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

Joan Gandy¹
Veronica Tuffrey²
S. Mukhopadhyay³

¹ Research Centre for Health Studies, Buckinghamshire Chilterns University College
² School of Integrated Health, University of Westminster
³ Division of Maternal and Child Health Sciences, Ninewells Hospital and Medical School, Dundee

This is an electronic version of an article published in the Proceedings of the Nutrition Society, 63 (Special Issue 1), pp. 115A, January 2004. Proceedings of the Nutrition Society available online at:

http://journals.cambridge.org/action/displayJournal?jid=PNS

Copyright © The Nutrition Society 2005.

The WestminsterResearch online digital archive at the University of Westminster aims to make the research output of the University available to a wider audience. Copyright and Moral Rights remain with the authors and/or copyright owners. Users are permitted to download and/or print one copy for non-commercial private study or research. Further distribution and any use of material from within this archive for profit-making enterprises or for commercial gain is strictly forbidden.

Whilst further distribution of specific materials from within this archive is forbidden, you may freely distribute the URL of WestminsterResearch. (http://www.wmin.ac.uk/westminsterresearch).

In case of abuse or copyright appearing without permission e-mail wattsn@wmin.ac.uk.
Children’s opinions on food: a culturally appropriate tool for healthier eating in Sandwell. By R.E. KYLE, Rowley Regis and Tipton PCT, 438 High Street, West Bromwich, West Midlands, UK, B70 9LD

Health promotion strategies designed to alter the population’s eating habits do not appear to have brought about the changes identified in the nutrition policies from which they were generated. Developing food policy for schools in Sandwell, a Black Country borough in the West Midlands, has led to the generation of data, which are being used to underpin a health promotion tool for primary school children. Sandwell has high levels of disadvantage and the inevitable health inequalities associated with this. Health promotion designed to modify food choice is often based on education about ‘healthy eating’, using universal information, for example The Balance of Good Health plate (Department of Health, 1991). But food choice is not free from restrictions. Practical matters such as cost or availability influence choice, but so do taste, social attitudes and cultural conventions.

Teachers and school health nurses had drawn attention to a perceived increase in the numbers of overweight children in primary schools, and the social and physical problems associated with this. A need to develop appropriate health education was identified. Height and weight measurements for 8367 primary school children, previously recorded by school health nurses, were used to calculate BMI using BMI reference curves for the UK (Cole et al. 1995).

Qualitative semi-structured interviews were undertaken with eight groups of four children (aged 7–11 years), seven groups of eight children (aged 4–11 years) and two groups of parents. In addition, 209 children (aged 7–11 years) kept 1 d food diaries. The data suggest that many children eat alone during the week. Vegetables were often only eaten at the weekend as part of a ‘proper dinner’, frequently prepared by a grandmother. Children and parents had a well-developed sense of the appropriateness and symbolic significance of food and meals (Murcott, 1982). Although children have a very clear idea of what is meant by ‘healthy eating’, this knowledge does not impinge on their eating habits.

An ‘Interactive Food Diary’ has now been developed. This not only provides information and allows children to record elements of their daily food, but suggests small changes within cultural norms. Physical activity is also recorded. The diary is currently being piloted in Sandwell’s three Primary Care Trusts, for use in health promotion and in nurse-led obesity clinics. Preliminary feedback from parents, nurses and teachers has been encouraging.

Is there a link between the increasing use of inhaled corticosteroids to treat asthma and increasing obesity prevalence in children? By J. GANDY, V. TUFFREY and S. MUKHOPADHYAY, 1Research Centre for Health Studies, Buckinghamshire Chilterns University College, Chalfont St Giles HP8 4AD, 2School of Integrated Health, University of Westminster, London W1W 6UW and 3Division of Maternal and Child Health Sciences, Ninewells Hospital and Medical School, Dundee DD1 9SY

Over the last 10 years the prevalence of obesity has doubled to 8.5% in 6-year-olds and trebled in 15-year-olds to 15%. The prevalence of childhood asthma diagnosis and symptoms has also increased especially in pre-school 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. Concerns are being increasingly expressed about possible links between these two phenomena. 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 & Rössner (2000) used self-reported asthma, medication (use but not type of medication was recorded), height and weight of over 8000 adults in the Sweden Living Condition Surveys. They 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.

Data from the 2001 Health Survey for England (Data Archive, University of Essex) were analysed, which included complete information on prevalence of asthma, asthma medication, and anthropometry for 3222 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 sex and age using the international cut-off points in BMI for overweight and obesity (Cole et al. 2000). A new variable, the percentage of the age- and sex-specific value of BMI equivalent to a BMI of 25 at age 18, was derived from the Health Survey data.

The data were transformed by taking reciprocals, to adjust for their severe positive skewness. A significant difference was found between the asthmatics (n 712; mean 94.2% of BMI cut-off) and non-asthmatics (n 2510; mean 92.8% of BMI cut-off) in the means of the reciprocal of percentage BMI cut-off (F 5.0, P=0.026) by two-way ANOVA with sex as the other independent variable (F 10.0, P=0.002) and age as covariate (F 35.3, P=0.001). However, there was no significant difference between the means of the transformed percentage of BMI cut-off in asthmatics using inhaled corticosteroids (n 233) and those not using these drugs (n 479) by two-way ANOVA (F 0.6, P=0.45, with F 3.8, P=0.005 for sex and F 9.1, P=0.003 for age as covariate).

The findings of the present study are in agreement with other studies in that asthmatic children tend to have higher BMI than non-asthmatic children. However, in this sample of English 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 to provide a more definitive answer to this question.

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.


<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Male:female</th>
<th>Mean</th>
<th>SD</th>
<th>Percent of BMI cut-off</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-asthmatic children</td>
<td>2510</td>
<td>9.01</td>
<td>4.24</td>
<td>1196:1314</td>
<td>18.60</td>
<td>3.67</td>
<td>92.77</td>
<td>14.11</td>
<td>90.63</td>
<td></td>
</tr>
<tr>
<td>Asthmatic children not receiving inhaled corticosteroids</td>
<td>479</td>
<td>10.19</td>
<td>3.96</td>
<td>265:214</td>
<td>19.51</td>
<td>4.11</td>
<td>94.43</td>
<td>16.57</td>
<td>91.13</td>
<td></td>
</tr>
<tr>
<td>Asthmatic children receiving inhaled corticosteroids</td>
<td>233</td>
<td>9.12</td>
<td>3.99</td>
<td>129:104</td>
<td>18.74</td>
<td>3.85</td>
<td>93.70</td>
<td>15.74</td>
<td>91.14</td>
<td></td>
</tr>
</tbody>
</table>