THE PREVALENCE AND RISK FACTORS FOR OAB IN ADOLESCENT GIRLS

Hypothesis / aims of study
Overactive bladder (OAB) is the second most common voiding dysfunction disorder in children following nocturnal enuresis. The prevalence of OAB among children decreases with increasing age, being around 6 % among adolescent girls (1). The risk factors have not yet been clearly elucidated. Although it has been proposed that urinary tract infection (UTI) may precipitate the development of voiding dysfunction (2). The aim of our study was to evaluate the prevalence and possible risk factors for OAB among adolescent girls.

Study design, materials and methods
The data was collected by means of questionnaires among girls attending secondary schools. The girls were asked about presence or absence of urgency and associated symptoms as well about possible risk factors. The ICS definitions were used. The categorical variables were compared between girls with or without daily urgency by means of χ²-test. Nonparametric Mann-Whitney U test was used to compare continues variables. Univariate logistic regression was used to calculate odds ratio (OR) for prediction of OAB. To evaluate the best independent predictors of OAB the multivariate logistic regression was used. A P-value <0.05 was considered statistically significant.

Results
The mean age of 2758 included girls was 16.8±1.2 (from 15 to 20) years. Occasional urgency was reported in 911 (33.3%) girls; 86 (3.1 %) girls were identified as having urgency all the time. The results of comparison between girls with or without daily urgency in associated symptoms and risk factors are presented in the Table 1.

<table>
<thead>
<tr>
<th>Associated symptoms</th>
<th>Urgency (86)</th>
<th>No urgency (2672)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>79.1%</td>
<td>45.7%</td>
<td>0.000</td>
</tr>
<tr>
<td>Nocturia</td>
<td>61.6%</td>
<td>38.6%</td>
<td>0.000</td>
</tr>
<tr>
<td>Incomplete bladder emptying</td>
<td>61.6%</td>
<td>37.1%</td>
<td>0.000</td>
</tr>
<tr>
<td>Dysuria</td>
<td>46.5%</td>
<td>19.4%</td>
<td>0.000</td>
</tr>
<tr>
<td>Pain in lower abdomen</td>
<td>61.2%</td>
<td>35.4%</td>
<td>0.000</td>
</tr>
<tr>
<td>UUI more than once per week</td>
<td>8.3%</td>
<td>0.6%</td>
<td>0.000</td>
</tr>
<tr>
<td>Risk factors</td>
<td></td>
<td></td>
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<tr>
<td>UTI in the past</td>
<td>60.0%</td>
<td>27.7%</td>
<td>0.004</td>
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<tr>
<td>Sexual intercourse more often</td>
<td>44.2%</td>
<td>30.7%</td>
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</tr>
<tr>
<td>Mean age at first intercourse</td>
<td>15.3±1.1</td>
<td>15.5±1.1</td>
<td>0.106</td>
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<tr>
<td>Smoking in the last three months</td>
<td>10.5%</td>
<td>5.7%</td>
<td>0.095</td>
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<tr>
<td>Alcohol in the last three months</td>
<td>23.3%</td>
<td>32.9%</td>
<td>0.062</td>
</tr>
<tr>
<td>Smoking and alcohol in the last 3 months</td>
<td>44.2%</td>
<td>33.1%</td>
<td>0.036</td>
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<tr>
<td>Enuresis</td>
<td>31.4%</td>
<td>16.8%</td>
<td>0.001</td>
</tr>
<tr>
<td>Mother having urinary problems</td>
<td>17.4%</td>
<td>10.1%</td>
<td>0.045</td>
</tr>
</tbody>
</table>

Table 1: Associated symptoms and risk factors for OAB. The categorical variables are compared by χ²-test and continuous by Mann-Whitney U test. The presented ORs are calculated by univariate logistic regression. Multivariate logistic regression showed the previous UTI (OR 3.9; 95% CI 1.9 – 7.6) and combination of alcohol and smoking (OR 2.4; 95% CI 1.2 – 4.6) are the only independent predictors for OAB, P-value being 0.000 and 0.012, respectively.

Interpretation of results
Every third girl has occasional urgency. However 3.1% girls reported as having daily urgency. Girls with daily urgency had more often associated symptoms, i.e. frequency, nocturia, incomplete bladder emptying, dysuria, lower abdominal pain and UUI than those not reporting urgency. UTI in the past, nocturnal enuresis, regular sexual intercourse and positive family history were associated to daily urgency among adolescent girls. Isolated alcohol consumption was not associated to OAB. That is why a combination of smoking and alcohol drinking is associated to OAB probably on account of smoking. The only independent predictors for OAB were previous UTI and report of regular alcohol drinking and cigarette smoking in the past three months. However another behavioural factor, i.e. regular sexual intercourse may attribute to the development of OAB probably by predisposing to UTI. The family predisposition was suggested since more mothers of girls with OAB had urinary problems. There may be the genetic predisposition to UTI/OAB or the girls observe and follow their mothers’ behaviour.

Concluding message
The prevalence of OAB among adolescent girls was 3.1 %. According to our results the OAB may be best predicted by having UTI in the past and regular alcohol and cigarette consumption. All other risk factors, i.e. positive family history and regular
sexual intercourse, may be associated to UTI. We should advice the adolescent girls to take all the preventive measures for UTI and the physician to carefully diagnose and treat bladder infections.

References

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<th>No disclosures</th>
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<td>Specify Name of Ethics Committee</td>
<td>Institutional Review Board of University Clinical Center Maribor and Medical Faculty Maribor</td>
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<td>Was the Declaration of Helsinki followed?</td>
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<td>Was informed consent obtained from the patients?</td>
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