How frequent are overactive bladder symptoms in women with urodynamic verification of an overactive bladder?

Ürodinami ile aşın aktif mesane tanısı konmuş kadınlarda aşın aktif mesane semptomları hangi sıklıkta bulunmaktadır?

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Abstract

Objective: To determine the relationship between overactive bladder symptoms and urodynamic verification of overactive bladder.

Material and Methods: Between June 2011 and November 2011, 159 patients underwent urodynamics (UDS) at our urogynecology unit in the Ege University Hospital. Of these, 95 patients who complained of urgency, did not have any overt neurological diseases, bladder outlet obstruction and did not take any medication affecting the lower urinary tract function were evaluated. SPSS (ver. 15.0) was used to evaluate the data and the chi-square test and t test for independent samples were used for analysis.

Results: The mean age was found to be 54.5±12. Frequency was the most frequent symptom in women with overactive bladder (OAB) (82.1%), nocturia (57.8%) and urgency urinary incontinence followed in frequency. Detrusor over activity incidence was found to be 38.9%. There was no significant relationship between the presence of detrusor over activity (DOA) and OAB symptoms. Leak at urodynamics was found in 46.3% and there is no significant association with detrusor overactivity. Total bladder capacity was found to be significantly lower in women who had DOA (p=0.000).

Conclusion: It appears that overactive bladder symptoms do not predict detrusor over activity. Urodynamic investigation is not mandatory in the initial management of women with only OAB symptoms.

Key words: Overactive bladder, urodynamics, urgency urinary incontinence, detrusor over activity

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Introduction

Overactive bladder (OAB) is defined as the storage symptoms of urgency with or without urgency incontinence, usually with frequency and nocturia. Urinary Urinary Incontinence (UUI) is defined as the complaint of involuntary leakage accompanied by or immediately preceded by urgency. Urodynamic diagnosis of OAB is defined as involuntary detrusor contractions during the filling phase, which may be spontaneous or provoked (1). These involuntary contractions are termed detrusor over activity (DOA) and are mediated by acetylcholine-induced stimulation of bladder muscarinic receptors (2). It has been reported that the rate of DOA in women who have OAB symptoms is 22-58.4% (3-5). Some studies reported that there is a significant relationship between DOA and frequency, nocturia and urgency urinary incontinence (5, 6). However, the association between the symptoms of OAB and DOA are still unclear in women with OAB. There is no consensus about symptomatic diagnosis of OAB and DOA in women (3, 4, 7, 8). The aim of this study was to evaluate the relationship between OAB symptoms and an urodynamic diagnosis of detrusor over activity.
Material and Method

Sample Population
Between June 2011 and November 2011, 159 patients underwent UDS at our urogynecology clinic in the Ege University Hospital. Of these, 95 patients who complained of urgency did not have any overt neurological, bladder outlet obstruction and did not take any medication affecting the lower urinary tract function were evaluated. We retrospectively scanned urogynecologic evaluation reports which have included urinary diary, patient socio-demographic characteristics, and urodynamics. The study obtained approval from the local ethics committees.

Urogynecologic evaluation
The routine urogynecological protocol was performed before urodynamic testing. This included a comprehensive urogynecologic history, pelvic examination, a 3-day urinary diary, and no urinary infection.

Urogynecologic history
It was included in the data on socio-demographic characteristics such as age, weight, height, smoking, parity, gravida, menopausal status, previous medication or surgery. Body mass index was calculated by weight (kg)/height (m²). Obesity was defined as 30 or more BMI value.

Pelvic examination
It consists of a cough stress test, residual volume measuring, Q-tip test, and POP-Q staging (9, 10).

Urinary diary
Frequency (eight voids per day), nocturia (two voids per night), and symptomatic incontinence (OAB wet; at least once a day or OAB dry, respectively) were determined.

Urodynamics
Urodynamics were performed in accordance with the criteria established by the International Continence Society (ICS) (11). The presence or absence of DOA and leakage during UDS were determined.

Statistical Analysis
SPSS vers 15.0 was used for evaluation of the data. Continuous variables were presented as means±SD and analyzed via the t test for independent samples. Classified variables were presented as n-% tables and compared via the Yates corrected Chi-square test. p<0.05 was considered as significant.

Result
Table 1 shows the demographic characteristics of women who were included in the present study. One hundred fifty

Table 1. Participants’ demographic characteristics

<table>
<thead>
<tr>
<th></th>
<th>All participants (n=95)</th>
<th>Detrusor Over Activity</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td></td>
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</tr>
<tr>
<td>Age</td>
<td>54.5  12.1</td>
<td>53.3  11.98</td>
<td>56.5  12.2</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parity</td>
<td>3.1   1.7</td>
<td>2.9   1.65</td>
<td>3.5   1.6</td>
<td>NS</td>
<td></td>
<td></td>
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<tr>
<td>Gravida</td>
<td>4.3   2.2</td>
<td>4.0   2.19</td>
<td>4.7   2.3</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BMI</td>
<td>29.2  4.3</td>
<td>29.0  4.52</td>
<td>29.7  3.9</td>
<td>NS</td>
<td></td>
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</tr>
<tr>
<td>Menopause</td>
<td></td>
<td></td>
<td>n     %</td>
<td>n     %</td>
<td>n     %</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>yes</td>
<td>33   34.7</td>
<td>38   61.3</td>
<td>24   38.7</td>
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<td></td>
<td></td>
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<tr>
<td>no</td>
<td>62   65.3</td>
<td>20   60.6</td>
<td>13   39.4</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Prolapse</td>
<td></td>
<td></td>
<td>n     %</td>
<td>n     %</td>
<td>n     %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>25   26.3</td>
<td>28   75.7</td>
<td>9    24.3</td>
<td>NS</td>
<td></td>
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<td></td>
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<tr>
<td>no</td>
<td>70   73.7</td>
<td>42   72.4</td>
<td>16   27.6</td>
<td>NS</td>
<td></td>
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<td></td>
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<tr>
<td>Obesity</td>
<td></td>
<td></td>
<td>n     %</td>
<td>n     %</td>
<td>n     %</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>yes</td>
<td>37   38.9</td>
<td>21   56.8</td>
<td>16   43.2</td>
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<td></td>
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<tr>
<td>no</td>
<td>58   61.1</td>
<td>37   63.8</td>
<td>21   36.2</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Smoking</td>
<td></td>
<td></td>
<td>n     %</td>
<td>n     %</td>
<td>n     %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>21   22.1</td>
<td>15   71.4</td>
<td>6    28.6</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>no</td>
<td>74   77.9</td>
<td>43   58.1</td>
<td>31   41.9</td>
<td>NS</td>
<td></td>
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</tr>
</tbody>
</table>

NS: Non significant, BMI: Body mass index *t test for independent samples, ** X² Yates
nine women who had attended our urogynecology unit were
evaluated. 95 of these women (59.7%) had urgency. These
participants were described as an overactive bladder. In addition
frequency, nocturia, urgency incontinence might be accompa-
nying the urgency. DOA was found to be present in 38.9%. There
is no significant relationship between the presence of DOA and
OAB symptoms. Table 2 shows the relationship between OAB
symptoms and DOA. Table 3 shows the urodynamics findings.
Leak at urodynamics was found in 46.3%. Total bladder capac-
ity was found significantly lower in women who had DOA.

Discussion

Epidemiological studies have reported the prevalence of OAB
as 16-17%, and this percentage increased to 21% for women
older than 70 years (12, 13).

Symptoms of urinary frequency, nocturia, and urgency are
common among adult women. Frequency, urgency, and urge
incontinence alone or in combination form the basic group of
symptoms of OAB (14, 15). OAB is a common and distressing
problem known to adversely affect the quality of life because of
these symptoms (16).

Our study demonstrates that OAB symptoms do not overlap
urodynamic verification of OAB. In the present study, total
bladder capacity was found significantly lower in women with
DOA as in a previous study (7). Although DOA was reported as
a main factor for OAB, it appears different underlying patho-
physiologic factors play a role in women with OAB. Urgency
is a pivot symptom, according to the OAB definition (1). Some
studies reported a significant association between urgency and
DOA (6-17).

However, Brummen et al. (5) reported a main association
between frequency and DOA, while urgency was associated
poorly with DOA. Hashim and Abrahams reported that urgency
e xoexisting with urgency incontinence and frequency is a better
predictor than frequency alone for DOA. On the other hand, 10
or more daytime micturition episodes in women with OAB was
found to be associated with DOA (4, 8). According to studies
which reported an association between OAB symptoms and
DOA, urodynamic evaluation might be a part of the assess-
ment in the management of women who had OAB symptoms.

However, there is controversy about the association between
OAB symptoms and urodynamic verification of DOA. Digesu
et al. reported that there is no significant correlation between
OAB symptoms and DOA. In the present study, total
bladder capacity was found significantly lower in women with
DOA as in a previous study (7). Although DOA was reported as
a main factor for OAB, it appears different underlying patho-
physiologic factors play a role in women with OAB. Urgency
is a pivot symptom, according to the OAB definition (1). Some
studies reported a significant association between urgency and
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found to be associated with DOA (4, 8). According to studies
which reported an association between OAB symptoms and
DOA, urodynamic evaluation might be a part of the assess-
ment in the management of women who had OAB symptoms.

Table 2. The relationship between OAB symptoms and DOA

<table>
<thead>
<tr>
<th>Detrusor Over Activity</th>
<th>*p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absent</td>
</tr>
<tr>
<td>Frequency</td>
<td>51</td>
</tr>
<tr>
<td>Nocturia</td>
<td>33</td>
</tr>
<tr>
<td>Urge incontinence</td>
<td>32</td>
</tr>
<tr>
<td>Frequency+Nocturia</td>
<td>31</td>
</tr>
<tr>
<td>Frequency+Urge incontinence</td>
<td>30</td>
</tr>
<tr>
<td>Nocturia+Urge incontinence</td>
<td>18</td>
</tr>
<tr>
<td>Frequency+Nocturia+Urge incontinence</td>
<td>18</td>
</tr>
<tr>
<td>NS: Non significant *X2 Yates</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Urodynamics findings

<table>
<thead>
<tr>
<th>Detrusor Over Activity</th>
<th>*p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absent</td>
</tr>
<tr>
<td>Mean SD</td>
<td></td>
</tr>
<tr>
<td>FD</td>
<td>161.12</td>
</tr>
<tr>
<td>TBC</td>
<td>449.55</td>
</tr>
<tr>
<td>Leak at UDS</td>
<td>25</td>
</tr>
<tr>
<td>NS: Non significant *t test for independent samples, **X2 Yates; Bold indicates significant difference, TBC: Total bladder capacity, UDS: Urodynamics</td>
<td></td>
</tr>
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</table>
Conflict of interest
No conflict of interest was declared by the authors.

References
2. Andersson KE, Arner A. Urinary bladder contraction and relaxation: physiology and pathophysiology. Physiol Rev 2004; 84: 935-86. [CrossRef]
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