

PREDICTING BLADDER OUTLET OBSTRUCTION IN MEN WITH PERSISTENT OVERACTIVE BLADDER SYMPTOMS AFTER MEDICAL TREATMENT FOR LOWER URINARY TRACT SYMPTOMS

Hypothesis / aims of study

In clinical practice, it is common to encounter a group of men with mixed voiding LUTS and OAB. After initial treatment for LUTS and BPH, the voiding symptoms improve, but OAB symptoms might persist. Recent studies have proven combined alpha-blocker and antimuscarinic drugs, or an antimuscarinic drug alone, often provide relief for these patients. Use of the IPSS voiding to storage subscore ratio has been proposed as a guide for initial treatment of men with mixed voiding and storage symptoms. For patients in whom the initial treatment fails, a urodynamic study is mandatory to identify the underlying pathophysiology and optimize a therapeutic strategy. The aim of this retrospective study was to analyze the underlying lower urinary tract dysfunctions by video-urodynamic studies in men who have persistent OAB symptoms after initial drug therapy for LUTS and BPH.

Study design, materials and methods

The medical records of 614 men ≥ 40 years of age with LUTS and an IPSS of ≥ 8 were retrospectively analyzed. Patients had persistent OAB symptoms after medical treatment for at least 6 months. A video-urodynamic study was done to investigate the underlying bladder or bladder outlet dysfunction. Predictors of bladder outlet obstruction (BOO) by baseline urine flow metrics and prostate parameters were investigated.

Results

The final results revealed bladder neck dysfunction (BND) in 137/614 (22.3%), benign prostatic obstruction (BPO) in 246/614 (40.1%), detrusor overactivity (DO) in 193/614 (31.4%), and detrusor hyperactivity and inadequate contractility (DHIC) in 38/614 (6.2%) patients. Among the patients, 221/281 (78.6%) with a total prostatic volume (TPV) ≥ 40 mL had BOO, including 43/281 (15.3%) with BND and 178/281 (63.3%) with BPO. If we combined TPV ≥ 40 mL and $Q_{max} < 12$ mL/s as predictors of BOO, BOO was found in 176/215 (81.9%) patients including 34/215 (15.8%) with BND and 142/215 (66.0%) with BPO. In 102 patients with TPV < 40 mL and $Q_{max} \geq 12$ mL/s, 64 (62.7%) had DO.

Interpretation of results

The analysis included 614 men. All of them had symptoms of urgency with or without urgency urinary incontinence after the initial medical treatment. The final video-urodynamic study revealed BND in 137 (22.3%), BPO in 246 (40.1%), DO in 193 (31.4%), and DHIC in 38 (6.2%) patients (Fig. 1). Nearly two-thirds (62.4%) of the men had BOO on video-urodynamic studies. When we used TPV as the predictor for the differential diagnosis of lower urinary tract dysfunction in the study patients, 221 (78.6%) patients with TPV ≥ 40 mL had BOO including 43 (15.3%) with BND and 178 (63.3%) with BPO. Another 162 (48.8%) patients with TPV < 40 mL had BOO including 94 (28.3%) with BND and 68 (20.5%) with BPO. When we used Q_{max} as the predictor, 301 (67.6%) patients with a $Q_{max} < 12$ mL/s had BOO including 105 (23.6%) with BND and 196 (44.0%) with BPO (Table 1). If we combined TPV ≥ 40 mL and $Q_{max} < 12$ mL/s as predictors, BOO was found in 176 (81.8%) patients including 34 (15.8%) with BND and 142 (66%) with BPO. In 102 patients with TPV < 40 mL and $Q_{max} \geq 12$ mL/s 64 (62.7%) had DO (Table 2). The differential diagnosis of BND and BOO was not easy. About half of the patients with BND had TPV < 40 mL and $Q_{max} < 12$ mL/s. However, these parameters were not significantly different from patients with DO or DHIC. One-quarter of the patients with BND also had $Q_{max} \geq 12$ mL/s. A diagnosis based on the video-urodynamic study seemed to be accurate for detecting BND in patients with OAB symptoms after medical treatment for LUTS or BPH.

Concluding message

This study revealed that BOO, including BND and BPO, comprises 62.4% of men with remaining OAB symptoms after initial medical treatment for LUTS or BPH. Although DO and DHIC are important lower urinary tract dysfunctions in this cohort, BOO should not be overlooked because surgical intervention may alleviate OAB symptoms. However, an accurate diagnosis of BOO should be made if we intend to undertake surgical intervention in men with OAB symptoms after medical treatment for LUTS or BPH.

VUDS diagnosis

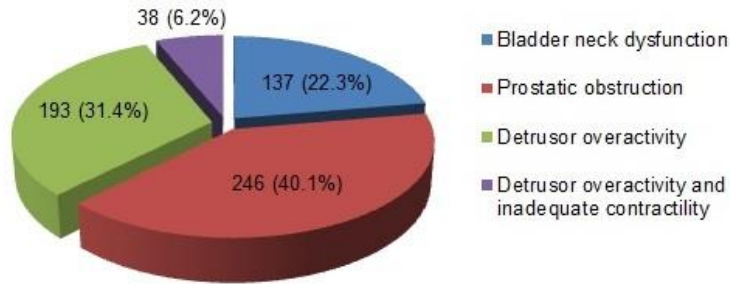


Fig. 1. The video-urodynamic diagnosis of lower urinary tract dysfunction in men with overactive bladder symptoms after medical treatment for LUTS or BPH.

Table 1. Relationship of video-urodynamic diagnosis based on total prostatic volume and maximum flow rate

	Total no.	BND (n=137) No. (%)	BPO (n=246) No. (%)	DO (n=193) No. (%)	DHIC (n=38) No. (%)
TPV < 40 mL	332	94 (28.3) (68.6)	68 (20.5) (27.6)	145 (43.7) (75.1)	25 (7.5) (65.8)
TPV ≥ 40 mL	281	43 (15.3) (31.4)	178 (63.3) (63.4)	48 (17.1) (24.9)	13 (4.6) (34.2)
Qmax < 12 mL/s	445	105 (23.6) (76.6)	196 (44.0) (79.7)	108 (24.3) (56.0)	36 (8.1) (94.7)
Qmax ≥ 12 mL/s	169	32 (18.9) (23.4)	50 (29.6) (20.3)	85 (50.3) (44.0)	2 (1.2) (5.3)

BND, bladder neck dysfunction; BPO, benign prostatic obstruction; DO, detrusor overactivity; DHIC, detrusor hyperactivity and inadequate contractility; TPV, total prostatic volume; Qmax, maximum flow rate.

Table 2. Relationship of video-urodynamic diagnosis and combination of total prostatic volume and maximum flow rate

	Total no.	BND (n=137) No. (%)	BPO (n=246) No. (%)	DO (n=193) No. (%)	DHIC (n=38) No. (%)
TPV < 40 mL & Qmax < 12 mL/s	230	71 (30.9) (51.8)	54 (23.5) (22.0)	81 (35.2) (42.0)	24 (10.4) (63.2)
TPV < 40 mL & Qmax ≥ 12 mL/s	102	23 (22.5) (16.8)	14 (13.7) (5.7)	64 (62.7) (33.2)	1 (1) (2.6)
TPV ≥ 40 mL & Qmax < 12 mL/s	215	34 (15.8) (24.8)	142 (66) (57.7)	27 (12.6) (14.0)	12 (5.6) (31.6)
TPV ≥ 40 mL & Qmax ≥ 12 mL/s	67	9 (13.4) (6.6)	36 (53.7) (14.6)	21 (31.3) (10.9)	1 (1.5) (2.6)

BND, bladder neck dysfunction; BPO, benign prostatic obstruction; DO, detrusor overactivity; DHIC, detrusor hyperactivity and inadequate contractility; TPV, total prostatic volume; Qmax, maximum flow rate.

Disclosures

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