RELATIONSHIP BETWEEN BODY MASS INDEX (BMI) AND NOCTURNAL ENURESIS IN EGYPTIAN CHILDREN. A MULTICENTRE RETROSPECTIVE STUDY.

Hypothesis / aims of study
Obesity was reported as a significant finding among children with nocturnal enuresis (NE). The purpose of this study is to evaluate the relationship between body mass index (BMI) and nocturnal enuresis in Egyptian children.

Study design, materials and methods
The data of 500 patients (266 male and 234 female) presented with nocturnal enuresis 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. BMI percentile ≥ 85% was defined as obese, BMI percentile < 95% and ≥ 85% was defined as overweight, BMI percentile < 85% and ≥ 5% was defined as healthy weight and BMI percentile < 5% was defined as underweight. 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 monosymptomatic NE \(70/319\) (21.9%) than non-monosymptomatic NE group \(21/181\) (11.6%), while underweight patients were less in monosymptomatic NE \(29/319\) (9.1%) than non-monosymptomatic NE group \(24/181\) (13.3%).

<table>
<thead>
<tr>
<th>BMI Percentile</th>
<th>Patient</th>
<th>Age</th>
<th>weight</th>
<th>Height</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>Mean SD</td>
<td>Mean SD</td>
<td>Mean SD</td>
<td>Mean SD</td>
</tr>
<tr>
<td>&lt;5</td>
<td>53</td>
<td>10.6</td>
<td>13.00</td>
<td>2.95</td>
<td>35.00</td>
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<tr>
<td>5-10</td>
<td>26</td>
<td>5.2</td>
<td>11.00</td>
<td>2.15</td>
<td>31.50</td>
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<td>10-25</td>
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<td>7.67</td>
<td>2.54</td>
<td>24.67</td>
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<tr>
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<tr>
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<td>2.15</td>
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<tr>
<td>&gt;95</td>
<td>31</td>
<td>6.2</td>
<td>16.33</td>
<td>1.73</td>
<td>94.00</td>
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<td>100</td>
<td>11.37</td>
<td>3.24</td>
<td>43.64</td>
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</table>

Interpretation of results
Obesity among children with NE was reported with a high incidence 55% for mild obesity and 31% for sever obesity (1), and this incidence was too high in comparison with the results of our study. Incidence of obese and overweight children was 6.2% and 12% respectively, in addition 10.6% of our patients were underweight 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 pediatric population (2).

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

References
| **Was informed consent obtained from the patients?** | Yes |