IMPACT OF LOW BIRTH WEIGHT ON EARLY CHILDHOOD ASThma IN THE UNITED STATES


Purpose of the Study. To study the contribution of low birth weight to the prevalence of asthma in children under 4 years old in the United States.

Study Population. A total of 8071 children on whom data was collected in the 1988 National Maternal-Infant Health Survey (NMIHS) and the 1991 Longitudinal Follow-up Survey. The NMIHS collected data from the primary caretakers of a set of children born in the United States in 1988, and then follow-up information was collected in their third year of life. African American and low birth weight infants were oversampled, increasing their representation in the database. Data were weighted to be nationally representative.

Methods. The primary endpoint was whether a health care provider had ever told the primary caretaker that the patient had asthma. Data on birth weight, sex, race, maternal age, maternal education and socioeconomic status, maternal smoking, and poverty were also collected. Birth weight was stratified to very low birth weight (VLBW) (<1500 g), moderately low birth weight (1500–2499 g), and not low birth weight (LBW). Data were then analyzed to determine relative contributions of birth weight and other factors to development of asthma.

Results. The prevalence of asthma was higher at lower birth weights: 6.7% in children weighing >2500 g at birth, 10.9% in children weighing 1500 to 2499 g at birth, and 21.9% in children weighing <1500 g at birth. Birth weight was independently associated with prevalence of asthma, as was African American race. Although LBW and VLBW infants had similar risks of developing asthma regardless of race, the prevalence of VLBW was tripled in African Americans.

Conclusions. These data identify a strong association between LBW and asthma. A total of 4000 excess asthma cases were attributable to LBW. The substantially increased prevalence of VLBW in the African American community may contribute to the higher prevalence of asthma in this community.

DETECTION OF IgA AND IgG BUT NOT IgE ANTIBODY TO RESPIRATORY SYNCTIAL VIRUS IN NASAL WASHES AND SERA FROM INFANTS WITH WHEEZING


Purpose of the Study. The role of respiratory syncytial virus (RSV) in stimulating an immunoglobulin E (IgE) antibody response and enhancing the development of asthma remains controversial. The aim of this study was to measure IgE, immunoglobulin A (IgA), and immunoglobulin G (IgG) antibody responses to immunodominant RSV antigens in nasal washes and serum samples from infants with and without respiratory symptoms.

Study Population. Forty infants aged 6 weeks to 2 years (20 with wheezing, 9 with rhinitis, and 11 without respiratory tract symptoms) were included in the investigation.

Methods. The children were enrolled in an emergency department during the mid-winter months and seen again at follow-up when they were asymptomatic. Nasal washes were obtained by standard methods and were evaluated for RSV antigen. Moreover, determination of antibody isotypes (IgE, IgA, and IgG) to RSV antigens was performed in nasal washes and serum samples by using an enzyme-linked immunosorbent assay. In a subset of nasal washes, IgE to RSV was also evaluated by using a monoclonal anti-F-E antibody-based assay.

Results. At enrollment, 15 patients with wheezing, 2 with rhinitis, and 1 control subject tested positive for RSV antigen. Thirteen patients with wheezing were <6 months old, and most (77%) were experiencing their first attack. Among the children with positive test results for RSV antigen, an increase in both nasal wash and serum IgA antibody to RSV-Fα and Gα was observed at the follow-up visit. There was no evidence for an IgE antibody response to either antigen.

Conclusions. Both IgA and IgG antibodies to the immunodominant RSV-Fα and Gα antigens were readily detected in the nasal washes and serum samples from patients in this study. The investigators were unable to demonstrate specific IgE antibody to these antigens and concluded that the production of IgE as a manifestation of a Th2 lymphocyte response to RSV is unlikely.
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