Relationship between body mass index (BMI) and nocturnal enuresis (NE) in Egyptian children. A Multicentre retrospective study.

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Aims of the study

Obesity was reported as a significant finding among children with NE. The purpose of this study is to evaluate the relationship between BMI and NE in Egyptian children.

Materials and Methods

The data of 500 patients (266 male and 234 female) presented with NE in outpatient clinic between 1 March 2010 and 28 February 2011 at Ain Shams and Tanta University Hospitals were analyzed retrospectively.

Patient’s age, weight and height were evaluated, BMI was calculated by dividing an individual’s weight in kilograms by the square of their height in meters (kg/m²), BMI percentiles were determined based on data from the Egyptian Growth Reference Charts:

- Obese → ≥ 95%
- Overweight → < 95% and ≥ 85%
- Healthy weight → < 85% and ≥ 5%
- Underweight → < 5%

Patients were divided into 2 groups: group (A) monosymptomatic NE (n = 319) and group (B) non-monosymptomatic NE (n = 181). The data obtained were compared with the general Egyptian pediatric population.

Results

The mean age for the patients was 11.4 ± 3.2 and mean BMI was 19.5 ± 5.4. From overall patients 31/500 were obese (6.2%), 60/500 were overweight (12%) and 53/500 were underweight (10.6%).

Obese and overweight patients were more common among group (A) 70/319 (21.9%) than group (B) 21/181 (11.6%), while underweight patients were less in group (A) 29/319 (9.1%) than group (B) 24/181 (13.3%). (Table 1)

Table 1: Patient’s data and their distribution to BMI percentiles.

<table>
<thead>
<tr>
<th>BMI Percentile</th>
<th>Patient</th>
<th>Age</th>
<th>weight</th>
<th>Height</th>
<th>BNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>52</td>
<td>16.6</td>
<td>13.00</td>
<td>2.90</td>
<td>35.00</td>
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<td>Normal</td>
<td>26</td>
<td>5.2</td>
<td>11.00</td>
<td>2.10</td>
<td>31.50</td>
</tr>
<tr>
<td>2-10</td>
<td>32</td>
<td>6.4</td>
<td>7.67</td>
<td>2.54</td>
<td>24.70</td>
</tr>
<tr>
<td>10-20</td>
<td>189</td>
<td>33.8</td>
<td>10.50</td>
<td>2.77</td>
<td>36.20</td>
</tr>
<tr>
<td>20-30</td>
<td>109</td>
<td>21.8</td>
<td>10.45</td>
<td>2.72</td>
<td>41.09</td>
</tr>
<tr>
<td>30-60</td>
<td>51</td>
<td>4.2</td>
<td>15.50</td>
<td>2.58</td>
<td>60.50</td>
</tr>
<tr>
<td>Overweight</td>
<td>66</td>
<td>12.7</td>
<td>12.67</td>
<td>2.15</td>
<td>61.67</td>
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<tr>
<td>Obese</td>
<td>31</td>
<td>6.2</td>
<td>16.33</td>
<td>1.73</td>
<td>84.00</td>
</tr>
<tr>
<td>Total</td>
<td>500</td>
<td>110.37</td>
<td>3.24</td>
<td>43.94</td>
<td>18.99</td>
</tr>
</tbody>
</table>

Interpretation of results

Obesity was reported in literature with a high incidence up to 55% for mild obesity and 31% for sever obesity among children with NE (1), and this incidence was too high in comparison with the results of our study. In addition obesity correlates with a lower treatment efficacy in children with NE (2).

The present study show that incidence of obese and overweight children was 6.2% and 12% respectively, in addition 10.6% of our patients were overweight and this suggest that Egyptian children complaining of NE not necessary to be obese.

The results of our study were comparable with the incidence of obesity (7.1%), overweight (13.4%) and underweight (7.3%) among the general Egyptian pediatric population (3). (Fig. 1)

Figure 1: Incidence of obesity, overweight and underweight in children with NE and the general Egyptian pediatric population.

Conclusion

The association between obesity as a risk factor or an underlying aetiology for NE in Egyptian children is not clearly significant in our study. However, larger trials with more patients’ number are needed before the final conclusion.

References

