any respiratory tract symptoms and have not had a cold for the previous 2 weeks.

Methods. Questions were asked about prenatal and postnatal smoke exposure. Infant pulmonary function testing was performed at each institution using technologies well-established at each institution (Columbus Children’s Hospital, Columbus, Ohio, and James Whitcomb Riley Hospital for Children, Indianapolis, Indiana). Maximal expiratory flow-volume curves were obtained at baseline. Measurements included forced vital capacity, forced expiratory flow at 25, 50, 75, 85, and between 25 and 75% of the expired forced vital capacity (FEF25%, FEF50%, FEF75%, FEF85%, and FEF25-75%). The forced expired volume in 0.5 second, FEV0.5 s, was also measured. Albuterol was given using a metered-dose inhaler and spacer. Adequate drug delivery was assumed when the resting heart rate increased by 10%. Repeated doses of albuterol were given until the heart rate increased until a maximum of 8 puffs over 8 minutes. Measurements of pulmonary function began 10 minutes after the first dose of albuterol. A second group of infants received placebo. Response to albuterol was either a percent change in FEF75% ≥2 standard deviations from the mean response seen in the placebo group or by visual inspection of the flow-volume curves.

Results. There were 28 in the albuterol group and 13 in the placebo group. There were no significant differences between the groups in any parameter except for a greater percentage of smoking parents in the albuterol group. An average of 4.2 puffs of albuterol were given to the “albuterol” group. Albuterol caused significant increases in FEF75%, FEF85%, FEV0.5 s, and FEF25-75%. The changes versus placebo were FEF75%, 10.6 versus −3.1%, FEF85%, 12.9 versus 0.46%, and FEV0.5 s 2.2 versus −1.5%. Using the method of standard deviation, 6 of 28 infants responded to albuterol. All of the responders were <1 year old. There was a total of 16 infants in the albuterol group, 6 of 16 responded to albuterol. There were no significant differences in baseline measures of pulmonary function between albuterol responders and nonresponders. Responders were significantly younger and had a higher percentage of mothers who smoke during pregnancy — 4 of the 6 compared to 5 of 22 nonresponders. Albuterol responders also had a higher percentage of smoking parents. Five of 6 of the albuterol responders had parents who smoked as compared with 10 of the 22 nonresponders. When all the infants born to mothers who smoked were evaluated, the mean increase in FEF75% with albuterol was 19.8% compared with 6.3% of infants born to nonsmoking mothers.

Conclusions. Normal healthy infants who have no respiratory symptoms have baseline airflow tone that can be reversed with albuterol using measurements from a forced expiratory maneuver. Also, young infants and those exposed to maternal smoking during pregnancy had greater increases in forced expiratory flow after albuterol.

Reviewer’s Comments. The technology exists to measure airflow in infants and young children. In this article, the authors evaluate normal children and have verified the findings of a few previous studies. Cigarette smoke exposure can increase airway responsiveness in infants. The concern is that this is seen in infants who at the time of the study had no lower respiratory tract symptoms. One of the concerns is what will happen prospectively to these infants. Will they declare themselves with more severe lower respiratory tract illness in the future? Are they at risk? Did parental behavior change, did they stop smoking when shown this data?? Perhaps more reasons to discourage smoking.

TOTAL SERUM IgE AND OUTCOME IN INFANTS WITH RECURRENT WHEEZING

Rusconi F, Patria MF, Cislaghui GU, Sideri S, Gagliardi L. Arch Dis Child. 2001;85:23–25

Purpose of the Study. To evaluate the relationship between total serum immunoglobulin E (IgE) levels and the risk of allergic sensitization and persistent wheezing in a hospital-based cohort of infants with recurrent wheezing and no signs of allergy.

Study Population. Initially, 58 full-term infants who were seen in a hospital-based asthma clinic in Milan, Italy, were enrolled in the study. At the time of enrollment, the infants were between 9 months and 2 years old. The median age was 1.6 years. Inclusion criteria were a history of wheezing triggered by infections, ≥5 wheezing episodes, no history of atopy, and negative skin tests.

Methods. The children were followed until age 8 years. Skin tests were performed once per year. Testing was performed to egg, milk, wheat, cat, dog, and common aeroallergens. Serum IgE was measured between the ages of 0.5 to 3 years and then again between the ages of 3 and 6 years. An IgE level was performed 4 weeks or more after an acute respiratory illness. IgE levels were reported as IgE 2 standard deviations.

Results. Thirteen children were lost to follow-up. During the first 3 years, the remaining 45 children had a median of 10 episodes of wheezing (range: 5–34 episodes). The frequency of wheezing decreased during the next 3 years with a median of 6 and a range of 0 to 26 episodes of wheezing. In the last year of the study, only one third or 15 still experienced wheezing. Sensitization to at least 1 allergen was observed in 9 children and was detected between the ages of 5 and 8 years of age. Within this group, 5 had stopped wheezing and 4 were still symptomatic during the last year of the study. The mean IgE z score decreased significantly (P = .0002) from 2.63 during the first 3 years to 2.02 between ages 3–6 years. The average IgE z score at age 0.5 to 3 years was not significantly different between those with positive or negative skin tests. In those between the ages of 3 and 6, the IgE z score was significantly higher (P = .013) in those with positive skin tests, but was not associated with recurrence of wheezing. There was no association between the IgE z scores at entry and the number of wheezing episodes between ages 3 and 8 years or with the presence of wheezing in the last year of the study.

Conclusion. Total serum IgE in infants with recurrent wheezing and no allergy does not help predict those who are at risk for recurrent or persistent wheezing or atopic sensitization.

Reviewer’s Comments. It would be helpful for patient care and for parental concern to know which infant is at risk for persistent asthma. Serum IgE levels have been looked at in different populations, but not in those who have already declared themselves with severe disease. This study involves a small number of children, but they are those infants who have more severe disease and are followed in a specialty clinic. This is a population that does tend to have more asthma morbidity. This paper also has a few other very interesting findings. In their population, wheezing was resolved in 2/3. Skin testing was performed over consecutive years and sensitization to ≥1 allergen was only found in 9 of the 45. In this group of 9, 5 had stopped wheezing, and 4 continued to wheeze. In this population of severely affected infants, there was the tendency for the disorder to resolve and just over 10% of the group had allergy and persistent wheezing.

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