

## PREOPERATIVE URODYNAMIC PARAMETERS CANNOT PREDICT DELAY URINARY CONTINENCE AFTER LAPAROSCOPIC RADICAL PROSTATECTOMY

### Hypothesis / aims of study

Male patients who received laparoscopic radical prostatectomy (LRP) due to prostate cancer usually develop post prostatectomy incontinence (PPI) after the operation. About 10~20% patients still suffer from PPI 6 months after operation. Age, preoperative continence status, surgical technique and surgeon's experience have been reported to associate with delay recovery from PPI. This study was designed to investigate the relationship between the preoperative urodynamic parameters and PPI at 6 months.

### Study design, materials and methods

Patients with prostate cancer underwent LRP from July 2011 to February 2012 were prospectively enrolled. All patients received video urodynamics study and urethral pressure profilometry before operation, at 1 month, 3 month and 6 months after LRP. The urodynamic parameters including detrusor pressure (Pdet), maximum flow rate (Qmax), cystometric bladder capacity (CBC), bladder compliance, full sensation of filling (FS), maximal urethral closure pressure (MUCP) and functional profile length (FPL) were recorded. The operation time, total prostate volume (TPV) and blood loss during LRP were also recorded. The urodynamics parameters were compared between patients with and without urinary incontinence at 6 months. The presence of detrusor overactivity (DO) and bladder outlet obstruction (BOO) at baseline were also analysed.

### Results

A total of 33 patients were recruited and complete 6 months follow-up. At 6 months after LRP, 13 (39.4%) patients still had PPI while 20 (60.6%) did not. The baseline MUCP, FPL, FS, CBC and bladder compliance between the patients with and without PPI at 6 months were not significantly different (Table 1). Only baseline Pdet in patients with PPI at 6 months was significantly higher ( $53.8 \pm 26.5$  v  $34.8 \pm 11.4$  cmH<sub>2</sub>O,  $p = 0.028$ ). The patients with baseline VUDS proven BOO had a tendency to have persistent PPI at 6 months ( $7/10=70\%$  v  $6/23=26.1\%$ ,  $p=0.026$ ). The patients with larger TPV also had tendency to have persistent PPI. The operation time was significantly longer in patients with PPI at 6 months ( $281.0 \pm 51.0$  v  $223.1 \pm 50.2$  min,  $p=0.003$ ). The MUCP and FPL were significantly decreased after LRP, however, the baseline MUCP or FPL provided no additional predictive value for PPI. Although most patients could recover from urinary incontinence after operation, the MUCP and FPL did not increase at the same time.

### Interpretation of results

The results of this study showed that baseline VUDS parameters, including MUCP, FPL, FS, CBC and bladder capacity could not predict delay recovery of PPI at 6 months. This result implies that preoperative urethral sphincter static pressure and the functional urethral length are not associated with the delay recovery of PPI. The longer operation time is associated with delay recovery of PPI, and larger TPV also has this tendency. Increased TPV might increase difficulty of surgical technique and result in longer operation time. This result implies Intraoperative technical difficulty during LRP has impact on the delay recovery of PPI. The BOO and higher Pdet, usually are contributed from increasing prostate volume, are also associated with delay recovery of PPI. The MUCP and FPL did not increase after patients recovered from PPI, implying that the urethral sphincter static pressure and functional urethral length increase are not necessary for PPI recovery.

### Concluding message

Baseline urodynamic study results can not predict delay recovery for PPI at 6 months. Increased operation time due to large prostate size and intraoperative surgical techniques difficulty might have impact on the delay recovery of PPI.

Table 1. Baseline parameter of patients with and without urinary incontinence at 6 months after laparoscopic radical prostatectomy

	PPI at 6 months N=13	No PPI at 6 months N=20	P value
Age	70.4±7.2	72.8±5.0	0.289
FS (mL)	105.3±45.3	128.5±49.9	0.126
Compliance(mL/cmH <sub>2</sub> O)	91.2±104.1	56.7±45.1	0.269
Pdet (cmH <sub>2</sub> O)	53.8±26.5	34.8±11.4	0.028
Qmax (mL/s)	17.0±19.8	11.0±6.7	0.214
CBC (mL)	274.2±123.0	339.9±99.9	0.102
MUCP (cmH <sub>2</sub> O)	61.0±17.7	61.75±20.7	0.915
FPL (mm)	50.2±11.8	46.4±8.6	0.283
Operation time (min)	281.0±51.0	223.1±50.2	0.003
TPV (mL)	64.8±35.9	44.3±19.7	0.077

FS: full sensation, Pdet: detrusor pressure, Qmax: maximum flow rate, CBC: cystometric bladder capacity, MUCP: maximal urethral closure pressure, FPL: functional profile length, TPV: total prostate volume

Table 2. Urodynamic parameters at baseline and postoperative time points

	Baseline	3 months after operation	6 months after operation	p-value
PVR (mL)	31.9±64.1	11.9±33.3	11.1±27.8	0.146
FS (mL)	177±48.0	122±74.7	151±84.6	0.057
Compliance	74.8±70.9	69.2±56.8	68.2±51.0	0.825
Pdet (cmH <sub>2</sub> O)	41.8±20.7	24.5±12.9	25.4±13.0	0.000
Qmax (mL/s)	14.7±14.5	11.4±5.42	11.3±5.79	0.277
Volume (mL)	282±134	278±117	296±107	0.618
CBC (mL)	314±121	289±104	307±99.0	0.323
MUCP(cmH <sub>2</sub> O)	62.6±20.0	44.2±13.8	46.4±12.0	0.000
FPL (mm)	48.7±9.90	16.3±6.68	16.8±6.41	0.000

PVR: postvoid residual, FS: full sensation, Pdet: detrusor pressure, Qmax: maximum flow rate, CBC: cystometric bladder capacity, MUCP: maximal urethral closure pressure, FPL: functional profile length

Disclosures

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