cross-reactivity. It is unknown how robust this cross-reactivity is in subjects without natural exposure to pollen of both trees. We aimed to assess in an Allergen Challenge Chamber (ACC), the symptomatic responsiveness to birch pollen in subjects allergic to and naturally exposed to Virginia Live Oak (VLO) pollen and SPT-sensitive but not naturally exposed to birch pollen. **METHODS:** Subjects underwent SPT and blood draw for ssIgE to oak and birch antigens. Residential historical data were obtained. Subjects were exposed to birch pollen ($3,500 \pm 700$ gr/m³) in 2 consecutive 3-hour challenges. Symptoms were recorded at baseline and 30-minute intervals. **RESULTS:** Twenty-four subjects, 12 males, age 20-58 yrs, completed the study. Sixteen subjects (66.7%) responded with high total symptom scores (TSS) [?]10 of max 21. Twelve subjects (50%) had ssIgE [?]0.70 kU/L to oak. Subjects with a Class II ssIgE to oak pollen had a significantly higher max TSS than those without. Fifteen subjects without natural exposure to birch pollen responded with TSS equivalent to 9 with previous natural exposure. Those without natural birch exposure also responded similarly to subjects in birch endemic areas reported in the literature. **CONCLUSION:** Subjects allergic to oak pollen residing in South Texas, responded to birch pollen in an ACC with symptoms comparable to both those with previous exposure and also those residing in endemic areas and reported by other researchers. This robust response of cross-reactivity in oak-allergic subjects, without prior endemic exposure, suggests that a cross-reactive intervention could be efficacious.

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