

## 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  $\chi^2$ -test. Nonparametric Mann-Whitney U test was used to compare continuous 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.

	Urgency (86)	No urgency (2672)	P		
<b>Associated symptoms</b>					
Frequency	79.1%	45.7%	0.000		
Nocturia	61.6%	38.6%	0.000		
Incomplete bladder emptying	61.6%	37.1%	0.000		
Dysuria	46.5%	19.4%	0.000		
Pain in lower abdomen	61.2%	35.4%	0.000		
UUI more than once per week	9.3%	0.6%	0.000		
<b>Risk factors</b>					
UTI in the past	60.0%	27.7%	0.004	OR (95% CI)	P
Sexual intercourse more often than once per week	44.2%	30.7%	0.009	2.46 (1.31 – 4.65)	0.005
Mean age at first intercourse	15.3±1.1	15.5±1.1	0.106		
Smoking in the last three months	10.5%	5.7%	0.095		
Alcohol in the last three months	23.3%	32.9%	0.062		
Smoking and alcohol in the last 3 months	44.2%	33.1%	0.036	2.80 (1.48 – 5.31)	0.002
Enuresis	31.4%	16.8%	0.001	2.15 (1.03 – 4.47)	0.041
Mother having urinary problems	17.4%	10.1%	0.045	2.68 (1.17 – 6.13)	0.019

Table 1: Associated symptoms and risk factors for OAB. The categorical variables are compared by  $\chi^2$ -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

1. Hellerstein, S, Zguta, AA. Outcome of overactive bladder in children. Clin Pediatr (Phila) 2003; 42:553.
2. Bauer, SB. Special considerations of the overactive bladder in children. Urology 2002; 60:43.

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<b><i>Is this a clinical trial?</i></b>	<b>Yes</b>
<b><i>Is this study registered in a public clinical trials registry?</i></b>	<b>No</b>
<b><i>Is this a Randomised Controlled Trial (RCT)?</i></b>	<b>No</b>
<b><i>What were the subjects in the study?</i></b>	<b>HUMAN</b>
<b><i>Was this study approved by an ethics committee?</i></b>	<b>Yes</b>
<b><i>Specify Name of Ethics Committee</i></b>	<b>Institutional Review Board of University Clinical Center Maribor and Medical Faculty Maribor</b>
<b><i>Was the Declaration of Helsinki followed?</i></b>	<b>Yes</b>
<b><i>Was informed consent obtained from the patients?</i></b>	<b>Yes</b>