

Cohort study

Childhood obesity is associated with higher incidence of paediatric onset asthma

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Commentary on: Lang JE, Bunnell HT, Hossain MJ, *et al.* Being overweight or obese and the development of asthma. *Pediatrics* 2018;142. pii: e20182119. doi: 10.1542/peds.2018-2119.

Implications for practice and research

- ▶ The findings of this study further support the importance of reducing childhood obesity levels to reduce the risk for comorbidities, including asthma.
- ▶ This study also found a more modest increase in the risk of childhood asthma in overweight children, highlighting the importance of interventions focusing on preventing further weight gain for overweight children.
- ▶ Future research can focus on understanding causal pathways and developing effective interventions to manage and prevent childhood obesity and associated comorbidities.

Context

There is clear evidence that obesity and asthma both place a significant burden on children, their families and healthcare systems.¹ We also know that obesity in adults and adult-onset asthma are linked²; however, we are lacking evidence on this in the paediatric population. This study compared the risk of asthma in US children with normal weight and overweight/obese children to assess the attributable risk of excess body weight on paediatric asthma incidence.³

Methods

This retrospective, longitudinal (2009–2015) cohort study assessed the incidence of asthma in US children, using a 1:1 ratio according to overweight or obese and healthy weight. The study used the US database PEDSnet (a national paediatric network that pools and standardises electronic health data) to collect clinical data from children across six paediatric academic medical centres. Participants (aged 2–17 years) were excluded if they had previous asthma diagnosis, a clinical record of wheezing or prescription for asthma medication. For each included overweight or obese participant, one randomly selected control patient was matched in age (at initial visit), sex, race, ethnicity, insurance status and PEDSnet centre. The primary outcome measure was the incidence of asthma during the observation period. The authors determined incident asthma rates and rate risk ratios for each group, and attributable risk for overweight and obese children.

Findings

The study included 507 496 children, with a mean participant observation period of 4 years. The authors report the adjusted risk for incident asthma was increased among children who were overweight (relative risk (RR): 1.17; 95% CI 1.10 to 1.25) and obese (RR: 1.26; 95% CI 1.18 to 1.34). An estimated 23%–27% of new asthma cases in children with obesity are directly attributable to their weight. Ten per cent of all cases of asthma would be avoided if all children were of a healthy weight. The authors found no evidence of overdiagnosis of asthma in obese children compared with healthy and overweight children.

Commentary

We now have a large and consistent body of evidence indicating childhood obesity as a preventable risk factor for several morbidities.⁴ This retrospective cohort study adds to previous research on the relationship between childhood obesity and onset and severity of asthma,⁵ showing that childhood obesity is an attributable risk for paediatric-onset asthma. However, an important finding is the more modest increase in risk for overweight children, which is significantly increased for obese children, emphasising the importance for interventions to focus on reducing weight and preventing further weight gain in all children with a body mass index over the 65th centile.

There are some important limitations to this study. It is a retrospective cohort study using routinely clinically collected data and therefore limits the ability to establish a causal effect and to rule out reverse causality. In addition there is a risk of selection bias due to the cohort design and the nature of matching. The authors report on attributable risk, which is more useful in health planning than focusing on relative risk alone. The former is good at estimating the strength of an association between a risk factor and a disease but is not a good measure of causality. The authors also report increases in cases of asthma caused by childhood obesity alone as 6 or more per 1000 patient-years, which means that there would be on average 6 new asthma cases per 1000 children in any 1-year period. Whether this is likely to be considered a clinically meaningful increase is debatable. Nevertheless, as rising obesity levels are known to increase risk factors for several non-communicable diseases and are a public health concern, the main conclusion to develop interventions that effectively reduce excess weight and prevent further weight gain remains important.

Competing interests None declared.

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