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Is there a link between the increasing use of inhaled corticosteroids to treat asthma and increasing obesity prevalence in children?

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Introduction

Obesity in children is increasing at a time when the prevalence of childhood asthma diagnosis and symptoms has also increased especially in preschool children (Kuehni et al. 2001). This has resulted in the increased use of inhaled corticosteroids and the introduction of higher potency inhaled steroids for general use. While the increased risk of developing asthma in obese children has received much attention, the effect of steroid inhalation on body weight has not been investigated. Hedberg and Rössner (2000) used self reported asthma, medication, height and weight of over 8,000 adults in Sweden and concluded that there was no strong evidence to suggest that asthma medication contributes significantly to the development of obesity. No similar information is available for children.

Methods

Data from the 2001 Health Survey for England* (Data Archive, University of Essex) were analysed for 3,222 children aged 2 to 16 years of age. The characteristics of the three groups of children; non-asthmatics, asthmatics receiving inhaled corticosteroids and asthmatics not receiving corticosteroid medication are shown in the table. The data were normalised for gender and age using the international cut-off points in body mass index (BMI) for overweight and obesity (Cole et al, 2000).

*Data from the Health Survey for England were used with the permission of the Data Archive, University of Essex. The Health Survey was carried out by the Joint Health Survey Unit, Social and Community Policy Research, University College London. The survey was funded by the Department of Health.

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Results

Effect of asthma treated with corticosteroids on BMI (Mean ± SD)

Group (n)	Age (y)	BMI (kg/m^2)	%BMI cut off
Non Asthmatic (2510)	9.01 ± 4.25	18.60 ± 3.67	92.77 ± 14.11*
Asthmatic No Steroids (479)	10.19 ± 3.96	19.51 ± 4.11	94.43 ± 16.57
Asthmatic With Steroids (233)	9.12 ± 3.99	18.74 ± 3.85	93.70 ± 15.74

To adjust for positive skewness the data were transformed using reciprocals. The reciprocal of percentage BMI cut off for overweight was significantly lower (*p= 0.026) in the asthmatic children compared to the non asthmatic children, indicating that higher values of age- and gender-adjusted BMI are associated with asthma. The use of inhaled corticosteroids for the treatment of asthma had no association with transformed percentage of BMI cut-off.

Conclusions

- Asthmatic children tend to have higher BMIs than non-asthmatic children
- The use of inhaled corticosteroids for the treatment of asthma does not appear to be associated with overweight or obesity
- Further studies using longitudinal data are required

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