

SEVERITY OF RESPIRATORY SYNCYTIAL VIRUS (RSV) BRONCHIOLITIS IS AFFECTED BY MATERNAL CIGARETTE SMOKE EXPOSURE AND ATOPY. Joseph Bradley, Lynette Tegmeier, John Robertson RN, Kenneth Schechtman PhD, Leonard Bacharier MD, Robert Frank MD, Mario Castro MD MPH, Department of Pediatrics, Biostatistics, and Preventive Medicine, Washington University School of Medicine, St. Louis, MO, USA.

RSV bronchiolitis is a common cause of hospitalizations in children and has been consistently identified as an important risk factor in the development of asthma. We prospectively enrolled 206 hospitalized infants (4.0±3.3 mo old) into the RSV bronchiolitis in Early Life (RBEL) cohort. We evaluated a variety of environmental and maternal factors which may have contributed to the severity of RSV bronchiolitis. RSV bronchiolitis in this cohort was severe: mean O₂ saturation was 91.6±7.3%, length of hospitalization was 5.2±2.5 days, and presence of infiltrates 75%. Analysis of dust from these children's homes revealed that critical levels of the following allergens were exceeded: dust mites (2.4% of homes), cat (23.1%), dog (27.7%), and cockroach (11.5%). 30.8% of children were living in homes in which the mother was currently smoking and 40.2% were exposed to secondhand smoke. We found that infants exposed to cigarette smoke had a lower O₂ saturation than those not exposed (P=0.01). On the other hand, infants with a family history of atopy, especially a maternal history of asthma, had a higher O₂ saturation. African-American infants had a higher O₂ saturation than whites and shorter LOS. There was a positive correlation between O₂ saturation and age (P=0.04). Multivariate analysis revealed age, race, maternal hayfever, and age to be associated with RSV bronchiolitis severity. There was no association between allergen levels in the homes. In conclusion, the severity of RSV bronchiolitis early in life appears modified by maternal cigarette smoke exposure and atopy and not by allergen levels in the home environment. These findings may have important implications as to which of these children will develop asthma.

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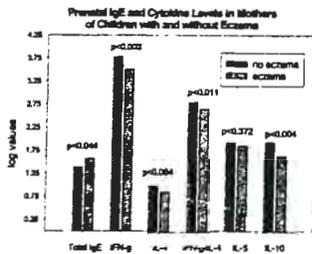
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MATERNAL INFLUENCES ON THE DEVELOPMENT OF ECZEMA IN THE FIRST YEAR OF LIFE. M Kurzius-Spencer, M Halonen, CJ Holberg, IC Lohman, FD Martinez, AL Wright. Arizona Respiratory Center, University of Arizona, Tucson, AZ.

OBJECTIVE: Recent studies suggest that maternal factors during gestation may influence infant immune system development and atopic status. **METHODS:** Over 300 mothers and their children were enrolled prenatally in a prospective study of infant immune development. Eczema in the first year of life was determined based on parental report. Questions regarding parental allergic status were answered at enrollment and at 1 month and 2 mo. Serum samples were assayed for IgE by Auto-Cap; cytokine levels were assessed by ELISA following PBMC stimulation with ConA/PMA. **RESULTS:** Prenatal immunological profiles of mothers of children who developed eczema were significantly different from those whose children did not develop eczema. Differences were most evident in non-asthmatic mothers. Eczema was, however, associated in children whose mothers had asthma (59 vs. 31%, p<0.007) or hay fever (48 vs. 37%, p=0.004). Cytokine levels in cord blood at 2 months of age, and in maternal blood were not significantly associated with eczema in the first year. **CONCLUSIONS:** Maternal immune status at pregnancy may influence the development of eczema and immune response during infancy through genetic and environmental pathways.

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EASY BREATHING II SURVEY IMPROVES DIAGNOSIS OF PEDIATRIC ASTHMA IN PRIVATE PRACTICES. V. Hinckson, PS Higgins, DB Wakefield, Barbara MM Cloutier. Dept. of Pediatrics, University of Connecticut Health Center, Connecticut Children's Medical Ctr and ConnectiCare, Meriden CT

Asthma is the most common respiratory disease of children. Under-diagnosis and under-treatment are major causes of morbidity and mortality. Using a newly validated pediatric respiratory survey (Easy Breathing Survey), we evaluated asthma prevalence and severity in children cared for at 10 urban primary care sites. A child was considered to have a new diagnosis of asthma if the parent denied a previous diagnosis and any previous asthma report and the provider determined that the child had asthma. In 1291 children who have been surveyed, 26% were diagnosed with asthma. Of these 336 (27% out of the 324) had self-reported asthma that was physician-confirmed while 14% (46 children) had previously undiagnosed (new diagnosis) asthma. Of the 46 newly diagnosed children, 20% had mild, intermittent asthma, 20% had mild, persistent asthma and 4% had moderate, persistent asthma. Of children with asthma, 66% were males and 34% were females. Children with newly diagnosed asthma did not differ in asthma severity, number of hospitalizations, gender or ethnicity compared to children with previously diagnosed asthma. Children with previously diagnosed asthma did report a higher number of emergency room and acute office visits (p<0.01). These data suggest that even in the primary care setting, asthma is under-diagnosed and under-treated. Children with previously undiagnosed asthma are indistinguishable from children with previously diagnosed asthma.

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EVALUATION OF ALLERGEN SENSITIVITY BY SKIN PRICK TESTING AND SPECIFIC IgE IN ASTHMATIC CHILDREN AND MATCHED CONTROLS IN A RURAL COHORT PS Thorne, KM Kelly, N Metwali, A Stromquist, JA Merchant, University of Iowa College of Public Health, Iowa City, IA 52242.

Rationale: The prevalence of childhood asthma has been increasing markedly in both urban and rural populations. We studied 100 rural asthmatic Iowa children and matched controls, ages 13.4±3.3, in order to establish risk factors for allergy and asthma. **Methods:** In this analysis, we compared skin prick testing (SPT) with allergen-specific IgE (sIgE) ELISA to determine if future studies could rely on serum analyses alone. **Results:** Fewer than 4% of subjects were SPT positive for corn smut, grain smut, mixed molds, mixed tree pollens, chicken feathers, horse, hog, cattle, dog, and soybeans. Greater than 4% were positive for house dust mites, cat, cockroach, mixed weed and mixed grass pollens. Among asthma cases, SPT positivity was as follows: 31-34% for house dust mites (*Der f 1* and *Der p 1*), 24% for cockroaches, 24% for cat hair, and 6% for weed pollens. All except *Der p 1* had significantly higher positivity among asthmatics. Analysis of total IgE and sIgE was conducted on serum samples drawn concurrently with SPT. Total IgE levels were significantly higher in asthmatics than control subjects (p=0.01). Among asthma cases, sIgE positivity was as follows: 31-32% for house dust mites (*Der p 1* and *Der f 1*), 18% for cockroaches, 36% for *Fel d 1*, 32% for weed pollens, 29% for *Asp f 1* and 18% for mixed tree pollens. Concordance between SPT and sIgE positivity for the six allergens common to both was 84-90%. **Conclusion:** These data suggest that serum analysis may provide sufficient information on allergy in children such that researchers need not perform SPT.

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ABSTRACTS

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This special supplement of the *American Journal of Respiratory and Critical Care Medicine* contains abstracts of the scientific papers to be presented at the 2002 International Conference. The abstracts appear in order of presentation, from Sunday, May 19 through Wednesday, May 22 and are identified by session code numbers. To assist in planning a personal schedule at the Conference, the time and place of each presentation is also provided.