537 Retrospective Analysis of Ocular Allergic Conjunctivitis Responders and Non-Responders during Screening in an Environmental Exposure Chamber

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RATIONALE: To assess the ocular and nasal signs and symptoms of allergic conjunctivitis responders and non-responders in an EEC.

METHODS: 254 SPT and allergy history positive subjects were screened in a grass/ragweed EEC for 3.5 hours. Staff-assessed signs of conjunctival redness, lid swelling, lower lid papillary response, and chemosis. Subjects recorded symptoms of ocular itching, tearing, nasal itching, runny/stuffy nose, and sneezing using an electronic Patient Diary Acquisition Tablet (ePDAT™). Reponses were collected prior to EEC entry and at timepoints throughout the EEC. Subjects with a conjunctival redness of ≥2 in one quadrant in both eyes and ocular itching ≥2 at any timepoint were considered RS.

RESULTS: Following the EEC, 64% were classified as RS and 36% NRS Of the NRS, 53%, 25%, and 22% did not meet conjunctival redness criteria, ocular itching criteria, or either criteria, respectively. Mean conjunctival redness scores following exposure were 2.6 ± 0.6 and 1.4 ± 0.6, for RS and NRS respectively. 29% RS and 9% NRS had a lower lid papillary/follicular response, 25% RS and 1% NRS developed lid swelling, and 13% RS and 1% NRS developed chemosis. Post EEC, the mean ocular itching symptom scores were 2.3 ± 0.7 and 1.5 ± 1.0 and the mean TNSS were 6.4 ± 1.9 and 4.7 ± 2.5, for RS and NRS respectively.

CONCLUSIONS: The EEC model is an efficient and reproducible method to screen for AC subjects who respond with ocular and nasal symptoms for clinical trials over and above SPTs. The EEC model elicits a spectrum of allergic responses and phenotypes patients based on severities of ocular signs and symptoms.

538 Serum Specific IgE Levels Detects More Pollen Sensitizations in Symptomatic Patients Than Skin Prick Testing Alone

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RATIONALE: We sought to investigate the concordance between skin prick test (SPT) and serum specific IgE (ssIgE) in depicting environmental allergen sensitization in patients presenting with perennial or spring/summer oculo-nasal symptoms.

METHODS: The records of 75 patients seen at 2 hospital-based allergy clinics in Bronx, NY, were reviewed for report of perennial or spring/summer oculo-nasal symptoms. All patients had SPT (ComforTen) and/or ssIgE (Immunlite2000) performed. ssIgE ≥ 0.35kU/L and wheal size 3mm larger than negative control were considered positive.

RESULTS: Of 21 patients who reported perennial oculo-nasal symptoms, 8 (38%) had positive SPT to dust mite, 8 (38%) to roaches, 6 (29%) to mouse and 7 (33%) to cat. Of 7 patients who also had ssIgE levels tested, 3 (49%) were positive for dust mites, 2 (33%) for roaches, 3 (38%) for mouse and 5 (39%) for cat. All perennial serological sensitizations were confirmed by SPT.

Of 30 patients with seasonal allergies, 13 (43%) had positive SPT to tree pollen and 7 (23%) to grass pollen. 12 patients had also ssIgE done to trees and 8 to grass. 9 of 12 (75%) had positive ssIgE to trees, and 6 of 8 (75%) to grass. 7 of 12 (60%) showed tree pollen sensitization on both SPT and ssIgE testing, and 3 of 8 (37.5%) showed grass pollen sensitization on both tests.

CONCLUSIONS: Our pilot study indicated that SPT may be more (or equally) sensitive in diagnosing sensitization to perennial aeroallergens. In contrast, ssIgE testing may be more sensitive in diagnosing clinically relevant pollen sensitization.

539 A Phase 1 First-in-Human Study (B4901001) Evaluating a Novel Anti-IgE Vaccine in Adult Subjects with Allergic Rhinitis

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RATIONALE: Omalizumab, a monoclonal antibody against human IgE, is effective in the treatment of moderate to severe allergic asthma and chronic idiopathic urticaria. A vaccine inducing anti-IgE antibodies has the potential for similar clinical benefits with less frequent dosing and lower costs. We developed a vaccine antigen with two IgE peptide conjugates that target the same IgE constant domain 3 (C3) as omalizumab, plus a different loop on C3. A mouse mimetic vaccine was able to lower IgE production and demonstrate efficacy in prophylactic and therapeutic murine allergy models.

METHODS: This was a randomized within cohort (total planned n=189 subjects), double-blinded, placebo controlled, dose ascending study to evaluate the safety, tolerability, immunogenicity and exploratory pharmacodynamic responses of the vaccine antigens (6, 20, 60 or 200 μg total) combined with fixed adjuvant doses of either aluminum hydroxide (0.5 mg) [IGE-1, PF-06444753] or aluminum hydroxide plus TLR9 agonist CpG 24555 (0.5 mg each) [IGE-2, PF-06444752]. Subjects received four study vaccinations at 0, 4, 8 and 24 weeks, then were followed for an additional 24 weeks.

RESULTS: Both anti-IgE vaccines were tolerated well with regards to adverse events, local and systemic reactions, laboratory results, and other safety parameters. Anti-IgE antibodies were induced in an antigen dose-dependent manner, but there was no significant benefit with CpG included. Modest lowering of serum IgE levels was seen in some subjects.

CONCLUSIONS: This novel anti-IgE vaccine was generally well-tolerated and induced anti-IgE specific antibodies, but did not lead to significant lowering of serum IgE in the majority of subjects.