SUNDAY

423 Antibodies to Roridin a-Hemisuccinate-human Serum Albumin in Sera From Workers Exposed to *Stachybotrys Chartarum* in a Water-damaged Building

Raymond Biagini, Douglas Trout, Barbara A Mackenzie, Kenneth F Martinez, Kenneth M Wallingford DHHS, PHS, CDC, NIOSH,, Cincinnati, OH

There is growing concern about the adverse health effects of exposure to fungal bio-aerosols. The saprophytic fungus *Stachybotrys chartarum (atra*, SA) and its toxigenic macrocylclic tricothecene metabolites have been putatively implicated in the causation of numerous signs and symptoms of disease including fatigue, skin irritation, headache, dry cough, irritated eyes, generalized allergic symptoms and inflammation. A difficulty in evaluating individuals with possible exposure to SA and its associated mycotoxins is documentation of exposure. Currently there is no reliable biological monitoring endpoint for mycotoxin exposure. Consequently, mycotoxin exposure has been inferred from the measurement of mycotoxins in bulk samples obtained from materials such as contaminated walls, ceiling tiles, and air ducts. The toxigenic mycotoxins from SA have been shown in vitro to be potent inhibitors of protein synthesis, alter alveolar surfactant phospholipid concentrations, cause hemolysis, and modulate inflammatory reactions. The inflammatory and protein binding properties of SA mycotoxins suggested the potential for de novo immunogenicity. In the present work we investigated the potential immunogenicity of SA associated mycotoxins using sera from eight individuals who were exposed to numerous fungi, including SA, in a water damaged hotel. Two of these individuals had qualitatively "high" exposures, while four had "moderate" and two had "low" exposure to the SA-containing bioaerosol. Analysis of bulk samples indicated detectable amounts of the macrocyclic tricothecenes, satratoxin and roridin, atranones, spirocyclic compounds (phenylspirodrimanes) and epidechlorogriseofulvin. In order to investigate the immunogenicity of SA exposure, we developed an enzyme-linked immunosorbent assays (ELISA) for roridin-hemisuccinate-human serum albumin (RH-HSA) specific IgG and IgM antibodies. Stored sera obtained from unrelated NIOSH studies, with no known contact to the hotel or moldy environments, were used as assay controls. Optical density measurements greater than the mean values of these controls + 3SD were considered positive. None of the tested sera gave positive RH-HSA specific-IgM antibody responses. Two of the eight individuals qualitatively exposed to "low" and "moderate" levels of bioaerosol exposure showed positive RH-HSA specific IgG reactions. The results of this pilot serologic survey, with sera from workers in a building heavily contaminated with mycotoxin-producing fungi, indicated that individuals may make specific IgG antibodies to roridin. In a larger group of individuals exposed to SA, mycotoxin specific antibody production may be a useful adjunct to environmental monitoring in evaluating SA mycotoxin exposure and its inherent potential hazard.

424 Development of a Clinical Unit for Investigation of Occupationally-induced Rhinitis: Report on the First Year's Activities

Martin Desrosiers, Irma Altamirano, Martin Blaquiere Centre Hospitalier de l'Universite de Montreal, Montreal, Canada

INTRODUCTION: Occupationally-induced rhinitis (OR) is often suspected on questionnaire but few objective means exist for investigation and documentation. For the past twelve months, we have successfully operated a unit for investigation of OR. Evaluation is done by means of questionnaire, cutaneous testing, nasal endoscopy, and CT scan of the sinuses. Confirmation is obtained by using acoustic rhinometry for documentation of nasal congestive responses to challenge. Challenges were performed in the workplace setting, or in the laboratory.

RESULTS: Of the patients referred for potential OR, 21 were retained for evaluation. Presenting symptoms were rhinoconjunctivitis (16/21), cough (2/21), sinus pain (1/21), posterior rhinorrhea (1/21), and dyspnea (1/21). Most frequently implicated industries were baking (3/21), woodcutting (3/21), automobile painting (2/21), and clothing manufacturing (2/21). 18 of the 21 evaluations have been completed. 3 are currently off work for other reasons Mean time for evaluation was 2,75 days. In 9 of the 18 cases, OR was confirmed, principally in patients with symptoms of rhinoconjunctivitis exposed to well-characterised high-molecular weight agents. In the other 9, 7 challenges have been negative, while 2 challenges have shown another aetiology for the symptoms (cough (1), and pre-existing nasal-hyperreactivity (1)). Negative challenges were most frequently associated with atypical symptoms (cough, post-nasal drip) and workplace exposures where no agent can be identified ('sick-building syndrome').

SUMMARY: We present our first years experience with a unit for investigation of occupationally induced nasal disorders. Use of AR has proved useful for objective confirmation. Positive responses are more likely in patients with symptoms of rhinoconjunctivitis working in industries employing well-characterised agents.

425 A Longitudinal Follow-up of Latex-specific IgE Titers in Health Care Workers

Cristina Nicole Porch-Curren, Kenneth T Kim§* *Saint Mary Medical Center, Long Beach, CA §Long Beach Memorial Hospital, Long Beach, CA

BACKGROUND: Previous studies suggest latex specific IgE titers decrease over time if avoidance measures are instituted.

OBJECTIVE: To study changes in latex specific IgE after an individual has had a positive titer and subsequently made changes to decrease or avoid latex exposure.

METHODS: Subjects sera were classified as blood positive or blood negative via a positive in vitro test (DPC AlaSTAT and Pharmacia CAP). A second blood analysis was done at a later date after subjects decreased latex exposure. Subjects modified latex exposure by changing to non-latex gloves and continuing to work in the same environment or by a complete change in work environment to avoid latex exposure.

RESULTS: We identified 16 health care workers who had IgE symptoms to latex, positive latex specific IgE tests upon presentation, and had follow-up blood tests. The average time for follow–up testing was 12.3 months with a range of 1.5–35 months. Using the DPC AlaSTAT, 10 (62.5%) subjects titers increased. Seven of these subjects switched to non-latex gloves and 3 changed work environment altogether. Six (37.5%) subjects had a decrease in DPC AlaSTAT titer. Five of these subjects changed to non-latex gloves but continued to work and 1 subject changed work environment. Of the 12 subjects who switched to non-latex gloves 7/12 (58%) had a titer increase and 5/12 (42%) had a DPC AlaSTAT decrease. Of the 4 subjects who changed work environment 3/4 (75%) had a DPC AlaSTAT titer increase while 1/4 (25%) had a decrease. The Pharmacia CAP results revealed 7 (44%) subjects had an increase in titer. Four of these subjects switched to non-latex gloves but stayed in the same environment and 3 changed work environment. A total of 8 (50%) subjects had a decrease in titer. Seven of these subjects changed to non-latex gloves and 1 changed work environment. One (6.25%) subject had a Pharmacia CAP titer that remained the same, this subject changed to non-latex gloves. Of the subjects who changed to non-latex gloves 4/12 (33%) had a Pharmacia CAP increase, 7/12 (58%) had a decrease, and 1/12 (8%) remained the same. Of the subjects who changed environment 3/4 (75%) had a Pharmacia CAP titer increase while 1/4 (25%) had a decrease in titer.

CONCLUSION: With latex avoidance there was no clear decrease in titers as previously reported. Even removing an individual from the work environment did not result in a consistent decrease in titers. The increase in titers did not correspond to increased clinical symptoms with the exception of 1 patient whose case was complicated by the fact that it was litigated. The 2 assays, DPC AlaSTAT and Pharmacia CAP, do not provide meaningful longitudinal data in our dataset.