

## URODYNAMIC AND CLINICAL PERSPECTIVES OF OVERACTIVE BLADDER IN WOMEN

### Hypothesis / aims of study

Urodynamic measures of overactive bladder (OAB) in women selected through a standardized diagnostic work-up represent the underlying motor or sensorial pathophysiology more precisely. We performed this study in order to test the above hypothesis. First, we set forth a prospective diagnostic algorithm, then we selected the unbiased and uniform OAB cases, and finally investigated the well-defined OAB in women from both symptomatic and urodynamic perspective with clinical and urodynamic measures. We aimed to emphasize the importance of this three-step approach as the basic study design for OAB, which may lead to further well-structured and reliable research.

### Study design, materials and methods

We prospectively evaluated women with OAB symptoms. Although the definition of OAB was standardized by ICS as “urgency with or without urge incontinence, usually with frequency and nocturia”, its underlying pathophysiology still remains unclear. Moreover, many different causes of urgency are grouped together as OAB, which creates clinical confusion [1]. To overcome the lack of uniformity for the definition of symptoms as well as the other urgency related conditions, which are frequently mentioned as the major problem in such studies, detailed exclusion criteria are established. The solid number of the patients is decreased to 35, whom hold the common clinical OAB characteristics (Fig. 1). After the diagnostic work-up, patients with uniform OAB symptoms and findings (n=35) were investigated by recording 3-day voiding diary, 24hr pad-weight test. In addition, UDI-6, IIQ-7, Wagner and Overactive Bladder-Validated 8 Question Awareness Tool (OAB-V8) [3] Questionnaires were used for the evaluation of patient discomfort. The women also underwent conventional urodynamic studies including filling cystometry and pressure flow studies, conformed to International Continence Society (ICS) recommended good urodynamic practice guidelines. Relation between the OAB cases, grouped accordingly with the presence of detrusor overactivity is investigated in terms of urodynamic measures representing motor or sensorial pathophysiology. Statistical analysis was performed using the software SPSS (version 13, Chicago, IL, USA). The Student’s t test and the Mann–Whitney U test were used as appropriate. P values < 0.05 were considered significant.

### Results

Urodynamic findings including filling cystometry and uroflowmetry measures were compared among the two groups in terms of presence or absence of detrusor overactivity (OAB with DOA n=15, OAB without DOA n=20). In the OAB group without DOA, sensorial measures of filling cystometry (first sensation, normal sensation, strong sensation and max. cystometric capacity) were found significantly higher compared to the OAB group with DOA (p= 0,001, p=0,011, p= 0,003, p= 0,003 respectively). Max. detrusor pressure and max. vesical pressure were also found to be significantly higher (p<0,001 and p=0,001 respectively). Among all three questionnaires, OAB-V8 was found to be more related with urodynamic measures in terms of detrusor overactivity.

### Interpretation of results

The urodynamic measures of filling cystometry showed variances within the descriptive categories of motor or sensorial overactive bladder. Comparatively for the OAB group with DOA, max detrusor and vesical pressures and in OAB group without DOA sensorial urodynamic measures are found to be significantly higher, similarly with the literature [2].

### Concluding Message

Selection of unbiased and uniform cases of OAB for further studies may improve the understanding of the underlying pathophysiology.

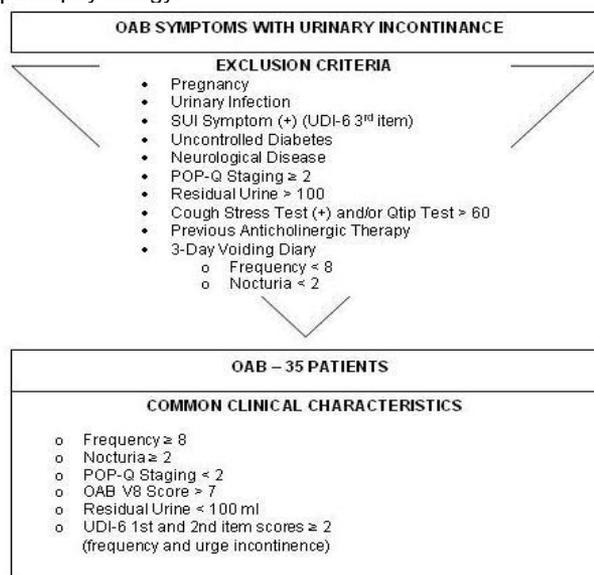


Figure 1: Diagnostic algorithm for OAB Syndrome.

Table 1: Demographical, clinical, subjective and objective findings of OAB patients (n: 35).

	OAB (+), n:15	OAB (-), n:20	Significance (p)
<b>Demographics (Mean ± SD)</b>			
Age (year)	51,7±10,3	51,9±10,5	0,831
BMI (kg/m <sup>2</sup> )	28,6±4,3	29±5	0,542
Parity (n)	3,8±2,24	3,35±1,95	0,62
<b>Clinical Measures (Mean ± SD)</b>			
24hr Pad-Weight Test (gr)	41±91	85±242	0,12
3-day Voiding Diary:			
Frequency (n)	9,2±3,5	8,3±3,6	0,298
Nocturia (n)	2,14±1,2	2,15±1,4	0,83
Incontinence Episodes (n)	4,3±5,6	3,1±4,8	0,542
<b>Qualitative Measures (Mean ± SD)</b>			
OABV8 (Total score)	27,9±8,3	21,7±6,8	0,030
<b>Urodynamic Measures (Mean ± SD)</b>			
First sensation (ml)	107±54,9	164±61,2	0,001
Normal sensation (ml)	172±68	242±76	0,011
Strong sensation (ml)	253±109	363±86	0,003
Max. Cystometric Capacity (ml)	368±108	458±90	0,003
Max. Detrusor Pressure (cmH <sub>2</sub> O)	41,5(-8,88)	2(-16,71)	<0,001
Max. Vesical Pressure (cmH <sub>2</sub> O)	69±21	45±19	0,001

#### References

1. Cartwright R, Renganathan A, Cardozo L. Current management of overactive bladder. Current Opinion in Obstetrics and Gynecology 2008; 20: 489–95.
2. Brummen HJ van, Heintz APM, Vaart CH van der. The association between overactive bladder symptoms and objective parameters from bladder diary and filling cystometry. Neurourology and Urodynamics 2004; 23: 38-42.
3. Coyne KS, Zyczynski T, Margois MK, Elinoff V, Roberts RG. Validation of an overactive bladder awareness tool for use in primary care settings. Advances in Therapy 2005; 22 (4): 381-94.

<b>Specify source of funding or grant</b>	<b>None</b>
<b>Is this a clinical trial?</b>	<b>Yes</b>
<b>Is this study registered in a public clinical trials registry?</b>	<b>No</b>
<b>Is this a Randomised Controlled Trial (RCT)?</b>	<b>No</b>
<b>What were the subjects in the study?</b>	<b>HUMAN</b>
<b>Was this study approved by an ethics committee?</b>	<b>Yes</b>
<b>Specify Name of Ethics Committee</b>	<b>Ankara University</b>
<b>Was the Declaration of Helsinki followed?</b>	<b>Yes</b>
<b>Was informed consent obtained from the patients?</b>	<b>Yes</b>