

## THE ADDITIONAL VALUE OF AMBULATORY URODYNAMIC STUDIES IN PATIENTS WITH AN OVERACTIVE BLADDER SYNDROME AND PATIENTS WITH AN ACONTRACTILE DETRUSOR

### Hypothesis / aims of study

To show the additional diagnostic value of ambulatory urodynamic studies (AUS) after a conventional urodynamic study in patients with overactive bladder syndrome (OAB) and patients with an acontractile detrusor .

### Study design, materials and methods

We have reviewed our urodynamic data collected at the urology department of our university hospital over the past 5 years. In this period 2393 urodynamic investigations were conducted. Ambulatory urodynamics was conducted in 108 patients.

**Table 1. Indications and outcome of the ambulatory urodynamic study**

Indications for ambulatory urodynamic study	Outcome of the ambulatory urodynamic study					
	Patients	Detrusor Overactivity	Acontractile bladder	Incontinence	No pathological findings	Other
<b>OAB with incontinence</b>	<b>18</b>	<b>9 (50 %)</b>	<b>0</b>	<b>13 (72%)</b>	<b>5 (28%)</b>	<b>0</b>
<b>OAB without incontinence</b>	<b>4</b>	<b>2 (50%)</b>	<b>0</b>	<b>2 (50%)</b>	<b>2 (50%)</b>	<b>0</b>
<b>Urgency incontinence</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>10 (100%)</b>	<b>0</b>	<b>0</b>
<b>Stress incontinence</b>	<b>8</b>	<b>3 (38%)</b>	<b>0</b>	<b>6 (72%)</b>	<b>0</b>	<b>2 (25%)</b>
<b>Mixed incontinence</b>	<b>11</b>	<b>5 (45%)</b>	<b>0</b>	<b>11 (100%)</b>	<b>0</b>	<b>0</b>
<b>Non-representative Conventional urodynamics</b>	<b>32</b>	<b>16 (50 %)</b>	<b>0</b>	<b>5 (16%)</b>	<b>8 (25%)</b>	<b>3 (9%)</b>
<b>Suspected acontractile bladder</b>	<b>25</b>	<b>0</b>	<b>4 (16%)</b>	<b>0</b>	<b>21 (84%)</b>	<b>0</b>

### Results

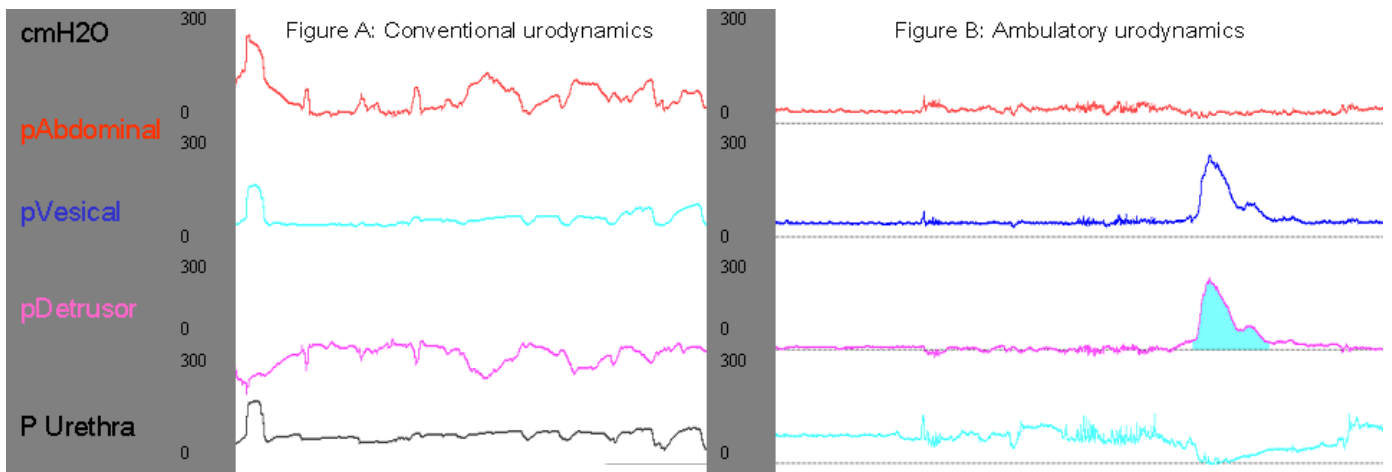
We studied 108 patient charts (95 female and 13 male patients, mean age 53, range 19-81 Years), all patients underwent both a conventional urodynamic study and an ambulatory urodynamics study for various indications.

In Table 1, the indication and the outcome of the ambulatory urodynamic study are shown. A patient can have more than one outcome (e.g. detrusor overactivity and incontinence).

In 32 cases the indication for conducting an AUS, was an inconclusive conventional urodynamic study or cases where patients' subjective complaints could not be objectified by a conventional urodynamic study. In 50 % of these patients (16 patients) AUS objectified OAB symptoms. Five patients (16 %) showed incontinence on AUS. In 25 % (8 patients) of the AUS cases, the findings of the conventional urodynamic study were confirmed (Table 1).

A suspected acontractile detrusor on a conventional urodynamic study was the indication for an ambulatory urodynamic study in 25 patients. In 84 % of these patients (21 cases) we found multiple detrusor micturation contractions on the AUS under normal conditions at home. Thus their symptoms were due to other factors such as pelvic muscular non relaxation possibly due to, psychological reasons. Only in 17 % (4 out of 24 cases ) a true acontractile detrusor was found.

Figure A shows the last 3 minutes of the conventional urodynamics study of a patient after receiving the micturation command. There is clearly no detrusor activity in the laboratory setting of the conventional urodynamic study. In Figure B, a 3 minutes part of an ambulatory urodynamic study of a the same patient is shown. The patient is able to void on desire at home. A clear detrusor contraction is shown.



#### Interpretation of results

Previous studies have pointed out that AUS should no longer be considered solely as a research tool, but that it can be a useful tool for diagnosis and management of patients with lower urinary tract symptoms[1-3]. We can fully support this statement by our data.

Our data indicate that, if we base our diagnosis of acontractile detrusor solely on a conventional urodynamic study, we will have a 84% false positive rate, in which case we will withhold possible treatment from our patients and perhaps even advise them to start lifetime self-catheterization.

We hypothesize that an increased guarding reflex during a conventional urodynamic study, causes false positive results. This pelvic muscular non relaxation is often treatable with the help of a specialized physiotherapist.

#### Concluding message

We have shown that ambulatory urodynamic measurements have an important place in the second-line diagnostic workup of patients with OAB and assumed acontractile detrusor.

In the absence of AUS, the majority of patients are misdiagnosed with an acontractile detrusor based on their conventional urodynamic results, with lifetime self-catheterization as a consequence.

On the basis of this study we advise to perform an ambulatory urodynamics study on patients with assumed reduced or absent bladder contractility.

#### References

1. Neurourol Urodyn, (2007) **26**(6): 789-93
2. J Urol, (2001) **166**(6): 2253-8.
3. Bjog, (2000) **107**(3): 316-9.

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<b>Is this a clinical trial?</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>No</b>
<b>This study did not require ethics committee approval because</b>	<b>This was a retrospective study.</b>
<b>Was the Declaration of Helsinki followed?</b>	<b>Yes</b>
<b>Was informed consent obtained from the patients?</b>	<b>No</b>