

Correspondence

Overweight: No association with asthma or bronchial reactivity in children

To the Editor:

Scholtens et al¹ published their interesting results on the association between overweight status and asthma symptoms and bronchial hyperresponsiveness (BHR) at school age in a birth cohort of 3756 children. A body mass index (BMI) of greater than the 85th percentile of the Dutch age-related, sex-specific references was defined as high. A high BMI at 6 to 7 years increased the risk of dyspnea (9.6%) at 8 years of age (odds ratio [OR], 1.68; 95% CI, 1.18-2.39) but not the likelihood of wheezing (7.3%) or the prescription of inhaled corticosteroids (7.1%). BHR was studied by means of methacholine inhalation challenge, and a high BMI at 6 to 7 years increased the risk of BHR at 8 years of age (OR, 1.66; 95% CI, 1.10-2.52). A high BMI at an earlier age was not associated with dyspnea, wheezing, or BHR at school age if the child had become normal weight until 6 to 7 years of age.

We evaluated the association between childhood asthma and overweight status as a part of a prospective, long-term follow-up of initially 92 children hospitalized for wheezing at less than 24 months of age. The overweight status was assessed by using 2 different methods at 3 control visits at the mean ages of 4.0, 7.3, and 12.3 years. Weight for height was calculated by using Finnish age-related, sex-specific growth charts, and greater than 110% was defined to mean overweight. In addition, BMI was calculated, and greater than 1.3 SD was defined to mean overweight.² The criteria of doctor-diagnosed asthma based on clinical studies during the follow-up visits have been published previously.³⁻⁵ Doctor-diagnosed asthma was present in 45 (51.1%) of 88 subjects at 4.0 years, 33 (40.7%) of 81 subjects at 7.3 years, and 32 (39.5%) of 81 subjects at 12.3 years of age, and 12 (13.5%), 23 (28%), and 18 (22.5%) subjects used continuous inhaled corticosteroids. There were no significant associations between current or earlier overweight status and asthma or asthma medication at any time point.

At 7.3 and 12.3 years of age, BHR was studied by means of exercise challenge consisting of a free 8-minute running period outdoors at a heart rate of greater than 80% of the predicted maximum. By a 10% decrease in FEV₁, BHR was present at 7.3 years of age in 6 (26%) of 23 overweight children defined by weight for height of greater than 110% (OR, 2.12; 95% CI,

0.64-6.99) and in 4 (33.3%) of 18 children defined by a BMI of greater than 1.3 SD (OR, 1.46; 95% CI, 0.40-5.36). The respective figures at 12.3 years were 11 (25%) of 44 by weight for height of greater than 110% (OR, 0.80; 95% CI, 0.29-2.19) and 9 (34.6%) of 26 by a BMI of greater than 1.3 SD (OR, 1.76; 95% CI, 0.63-4.96). The results remained negative when BHR was analyzed in relation to earlier overweight status. Likewise, the results did not change when supplementary analyses were done based on 12%, 15%, and 20% decreases of FEV₁.

Our long-term postbronchiolitis follow-up did not confirm the result of Scholtens et al¹ that overweight schoolchildren are at increased risk for BHR. Although Scholtens et al found an association between overweight status and dyspnea, a nonspecific symptom,⁶ they did not find any association between overweight status and wheezing or prescription of inhaled corticosteroids, which is in accordance with our results on doctor-diagnosed asthma.

Mari Hyvärinen, MD^a

Virpi Sidorof, MD^b

Matti Korppi, MD, PhD^c

From ^athe Department of Pediatrics and ^bthe Medical School/Pediatrics, Kuopio University, Kuopio, Finland, and ^cthe Pediatric Research Center, Tampere University and University Hospital, Tampere, Finland. E-mail: matti.korppi@uta.fi.

Disclosure of potential conflict of interest: V. Sidorof has received research support from the National Foundation for Pediatric Research in Finland. The rest of the authors have declared that they have no conflict of interest.

REFERENCES

- Scholtens S, Wijga AH, Seidell JC, Brunekreef B, de Jongste JC, Gehring U, et al. Overweight and changes in weight status during childhood in relation to asthma symptoms at 8 years of age. *J Allergy Clin Immunol* 2009;123:1312-8.
- Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing a standard definition for child overweight and obesity worldwide: international survey. *BMJ* 2000;320:1240-6.
- Reijonen TM, Kotaniemi-Syrjänen A, Korhonen K, Korppi M. Predictors of asthma three years after hospital admission for wheezing in infancy. *Pediatrics* 2000;106:1406-12.
- Kotaniemi-Syrjänen A, Reijonen TM, Korhonen K, Korppi M. Wheezing requiring hospitalization in early childhood: predictive factors for asthma in a six-year follow-up. *Pediatr Allergy Immunol* 2002;13:418-25.
- Hyvärinen MK, Kotaniemi-Syrjänen A, Reijonen TM, Korhonen K, Korppi MO. Teenage asthma after severe early childhood wheezing: an 11-year prospective follow-up. *Pediatr Pulmonol* 2005;40:316-23.
- Schartzstein RM, Gold DR. Dyspnea in overweight children: is it asthma? *J Allergy Clin Immunol* 2009;123:1319-20.

doi:10.1016/j.jaci.2009.06.050