Asthma

PATHOPHYSIOLOGY

PERSISTENCE OF ASTHMA SYMPTOMS DURING ADOLESCENCE: ROLE OF OBESITY AND AGE AT THE ONSET OF PUBERTY


Purpose of the Study. To evaluate factors that may influence the persistence or remission of childhood asthma after the onset of puberty.


Methods. The population underwent a series of evaluations and questionnaires at years 2, 3, 6, 8, 11, 13, and 16. Questions regarding the onset of puberty appeared at years 13 and 16. Questions were also asked about the presence and frequency of wheezing. Onset of puberty was defined by parental report of early signs; asthma was defined by frequent wheezing or any wheezing with a physician-confirmed diagnosis. Infrequent wheezing was defined by <3 episodes in the previous year. The category of “unremitting” was applied if any wheezing was reported after the onset of puberty and “remitting” if no wheezing was reported.

Results. Information on wheezing before and after the onset of puberty was available for 781 subjects. In this cohort, 401 (51%) never experienced wheezing, and 83 (11%) reported wheezing after the onset of puberty. Of the 297 who were wheezing before puberty, 131 (17%) had only infrequent wheezing, and 166 (21%) fulfilled the definition for asthma. Most children (92 of 131 [70%]) with infrequent wheezing experienced remission after puberty. Of those children with the diagnosis of asthma in the prepubertal period, 97 (58%) of the 166 had wheezing episodes after the onset of puberty, and 69 (42%) had remitting asthma. The early onset of puberty was associated with the persistence of asthma into adolescence and with children in the unremitting-wheezing and asthma groups having the onset of puberty significantly earlier than children in the corresponding remitting groups (unremitting wheezing/remitting asthma = 11.74/11.95 years versus remitting wheezing/remitting asthma = 12.34/12.7 years). The mean body mass index was significantly higher in unremitting-wheezing/asthma groups compared with remitting groups at each point over 10 years of surveys. Other factors associated with the persistence of symptoms included the amount of wheezing in the per-pubertal period and the presence of active sinus disease and rhinitis in the year before the survey. There were no age factors with whom a measure of airway hyperresponsiveness was available. In the unremitting-wheezing group, 27% had a positive methacholine challenge, and in the unremitting-asthma group, 68% were positive. Persistence of wheezing and asthma into adolescence was also associated with a positive skin test to the mold Alternaria. Children sensitized before puberty were 1.6 to 2.0 as likely to experience unremitting wheezing/asthma into adolescence.

Conclusions. Overall, 30% of children with infrequent wheezing and 60% of children with asthma in the prepubertal period will keep experiencing wheezing in the first 4 years after the onset of puberty. The prepubertal risk factors for the persistence of asthma include presence of frequent or continuous wheezing, obesity, early-onset puberty, active sinus disease, and skin-test sensitization.

Reviewer’s Comments. How often has it been said that a child will “outgrow” their asthma during adolescence? Where is the evidence that supports such a statement? This study challenges that notion. This is an excellent and very informative work by a group that has continued to advance our understanding of the natural history of wheezing and asthma in children. A potential limitation is that these findings may be “population specific.” As most good studies do, this one begs for verification in other populations and regions in the country.

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IS OBESITY ASSOCIATED WITH ASTHMA IN YOUNG CHILDREN?


Purpose of the Study. The aim of this study was to evaluate the association between obesity and asthma.

Study Population. A population-based sample of Canadian schoolchildren.

Methods. Baseline data from the National Longitudinal Survey of Children and Youth were used in this cross-sectional study. The investigators included 11 199 children aged 4 to 11 years whose biological mothers reported data on asthma, height, and weight. Body mass index was categorized, and obesity was defined as a body mass index in the ≥85th percentile. Children with asthma had parents who reported the diagnosis, and they took prescribed inhalants, had wheezing or an attack in the previous year, or had their activities limited by asthma. Multiple logistic regression was used.

Results. The prevalence of asthma was 9.9%. Maternal history of asthma was a risk factor for asthma among all children. Single-child status and maternal depression were risk factors for girls. The odds ratio for asthma, comparing highest and lowest body-mass-index categories, was 1.02 (99% confidence interval: 0.70, 1.46) for boys and 1.06 (99% confidence interval: 0.67, 1.69) for girls.

Conclusions. This study suggests that there is no statistical association between obesity and asthma among 4- to 11-year-old Canadian children.

Reviewer’s Comments. This article addresses a highly contentious issue, focusing on the possible association between obesity and asthma, which has been investigated in both pediatric and adult populations. Both asthma and obesity are common chronic conditions, and in recent years, the prevalence of both of these conditions has increased in North America. Although a number of published studies have documented a positive association between obesity and asthma prevalence and incidence in adults, results from pediatric studies have not been consistent. There has been no clear explanation or consensus for this discrepancy. In this investigation, To and colleagues did not find a significant statistical association between obesity and asthma, but they did find that the single-most important risk factor for asthma was a maternal history of asthma, which has been a common, consistent finding in other pediatric asthma studies. Additional studies in pediatric populations addressing this issue will likely continue and hopefully will help to resolve whether there is a real association between obesity and asthma in children.

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554 ASTHMA
Persistence of Asthma Symptoms During Adolescence: Role of Obesity and Age at the Onset of Puberty

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