Relationship of Body Mass Index With Asthma Indicators in Head Start Children


PURPOSE OF THE STUDY. To examine the relationship of BMI and asthma in children in the Head Start program in Arkansas.

STUDY POPULATION. A group of 213 children aged 3 to 5 years with physician-diagnosed asthma were compared with 816 age-matched peer control subjects from the sample of the National Health and Nutrition Examination Survey (NHANES) and with 1024 children in prekindergarten in Arkansas public schools.

METHODS. Caregivers of the children with asthma from the Head Start program were interviewed with a structured questionnaire including the Juniper Asthma Quality of Life Survey, and the children’s medical charts were reviewed. One hundred forty-one of the 213 children underwent skin-prick testing. One hundred forty-five of the children had urine cotinine levels measured to determine exposure to environmental tobacco smoke. These data were compared with the 2 reference groups in a cross-sectional analysis.

RESULTS. The prevalence of obesity (BMI > 95th percentile) was significantly higher in the Head Start children with asthma compared with the NHANES children (P < .001) and the prekindergarten children (P < .05). Compared with Head Start children with a BMI at <85th percentile, Head Start asthmatic patients with a BMI at ≥85th percentile reported significantly more school days missed, lifetime hospitalizations, emergency department visits, activity limitations, and oral corticosteroid bursts. No significant differences were observed in rescue and controller medications, environmental tobacco smoke exposure, prick-prick puncture allergy testing, quality of life, or nighttime symptoms.

CONCLUSIONS. Obesity (BMI > 95th percentile) was associated with increased asthma prevalence and morbidity. There was no association with the number or type of asthma medications or atopic status.

REVIEWER COMMENTS. This is another study showing the association of obesity and asthma. In this study, 18.8% of the Head Start children with asthma had a BMI at >95th percentile, compared with 10.8% of the NHANES and 14.4% of the prekindergarten general-population children. The mechanisms of association have not been clearly established. Both conditions are characterized by chronic inflammation.

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