

38

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VARIABILITY IN FILLING CYSTOMETRY RESULTS IN MEN WITH LUTS AND THE IMPACT ON THE
DIAGNOSIS OF AN OVERACTIVE BLADDER.

Aims of the study

We have investigated the variation of filling cystometry parameters in three sequential bladder studies, and on different rates of filling. We discuss the impact these factors may have on the diagnosis of detrusor instability and examine the correlation of detrusor instability with symptoms.

Methods

Ninety one men, with lower urinary tract symptoms were investigated by IPSS and Madsen-Iversen (MSS) scores, free uroflowmetry (in duplicate), and pressure flow study (P-F) (in triplicate). P-F study was carried out using a Urodesk 300 equipment (SI.EM, Milan, Italy) with water filled pressure lines. In group 1 (23 men with LUTS) three sequential filling studies were done at 25, 50 and 90 mls/min. In group 2 (60 men with LUTS) and group 3 (8 men with clinical diagnosis of neuropathic bladder) three filling studies were carried out at a filling rate of 50 ml/min. The number and amplitude of detrusor contractions was recorded. Only detrusor contractions associated with bladder sensation were included. Symptoms were assessed from the question referring to urgency, in the IPSS (range 0-5) and the Madsen (range 0 - 3).

Results

Group 1: We found that the incidence of instability fell over the three studies. The ratio between stable and unstable patients was 10/13 in the 1st study (25 ml/s), 10/13 in the 2nd study (50 ml/s) and 18/5 in the 3rd study (90 ml/s) ($p \leq 0.0264$ for Kruskal-Wallis test)
Group 2. No significant difference was seen over the 3 studies for first, normal, or strong desire to void nor the maximum cystometric capacity (table I). A significant decrease in the number of involuntary detrusor contractions and/or their amplitude was observed from the 1st to the 3rd study. No difference in the filling volume at which the involuntary contractions occurred was found between the studies. Fewer patients had unstable contractions in the third study than in the first (table II).

Table I	First desire (ml)	Normal desire (ml)	Strong desire (ml)	Cyst. Capacity (ml)
Study 1	104.90 + 27.27	168.26 + 46.49	219.90 + 66.35	248.92 + 80.24
Study 2	117.02 + 27.46	182.88 + 45.18	237.90 + 63.34	265.07 + 69.58
Study 3	129.82 + 80.30	183.73 + 53.25	233.82 + 65.27	269.88 + 73.21
*p \leq	0.1157	0.2941	0.3210	0.3839

*Kruskal-Wallis test

Table II	Involuntary contractions			Ratio stable/unstable pts.
	Number	Pressure (cmH ₂ O)	Volume (ml)	
Study 1	1.7000	41.23 + 42.45	91.56 + 81.03	17 / 43
Study 2	1.4500	33.75 + 37.92	110.35 + 103.93	22 / 38
Study 3	0.8867**	25.42 + 35.07	93.03 + 116.09	31 / 29
*p \leq	0.0125	0.0460	0.3871	0.0395

*Kruskal-Wallis test, ** One-Way Anova with LSD post-hoc test shows that study 3 is different from study 1 and 2

426 Abstracts

The correlation between the Madsen 'urge' score and the amplitude of involuntary detrusor contractions increased from the 1st ($r=0.1740$, $p<0.184$) to the 2nd ($r= 0.3279$, $p<0.011$) and the 3rd study ($r=0.3538$, $p<0.006$). A similar behaviour was found for the urge score according to the IPSS (correlation values changed from $r=0.2493$ ($p<0.055$) to $r=0.4547$ ($p<0.0001$) and to $r=0.3793$ ($p<0.0001$) respectively. The lowest urgency score was found in patients who had a stable detrusor in the 2nd or 3rd cystometry even if the first study showed involuntary detrusor contractions. A significant difference was found in the urgency symptoms between patients who became stable and those who remained unstable through the 3 studies (table III).

Table III	become stable'	'always unstable'	p≤ (Mann-Whitney U test)
IPSS-4	1.8824 ± 1.764	3.0667 ± 1.172	0.0156
Urge	0.824 ± 0.857	1.5667 ± 0.898	0.0128

No relation was found between the presence or absence of unstable detrusor and IPSS, IPSS-QL, Total Madsen score or any parameters from the voiding phase of the study.

Group 3: All men with a neuropathic bladder had unstable contractions in all 3 studies.

Conclusions

This study shows a changing incidence of unstable contractions from the first to third study performed. A better correlation between the symptoms of urgency and the presence of detrusor instability was found in the third study. This research strongly supports the use of repeated filling studies during the urodynamic assessment of men with LUTS.

39

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Title (type in CAPITAL LETTERS, leave one blank line before the text):

THE CORRELATION OF IPSS, SIMPLE UROFLOWMETRY AND POST-VOID RESIDUAL URINE (PVR) WITH PRESSURE-FLOW STUDIES IN THE DIAGNOSIS OF INFRAVESICAL OBSTRUCTION.

Aims of Study: Pressure-flow studies (PFS) are considered as a golden standard in the diagnosis and quantification of infravesical obstruction due to benign prostatic hyperplasia (BPH). Their invasiveness, however, limits their clinical application where simple uroflowmetry combined with PVR measurement is commonly used as the sole urodynamic study in aging men with lower urinary tract symptoms (LUTS). The aim of this study was to investigate the efficacy of IPSS, uroflowmetric findings and PVR in the prediction of infravesical obstruction which was diagnosed by PFS.

Methods: A total of 76 men with a mean age of 65.2 (range: 41 - 89 years) who have attended our outpatient clinic with LUTS between the years 1999 and 2000 were analyzed in this study. All patients were initially evaluated with physical examination, IPSS, urine analysis, renal and bladder ultrasonography and simple uroflowmetry with PVR measurement. Within 2 weeks after completing the first evaluation, all patients underwent additional urodynamic studies including a filling cystometrogram and a PFS. All urodynamic tests were performed on UD-2000 (Medical Measurement Systems, The Netherlands) urodynamics unit. Obstruction was defined according to ICS-nomogram and quantified with AG number [1]. The IPSS, PVR values and uroflowmetric