

RECOVERY OF BLADDER FUNCTION IN MALE PATIENTS WITH NON-NEUROGENIC DETRUSOR UNDERACTIVITY AFTER TREATMENT

Hypothesis / aims of study

To investigate the outcome in male patients with detrusor underactivity (DU) who received surgical or medical treatment and identify the predictive factors of satisfactory treatment outcome.

Study design, materials and methods

We retrospectively reviewed the medical records of 86 men who underwent medical or surgical treatment for DU during the period 1998 to 2015. DU was defined in patients with videourodynamic evidence of low voiding pressure, low flow rate, a post-void residual (PVR) urine volume of >300 mL and a voiding efficiency (VE) of <33%. Satisfactory outcome was defined as a VE of >50% after treatment. Patient characteristics and urodynamic parameters were compared between patients with a satisfactory outcome and those with an unsatisfactory outcome.

Results

At a mean follow-up of 31 months, 63 (72.2%) patients had achieved a satisfactory treatment outcome. Transurethral resection of prostate (TURP) (n=38, 86.4%) and transurethral incision of prostate (TUIP) (n=11, 68.8%) were associated with the highest rates of good outcome. The satisfactory group had significantly higher detrusor pressure and greater bladder compliance at baseline than the unsatisfactory group. There was significant improvement in the first sensation of filling (FSF), full sensation (FS), urgency sensation (US), detrusor pressure (Pdet), Qmax, voided volume, PVR and cystometric bladder capacity (CBC) after treatment in the satisfactory group. Among the patients with satisfactory outcome, recovery of detrusor function was achieved within 3 months in 50 (79.4%) patients and more than 3 months after treatment in 13 (20.6%) patients (Table 1).

Table 1. Changes in the urodynamic parameters of patients with detrusor underactivity after treatment

	Satisfactory (N=39)		Unsatisfactory (N=11)		P-value
	Baseline	Post Tx	Baseline	Post Tx	
FSF (mL)	206.1 ± 116.1	151.3 ± 107.1*	221.6 ± 131.2	148.6 ± 96.3	0.76
FS (mL)	300.2 ± 119.34	228.1 ± 137.9*	340.5 ± 174.0	221.9 ± 114.2	0.435
US (mL)	363.9 ± 138.6	259.5 ± 171.6*	418.8 ± 163.1	273.6 ± 140.7*	0.61
Compliance	82.0 ± 116.2	44.2 ± 53.4	46.3 ± 46.7	26.8 ± 26.4	0.635
Pdet.Qmax (cmH ₂ O)	7.26 ± 8.45	28.6 ± 29.1*	3.36 ± 3.04	10.1 ± 10.4	0.097
Qmax (mL/s)	2.33 ± 3.42	6.47 ± 7.93*	0.09 ± 0.30	1.45 ± 2.02	0.301
Voided volume (mL)	60.3 ± 98.4	143.2 ± 175.1*	4.54 ± 15.1	50.4 ± 99.3	0.534
PVR (mL)	333.6 ± 193.7	165.5 ± 168.3*	472.7 ± 134.8	268.2 ± 145.4*	0.727
CBC (mL)	393.9 ± 173.0	308.6 ± 170.6*	477.3 ± 129.2	318.6 ± 123.5*	0.084
BCI	16.4 ± 19.8	61 ± 49.9*	10.6 ± 15.1	17.4 ± 20.1	0.358

*P <0.05; comparison between the baseline parameters and parameters obtained after treatment using the paired t test; FSF, first sensation of bladder filling; FS, Full sensation; US, urgency sensation; Pdet.Qmax, detrusor voiding pressure; Qmax, maximal urinary flow rate; VOL, voided volume; PVR, post-void residual; CBC, cystometric bladder capacity; BCI, bladder contractility index

Interpretation of results

The results of this study revealed that active treatment such as TURP and TUIP for patients with DU resulted in recovery of detrusor function in the majority (72.2%) of male patients within 3 months after treatment. In addition, we found that larger bladder compliance and higher voiding Pdet are associated with a satisfactory outcome. In the present study, various treatments were given based on clinical and urodynamic findings. Urethral BoNT-A injection has been shown to be effective in DU patients with urethral sphincter hyperactivity. In this study, TUIP or TURP was performed in male patients with DU and small or large prostate. Although it is difficult to differentiate between bladder outlet obstruction and non-obstruction in patients with DU, this study revealed that over 70% of men with DU could regain spontaneous voiding after bladder outlet surgery. The surgery not only relieves bladder outlet resistance but also might destruct the inhibitory effect of the detrusor contractility caused by alpha-adrenergic hyperactivity in the bladder neck and prostatic urethra, thus facilitating urination in male patients with idiopathic DU, either by spontaneous voiding or abdominal straining.

Concluding message

Totally 72.2% of male patients with clinical DU can have voiding function recovery, most of the recovery occurs at 3 months after active treatment such as TURP and TUIP. Active treatment for detrusor underactivity such as TURP and TUIP results in recovery of detrusor function within 3 months after treatment in the majority of patients. The larger bladder compliance and higher voiding Pdet are significantly higher in patients with a satisfactory outcome.

Disclosures

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