216 Characterization of Ocular Reactions During Aspirin Challenge in Patients With Aspirin Exacerbated Respiratory Disease

P. K. Mehra[1], S. A. Trauger[2], G. Siuzdak[2], M. H. Freidlaender[3], D. D. Stevenson[1]; [1]Allergy & Immunology, Scripps Clinic, La Jolla, CA, [2]The Scripps Research Institute, La Jolla, CA, [3]Ophthalmology, Scripps Clinic, La Jolla, CA.

RATIONALE: Clinical grading of ocular reactions during aspirin challenges has been problematic. We attempted to objectively evaluate these reactions using new methodology.

METHODS: 6 patients with aspirin-exacerbated respiratory disease (AERD) were studied. At baseline and at time of reaction to aspirin patients completed a rating scale of ocular symptoms. Photographs were taken with an Olympus C500 digital camera with ocular macro-settings and measurements with the PR-650 Spectrascan Colorimeter, an instrument which quantifies conjunctival erythema, were obtained. Finally, tears were collected with Schirmer strips. Tear samples were labeled using Prolytica^{TM} (Stragagene) reagent with either heavy (O18) or light (O16) isotopic tags. LC separation was performed on a laser pulled 100 um ID C_{18} column. The MS/MS analysis was performed on an Agilent LC/MSD Trap ion trap mass spectrometer.

RESULTS: The ocular rating score showed that from baseline to aspirin reaction symptoms of itching, burning, and tearing were highly variable and independent of each other. Spectrascan measurements in 3 of the 6 patients demonstrated a significant increase in conjunctival injection. Data obtained from mass spectrometry on the tear samples was searched with Mascot using the NCBInr database. This resulted in the identification of 10 proteins such as lacrimal proline rich protein 4, lacritin, lactotransferrin, mammaglobin, and prolactin-inducible protein.

CONCLUSIONS: The ocular reactions during an aspirin challenge in patients with AERD are clinically variable and molecularly complex. Protein profiling is a novel approach for characterization of protein expression in tears.

Funding: General Clinical Research Center

217 Objective Evaluation of Allergic Reactions in the Eye Using the EES (Erythema, Edema, Sensation) Method

M. H. Friedlaender, L. J. Sharf, D. Breshears; Scripps Clinic, La Jolla, CA.

RATIONALE: Since allergic reactions in the eye are usually evaluated by subjective techniques, we applied more precise, objective measurements of erythema, edema, and sensation, before and after conjunctival allergen challenge (CAC).

METHODS: Ten allergic subjects were evaluated before and 5 minutes after CAC. Conjunctival erythema was measured objectively with a spectroradiometer, eye lid edema was measured with a millimeter reticule in the eye piece of a slit lamp microscope, and ocular surface sensation was measured with the aesthesiometer of Cochet and Bonnet. Subjective measurements were carried out by observation (erythema and edema), and by questioning the subject (itching).

RESULTS: Objective measurements of conjunctival erythema and eyelid edema increased significantly after CAC ($p=0.01$, $p<0.001$, respectively). Subjective measurements of conjunctival erythema, conjunctival edema, and itching also increased significantlyy after CAC ($p<0.001$). The objective measurement of ocular surface sensation decreased after CAC, but the change was not statistically significant. After treatment with a vasoconstrictor-antihistamine eyedrop, a significant decrease in conjunctival erythema could be measured both objectively ($p=0.005$), and subjectively ($p<0.001$).

CONCLUSIONS: Ocular allegic reactions and the effects of antiallergic treatment can be measured objectively by the EES Method, and subjectively, by observation and questioning the subject.

218 Factors Affecting the Allergic Response to Ragweed Allergen Challenge

A. K. Ellis[1,2], J. D. Ratz[1,3], A. Day[4], E. Rafeiro[1,3], J. H. Day[1,3]; [1]Division of Allergy & Immunology, Queen's University, Kingston, ON, CANADA, [2]Division of Allergy & Immunology, McMaster University, Hamilton, ON, CANADA, [3]Division of Allergy & Immunology, Kingston General Hospital, Kingston, ON, CANADA, [4]Clinical Research Centre, Kingston General Hospital, Kingston, ON, CANADA.

RATIONALE: Persons with seasonal allergic rhinitis (SAR) respond to allergen re-exposure differently. This study was designed to determine influences on rate and degree of symptom development to controlled ragweed pollen exposure.

METHODS: Demographics, recent exposure history to household allergens and irritants, as well as Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ) data were obtained from ragweed-allergic subjects who also underwent skin prick testing to selected aeroallergens. Nasal eosinophils were counted. Subjects returned for 3-hour ragweed pollen exposure in the Environmental Exposure Unit (EEU) where a Total Symptom Score (TSS) curve was generated by rating rhinoconjunctivitis symptoms q30 min. A mixed-effects model compared TSS curves between baseline factors.

RESULTS: 123 subjects completed the study. Skin test reactivity to ragweed did not correlate with TSS curve generation. Significant associations occurred between TSS curves and positive skin test reactivity to dust mite, dog, cat and grass, as well as subject self-report of symptoms upon dog, cat, and other animal exposure. Visual analogue scale ratings of SAR symptoms during both ragweed and grass seasons and RQLQ scores were also positively associated with TSS curves. No other associations were detected.

CONCLUSION: This study indicates a relationship between the rate and degree of symptom development to controlled ragweed exposure and immediate skin test reactivity to dust mite, animals, and grass pollen. Symptom development also correlated with self-reported symptoms to animals, seasonal grass and ragweed exposure, as well as rhinitis-specific quality of life. No associations were shown with late-phase response, nasal eosinophils or degree of skin test reactivity to ragweed.

219 Mediator Release of Neuropeptides After Nasal Provocation in Perennial Rhinitis Patients

R. Gawlik[1], K. Schultz[2], L. M. DuBuske[3]; [1]Dept. of Allergy and Clinical Immunology, Silesian University School of Medicine, Zabrze, POLAND, [2]Dept. of Allergy and Clinical Immunology, Humboldt University, Berlin, GERMANY, [3]Immunology Research Institute of New England, Gardner, MA.

RATIONALE: The purpose of our study was to examine the concentration of substance P and bradykinin in nasal lavage fluid after allergen provocation for up to 6 hours.

METHODS: 10 patients were investigated, 6 patients having perennial allergic rhinitis with positive *D.pteronyssinus* skin prick tests and antigen specific IgE using the Pharmacia CAP system. The control group consisted of 4 healthy volunteers. Nasal allergen provocation using *D.pteronyssinus* was followed by lavage after 5, 15, and 30 minutes, and 1, 2, 4, and 6 hours. The concentration of substance P (SP) in nasal lavage fluid and bradykinin (BK) were determined by RIA methods.

RESULTS: Significantly higher concentrations of both substance P and bradykinin were seen in nasal lavage fluid immediately (15 minutes) after allergen provocation (SP-61.67±15.5 fmol/ml and BK-134.0±19.8 ng/ml). A positive correlation was seen between SP and BK levels during the immediate reaction ($r= 0.62$, $p<0.005$). After 4 hours a second increase occurred in BK and SP, but the BK rose moderately (4h- SP 44.0±8.5 fmol/ml, BK 62.7± 9.8ng/ml; 6h- SP 38.0±8.3 fmol/ml, BK 72.0± 13.6 ng/ml). Controls had only a slight elevation of SP and BK at 5 and 15 minutes after provocation.