

WHO CAN EXPECT BOTHERSOME STORAGE SYMPTOMS AFTER PHOTOSELECTIVE VAPORIZATION OF THE PROSTATE?

Hypothesis / aims of study

Storage lower urinary tract symptoms (LUTS) have significant impact on quality of life. Heat and mechanical injury of surrounding tissue triggered by any kind of transurethral intervention for benign prostatic hyperplasia (BPH) may cause their temporary exacerbation.[1] Photoselective vaporisation of the prostate (PVP) is growing in popularity, but still little is known about storage LUTS experienced by some patients after this procedure and about parameters that predict unfavorable outcome.[2-3]

The objective of this study was to find clinical and urodynamic predictors of moderate to severe storage LUTS experienced after PVP performed with the lithium triborate (LBO) laser.

Study design, materials and methods

This is a retrospective analysis of a prospectively collected database of patients who underwent vaporization of the prostate with a 120W or a 180W GreenLight laser system between May 2009 and September 2011. All patients included had bladder outlet obstruction confirmed by a pressure-flow study. Severity of LUTS and quality of life were assessed by the International Prostate Symptom Score (IPSS) questionnaire preoperatively, 6 weeks and 6 months after the procedure. A storage domain of the IPSS (questions 2, 4 and 7 on frequency, urgency and nocturia), a voiding domain (questions 3,5 and 6 on straining, weak stream and postvoid dribbling) and a score for an IPSS question 4 (Q4; urgency) were separately analyzed apart from a total IPSS. Moderate to severe storage LUTS were defined as IPSS storage domain score > 8 and/or IPSS Q4 score > 3. Predictive value of IPSS domains, IPSS Q4, detrusor overactivity, prostate volume and BOO Schäfer grade were tested by logistic regression analysis. Exclusion criteria were: urinary retention, neurogenic disorders and conversion to classic transurethral resection of the prostate.

Results

Mean age of 76 men who completed a six-month follow-up was 66.4 (standard deviation (SD) 6.8) years. Their mean prostate volume was 57 (SD 26) ml. Thirty six patients (47.4%) had detrusor overactivity. Median Schäfer grade was 4 (interquartile range (IQR) 2). Preoperatively 46 patients (60.5%) had moderate to severe storage LUTS.

Six weeks after the procedure both uroflow parameters and total IPSS improved significantly: Qmax went from mean 7.9 ml/s to 18.9 ml/s, postvoid residual volume was reduced from mean 117 ml to 31 ml ($P<0.001$) and the total IPSS decreased from 21 to 11.4. Number of patients with moderate to severe storage LUTS decreased insignificantly to 37 (48.7%). Logistic regression analysis showed that at 6 weeks postoperatively only IPSS voiding domain had predictive value with odds ratio of 0.87 (95% CI 0.76 – 0.99) for postoperative storage LUTS.

Six months after PVP 9 patients (11.8%) had moderate to severe storage LUTS. Their quality of life was significantly worse than that of the remaining men (median QoL scores respectively 3 vs 1; $P<0.001$). Severity of preoperative urgency was the only significant predictive factor of the defined outcome having odds ratio 5.7 (95% CI 1.41 - 23.16). Eight out of 20 patients who had severe urgency preoperatively (score 5 for that question) had moderate to severe storage LUTS six months after PVP (sensitivity 89%, specificity 40%, AUC-0.69). Seven of 14 patients with preoperative severe urgency and detrusor overactivity had the defined severity of storage LUTS (sensitivity 78%, specificity 50%, AUC- 0.73).

	Baseline	Week 6	Week 26
Mean (SD) total IPSS	21 (6.9) [‡]	11.4 (5.2) [‡]	6.6 (4.9) [‡]
Mean (SD) storage IPSS	9 (3.4) ^{§‡}	8 (3.5) [§]	4.1 (2.7) [‡]
Median (IRQ) Q4 score	3 (4) [‡]	3 (3.75)	1 (2) [‡]
Mean (SD) voiding IPSS	9.1 (3.6) [‡]	2 (2.2) [‡]	1.7 (2.3) [‡]
Median (IRQ) QoL score	4 (2) [‡]	2 (2) [‡]	1 (2) [‡]
No (%) of patients with moderate to severe storage LUTS	46 (60.5%) [‡]	37 (48.7%)	9 (11.8%) [‡]
Uroflowmetry parameters			
Mean (SD) voided volume (ml)	172 (105) [‡]	187 (115)	228 (142) [‡]
Mean (SD) peak flow (ml/s)	7.9 (3.7) [‡]	18.9 (11.5) [‡]	21 (14.2) [‡]
Mean postvoid residual volume (ml)	117 (123) [‡]	31 (48) [‡]	32 (43) [‡]

[§] $P < 0.05$

[‡] $P < 0.01$

[‡] $P < 0.001$

Interpretation of results

PVP performed with a LBO laser resulted in subjective and objective improvement in majority of patients. However, storage LUTS tend to wane slowly and in about 10% of patients and they significantly affect quality of life even 6 months after the procedure. Severe preoperative urgency is a single significant predictor of storage symptoms reported 6 months after PVP. Its value is even stronger when detrusor overactivity coexists. Detrusor overactivity alone without accompanying urgency seems not to be predictive for postoperative storage symptoms.

Concluding message

During preoperative work-up patients with severe urgency should be informed about risk of delayed regression of storage symptoms. Value of urodynamic evaluation is restricted to confirmation of BOO.

References

1. Matoka DJ and Averch TD: Predictability of irritative voiding symptoms following photoselective laser vaporization of the prostate. Can J Urol 2007; 14: 3710
2. De Nunzio C, Miano R, Trucchi A, Miano L, Franco G, Squillacciotti S, Tubaro A.
3. Cho MC, Kim HS, Lee CJ, Ku JH, Kim SW, Paick JS. Influence of detrusor overactivity on storage symptoms following potassium-titanyl-phosphate photoselective vaporization of the prostate. Urology. 2010 Jun;75(6):1460-6

Disclosures

Funding: NONE **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** it is a retrospective analysis of clinical outcome of standard therapy. **Helsinki:** Yes **Informed Consent:** Yes