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TIGHT BUILDING SYNDROME IN A NORTHEASTERN U.S. HIGH SCHOOL. DR Gold, JH Ware, A Chen, FE Speizer. Harvard School of Public Health, Channing Laboratory, Brigham and Women's Hospital, and Harvard Medical School, Boston, MA.

In June 1989, in response to complaints by students and staff of a Northeastern U.S. high school of symptoms characteristic of tight buildings, we conducted an epidemiologic investigation of respiratory and other symptoms among the students and staff of the school. Concurrently, a comprehensive evaluation of the air quality of the building was performed. The study population included 1,074 9-11th grade students (greater than 90% of the students present on the days of the survey) and 264 staff members (59% of staff present). Using standardized respiratory symptom questions nonsmoking students in the index high school were compared to nonsmoking students from a neighboring high school with no reported problems with air quality, who had been surveyed between 1983-1985. The index students reported more chronic cough (23% vs 8%), persistent wheeze (27% vs 8%), and chest illness with lower respiratory symptoms keeping the student home for at least one week (21% vs 5%). Smoking students in the index school had 1.7 times as much chronic cough and persistent wheeze as nonsmoking students in the index school. There was a high prevalence of acute symptoms occurring more than once per week: 24% of students reported eye irritation, 29% reported sneezing, 25% reported headache and 36% reported sleepiness. More than 90% of nonsmoking students reported that symptoms occurred more frequently at school or at least as frequently at school as compared to home. Staff members had higher rates of chronic and acute symptoms than the students. While the high frequency of acute and chronic respiratory symptoms in building occupants may, in part, reflect reporting bias, it may also reflect a physiological response to suboptimal ventilation in the building.

HOUSE DUST ALLERGENS IN TWO CITIES OF SAUDI ARABIA. A.R. Al-Frayh, S.T. Al-Sedairy, S.M. Hasnain. King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia.

In order to assess the extrinsic allergic factor(s) in school children having bronchial asthma and allergic rhinitis, and to evaluate and quantify various allergens present in the homes of these children in Saudi Arabia, a study was conducted analysing over 300 house dust samples collected from their indoor environment. These samples were collected from two cities, Riyadh, in the middle of the desert, and Jeddah, on the Red Sea. Immunochemical assays were performed by raising antibodies in rabbit immunised with commercial antigen and purified using column chromatography. Observance were read using ELISA technique. 19 samples were analysed by ALK laboratory in Denmark. The Riyadh samples revealed a very low amount of *Dermatophagoides pteronyssinus* and *D. farinae*, the two dominant house dust mites in the world. The maximum value detected in Riyadh was 106 ng/g in comparison to 22,405 ng/g dust of *D. farinae* in Jeddah. The variation was expected because humidity in Riyadh is below 40%. Cat (Fel d I) antigen were detected both in Riyadh and Jeddah samples which varied in concentrations from lowest 60 ng/g to 14,056 ng/g dust in Riyadh sample and 130 ng/g dust to 5948 in Jeddah sample. Cockroach antigens and rodent urine protein have been identified in both Riyadh and Jeddah samples. In addition a number of different fungal colonies were isolated from the indoor environment of these patients. A detailed comparison of these allergen levels with levels in control homes along with skin test is underway. The study suggests that the presence of these allergens in some patients' indoor environment may be responsible for their respiratory distress, which is very common in Saudi Arabia.

PULMONARY ARTERIAL HYPERTENSION AND COR PULMONALE ASSOCIATED WITH CHRONIC, DOMESTIC, WOOD SMOKE INHALATION. J. Sandoval, ML.Martínez, C. Martínez, M. Villegas, A. Quesada, A. Palomar. Cardiopulmonary Service. Instituto Nacional de Cardiología. Ignacio Chávez. México, D.F.

We have prospectively studied twenty patients who presented with clinical, radiological, and electrocardiographic evidence of severe pulmonary arterial hypertension (PAH) and cor pulmonale. They were all non-smoker, non-obese, country women (66± 9 y.o) that shared the only antecedent of domestic chronic exposure (58 ± 15 years) to wood smoke. They came from small rural villages and did not have a history for other organic or inorganic dust exposure. Their serum levels of alfa-1 anti--trypsin were within normal. Dyspnea, chronic cough, and sputum production were their chief complaints.

On pulmonary function test they showed both, restrictive (VC = 67±15 and TLC= 79±11% of predicted) and obstructive (FEV1/FVC= 57±11%; FEF 25-75 = 23±7.% of predicted) patterns. They all had severe hipoxemia (44±4 mmHg), and slight hypercapnea (36± 6 mmHg) (normal values for Mexico City are: PaO2 65±2.5; PaCO2 33±2 mmHg). They were studied in stable conditions; arterial pH was normal, and secondary erithrocytosis was present in most of them.

Pulmonary Hemodynamics at rest showed PAH (Pp = 51±17 mmHg) with normal pulmonary wedge pressure (13±3 mmHg) and Cardiac Index (3.4±1.3 L.min.m2). Pulmonary vascular resistance (PVR) (955±390 dynes.sec.cm-5) and right ventricular end-diastolic pressure (12.6±4 mmHg) were increased. Despite mean pulmonary artery pressure (Pp) correlated with arterial oxygen unsaturation ($r=0.66$; $p < 0.05$) PVR did not decreased with oxygen breathing in 5 patients (732±441 vs 476±353 d.sec.cm-5. pns). We conclude that chronic, long standing exposure to wood smoke may result in severe lung gas exchange abnormalities, PAH, and cor pulmonale which, at comparable lung mechanics, seem to be more severe than in the classical other forms of COPD. Factors other than acute hypoxia must be involved in the genesis of PAH.

HEALTH RISKS TO CHILDREN FROM INDOOR AIR POLLUTION: PERCEPTIONS OF RISK AND RISK-TAKING BEHAVIOR BY PARENTS OF YOUNG CHILDREN. J. Scott Osborne III, Ph.D., M.P.H. Michigan State University Kalamazoo Center for Medical Studies and College of Human Medicine. Kalamazoo and East Lansing, MI.

The objective of this study was to investigate perceptions by parents of risk factors for respiratory disease in young children from domestic indoor air pollution (POR) and parental risk-taking behavior (RTB). The a priori hypotheses were that POR were associated with parents' information of risks and that RTB was more strongly associated with socioeconomic status (SES), illness experience, and confidence in biomedicine than with information or POR. A random sample of 100 families was selected from the 12,714 live births in the 1980-81 birth cohort in the 5-county Greater Lansing Area. Sources of indoor air pollution investigated were parental smoking, cooking with gas, heating with wood or kerosene, and insulating with urea-formaldehyde foam. Data were collected in 1985 by interviewing children's mothers. Results indicated that information was significantly associated ($p<.001$) with POR and that RTB was significantly associated ($p<.001$) with parents' SES, illness experience, and confidence in biomedicine. However, of the sources of indoor air pollution investigated, information and POR only had a significant effect ($p<.04$) on heating with wood or kerosene. Information and POR did not significantly affect ($p>.13$) parental smoking, cooking with gas, or insulating with urea-formaldehyde foam, an inconsistenct which reflects larger discrepancies between perception and conduct in our society. These findings suggest that while parental information of risks to children's health from indoor air pollution affects perceptions of risk it does not necessarily affect behavior and that intervention strategies currently focusing on education may be more effective if other factors are considered.