MOTHER’S SMOKING DURING PREGNANCY INFLUENCE INTRAUTERINE AND POSTNATAL GROWTH - THE GROWUP 1990 GOTHENBURG COHORT POPULATION

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INTRODUCTION

Smoking during pregnancy is known to influence prenatal and postnatal growth of the offspring.

A growth reference should represent optimal growth in healthy children.

The QEPS growth model can analyse and describe growth patterns in a detailed way with precise growth estimates1–2.

RESULTS

Individuals of both sexes with smoking mothers were shorter and lighter at birth. Individuals with smoking mothers came earlier into puberty, had earlier peak height velocity (AgeTPHV) and were 1.8–1.9 cm shorter at adult height as seen in Table 1 and Figure 2.

The girls of smoking mothers median weight and BMI remained lighter during infancy and childhood, whereas along +2SDS became greater from 10 years and onwards, resulting in broader ranges (Figure 3). The boys of smoking mothers median weight and BMI remained lighter during infancy, from 2.5 years of age heavier and with greater BMI during childhood and adolescence (Figure 3).

Table 1. Birth characteristics, QEPS growth estimates, adult heights and parent heights of individual born to smoking and non-smoking mothers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Men NS, girls</th>
<th>Men NS, boys</th>
<th>Diff.</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestational age - days</td>
<td>281.1 ± 1.7</td>
<td>281.7 ± 1.7</td>
<td>-6.5</td>
<td>0.4396</td>
</tr>
<tr>
<td>Birth weight (g)</td>
<td>3505 ± 157</td>
<td>3591 ± 157</td>
<td>+86</td>
<td>0.0011</td>
</tr>
<tr>
<td>Birth length (cm)</td>
<td>52.2 ± 0.6</td>
<td>52.2 ± 0.6</td>
<td>0.0</td>
<td>0.9999</td>
</tr>
<tr>
<td>Birth head circum. (cm)</td>
<td>35.2 ± 0.4</td>
<td>35.2 ± 0.4</td>
<td>0.0</td>
<td>0.9999</td>
</tr>
<tr>
<td>Birth thoracic circum. (cm)</td>
<td>25.8 ± 0.3</td>
<td>25.8 ± 0.3</td>
<td>0.0</td>
<td>0.9999</td>
</tr>
</tbody>
</table>

AIM

The aim of this study was to investigate the impact of smoking in the Swedish reference population for new reference for height, weight, and BMI, the GrowUp1990Gothenburg cohort.

The study was based on 1907 healthy individuals (918 girls/989 boys born at term in Sweden with Nordic parents and longitudinal growth measurements1–4. Of these, 155 girls and 180 boys was born to mothers smoking during pregnancy

Both traditional measures and estimates from the QEPS-growth model were used for comparisons. Analyses of growth patterns were done with the QEPS-growth model1–2.

CONCLUSIONS

Growth and maturation in individuals born to mothers smoking during pregnancy were influenced. These individuals were shorter, lighter at birth and during infancy than those born to non-smoking mothers. As grown up shorter stature and in boys also increased BMI during childhood, findings which stresses maternal smoking as a life risk factor.

Omitting individuals born to mothers smoking during pregnancy will therefore narrow the range of ±2SDS. Thus, we recommend omitting individuals to smoking mothers when developing new references for height, weight and BMI1,2,3. Thereby a sharper instrument for detecting abnormal growth will be obtained.

REFERENCES


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