679 Increasing the Ability to Correctly Identify Latex Sensitized Patients Using Serologic Tests

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RATIONALE: Currently, latex allergy diagnosis relies on patient history and serologic assays. The FDA-approved serologic tests have high rates of false positive results. This study investigated whether using other serologic assays would improve our ability to confidently diagnose latex allergen sensitization.

METHODS: A total of 805 health care workers underwent duplicate skin testing with Clone 600 extract (FDA IND approval #4920) using previously published methodology. On the same day, serologic testing for latex specific IgE was measured by Pharmacia ImmunoCap and 4 ELISAs using latex proteins from different products (2 powdered glove extracts, clone 600 extract, and non-ammoniated latex). The values resulting in 98% and 99% specificity for each serologic test were identified. Multivariable logistic regression with backwards elimination was performed to evaluate the test results associated with an increased risk of latex allergen sensitization.

RESULTS: Multivariable logistic regression using the previously reported cut-off value for the ImmunoCap assay (0.64, specificity 99%), a positive ImmunoCap was the only significant serologic factor in determining latex sensitization by skin test.

CONCLUSIONS: For borderline-positive ImmunoCap assays (value 0.35-0.64) the addition of the ELISA assay with a specific powdered glove extract can increase the abiltiy to correctly identify people with a relevant latex sensitization.

680 Hypersensitivity Reactions to Marijuana

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RATIONALE: Marijuana can be used through inhalation or through oral ingestion. Allergy to marijuana is considered rare, but a few reports of allergies to marijuana have been documented and lipid transfer protein was recently identified as an allergen, in one case. Here we report seven patients that presented with allergic symptoms associated with marijuana exposure.

METHODS: A detailed history of exposure to marijuana and symptoms was taken from each patient. Skin prick tests (SPT) were used to confirm allergy to marijuana, using the bud or flower of the marijuana plant.

RESULTS: All seven patients had large positive SPT with wheals larger than 5 mm and surrounding flare, confirming their allergy to marijuana. Six patients presented with inhalation symptoms with exposure to marijuana. Inhalant symptoms included rhinitis and conjunctivitis in five, periorbital angioedema in three, sinusitis in two, wheezing in two, and swelling of the throat sensation in one case. Six of the patients also presented with contact symptoms which included five occurrences of urticaria, one of periorbital angioedema, and one of dermatitis. One patient presented with anaphylaxis symptoms which included anxiety, tightness of chest, wheezing, GI cramping and vomiting with ingestion of a marijuana tea.

CONCLUSION: It appears that marijuana may be a much more common allergen than previously thought. Allergic reactions to marijuana may become more of an issue in the future given the increasing social use of marijuana, as well as its expanding medical use. It is important that marijuana exposure is addressed when assessing a patient's exposure history.

681 *Fusarium Graminae* Mold Causes Epidemics In Wheat Loss And *Fusarium* Sensitization In Farming Communities

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RATIONALE: We have previously shown correlations between Fusarium oxyporum vasinfectum (FOV) positive skin prick test (SPT), Fusarium graminaerum (FG) spore counts, and FG vomitoxin production with wheat loss epidemics. FG is the prevalent mold species affecting wheat and barley, and we suspect the human population. We explored for differences between FG & FOV in clinic data.

METHODS: We analyzed serological and demographic information from 2007-2009. Variables of interest were FOV positive SPT, total Ig E, FOV specific Ig E, Ig G, and age of patients within the agricultural communities of the upper Midwest. We evaluated data through correlation and ANOVA statistical analysis.

RESULTS: One hundred and eighty-six consecutive clinic allergic rhinitis patients with positive skin test were identified. Expected clinic patients total Ig E decreased with age. A significant relationship was discovered between FOV positive SPT patients and elevated total Ig E ($p=0.02$), but not with FOV specific Ig E and Ig G ($p=0.52$, 0.26).

CONCLUSION: There is cross reactivity between FOV and FG by SPT, but not with FOV specific Ig E, and Ig G. Use of Fusarium graminaerum treatment and evaluation by SPT and specific Ig E assays in patients within the endemic wheat belt of the United States, maybe more clinically relevant and detect more sensitized patients. This analysis has prompted the initial effort to manufacture Fusarium graminaerum specific Ig E assays, SPT and conduct prospective studies to validate this pilot data. In the meantime, Fusarium mold SPT is recommended in wheat/barley farming communities comprising most of the Midwest USA.

682 Sick Building Syndrome (SBS) Among Office Workers and Exposure to Indoor Fungal Allergens in Rio de Janeiro, Brazil

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RATIONALE: Indoor air quality is important for workplace environment. The SBS has symptoms of cough, irritation of the nose or throat, headache, fatigue and difficulty concentrating. This study aims to determine the prevalence of SBS in workers of two buildings and its relationship with fungal exposure in the workplace.

METHODS: One hundred and sixty of 210 more than 1 year full-time workers of a sealed building, and 164 of 186 employers from a naturally ventilated building in Rio de Janeiro downtown, were evaluated in a cross sectional study. The SBS diagnosis relied on medical examination and a score questionnaire. Three or more affirmative answers to the symptoms in the questionnaire were considered positive to SBS. Standardized international methodologies were used to investigate the indoor concentration of fungi, mites and endotoxin.

RESULTS: The prevalence of SBS in the sealed building was 44.8%, and in the ventilated one 48.6% ($p=0.48$). There was no significant exposure to fungi in the indoor environment of the sealed building, while in the ventilated one 35.4% of the workers were exposed. In the multivariate regression considering endotoxin, mite and fungi exposure, there were no associations with SBS in the sealed building. In the non-sealed building, fungi exposure was the unique significant risk factor for SBS (OR 3.11 CI 95% 1.29-7.48 p 0.01).

CONCLUSIONS: Exposure to fungal allergen was an important risk factor for SBS in the non-sealed building. No associations were found with exposure to mites and endotoxin.