937

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CHANGES OF URODYNAMICS IN PATIENTS WITH PROSTATE CANCER WHO UNDERWENT ROBOTIC-ASSISTED RADICAL PROSTATECTOMY AND COMPARED WITH LAPAROSCOPIC RADICAL PROSTATECTOMY

Hypothesis / aims of study
This study investigated the urinary incontinence status and changes of urodynamic parameters in patients with localized prostate cancer after laparoscopic radical prostatectomy (LRP) and robotic-assisted radical prostatectomy (RaRP).

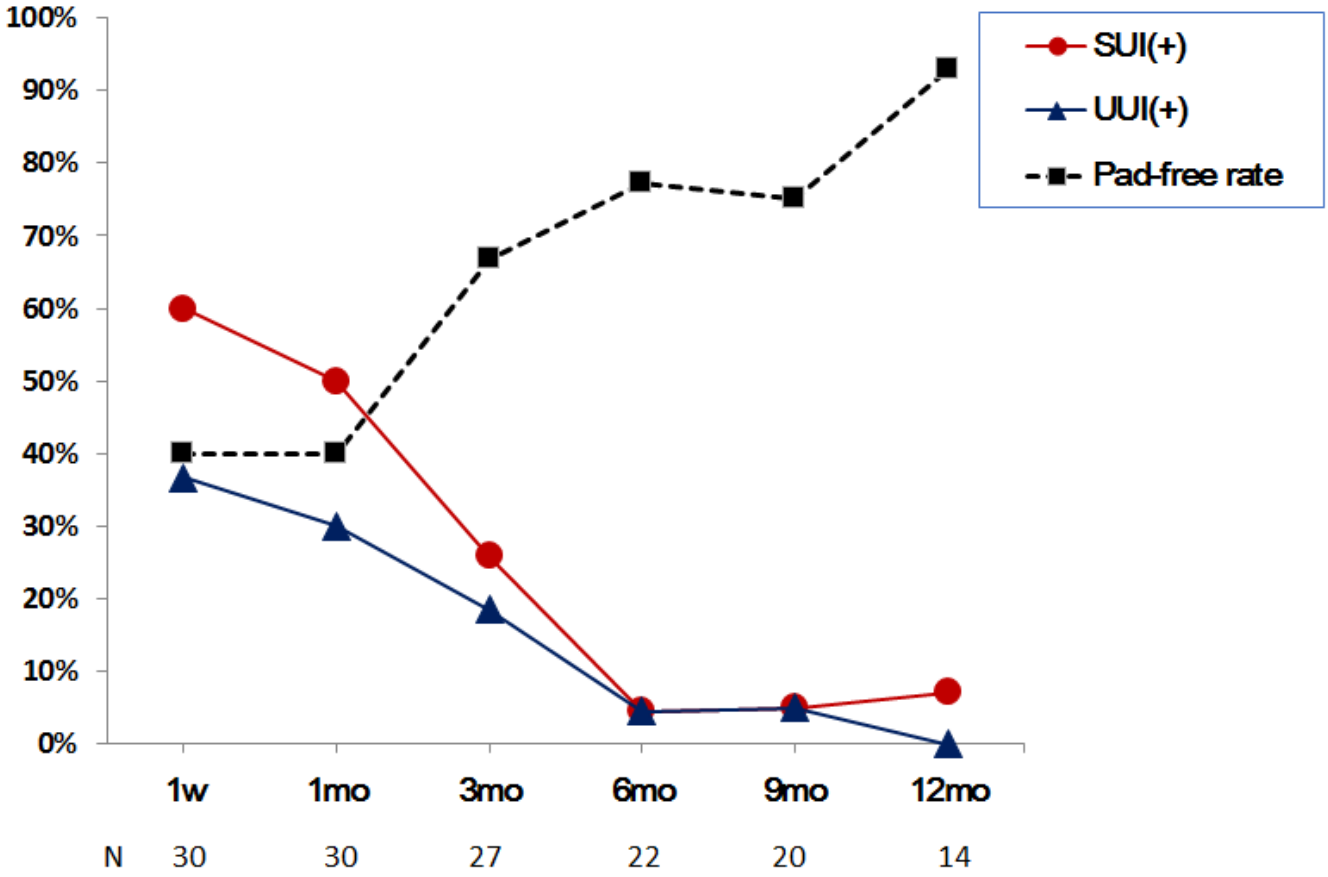
Study design, materials and methods
We enrolled 36 and 30 patients who underwent LRP and RaRP, respectively. The urinary incontinence status and videourodynamic studies (VUDS) of the LRP and RaRP groups during the first year after the operation were compared.

Results
The RaRP group was younger and had a smaller prostate volume, shorter operation time, less blood loss, and higher proportion of patients who received postoperative radiotherapy than the LRP group. Twenty RaRP and 26 LRP patients completed VUDS during the 1-year follow-up. Overall, decrease of detrusor voiding pressure (Pdet), increased maximum flow rate (Qmax), and reduced bladder outlet obstruction index (BOOI) were detected at 3, 6, and 12 months postoperatively. At 12 months, both the LRP and RaRP groups had similar significant reductions of Pdet (Table 1). However, only the RaRP group had a significant increase of Qmax and significant reduction of BOOI. Overall, 56.5% of patients (26 of 46) had detrusor overactivity (DO) before the surgery. The rates of *de novo* DO and DO remission were 15.2% and 19.6%, respectively, with no significant difference between the LRP and RaRP groups. At 6 months, the RaRP group had a significantly lower rate of stress urinary incontinence (SUI) than the LRP group (4.5% versus 47.2%, p=0.003). In the RaRP group, the greater degree of recovery of both stress and urgency urinary continence developed during the first 6 months postoperatively (Fig. 1).

Table 1. Comparison of the changes of baseline and postoperative VUDS parameters of patients receiving LRP and RaRP

VUDS parameters		LRP (N=26)	RaRP (N=20)	Total (N=46)	P-value
FSF (mL)	Baseline	113.9 ± 44.7	128.1 ± 72.8	120.0 ± 58.3	0450
	Δ at 3-6mo	9.9 ± 89.4	1.3 ± 53.0	6.1 ± 75.1	0.704
	Δ at 12mo	61.0 ± 54.0	-25.1 ± 65.89	- 6.6 ± 71.6	0.061
FS (mL)	Baseline	198.5 ± 85.2	199.2 ± 101.8	198.8 ± 91.7	0.981
	Δ at 3-6mo	-10.1 ± 105.9	2.3 ± 72.8	-4.7 ± 92.2	0.657
	Δ at 12mo	26.3 ± 94.4	-43.3 ± 104.1	-10.3 ± 103.2	0.147
Bladder compliance (mL/cmH_2O)	Baseline	69.9 ± 67.2	72.2 ± 82.8	68.1 ± 73.6	0.743
	Δ at 3-6mo	16.8 ± 101.6	-6.7 ± 117.7	6.6 ± 108.3	0.471
	Δ at 12mo	-32.9 ± 101.4	-41.6 ± 127.7	-37.5 ± 112.9	0.872
CBC (mL)	Baseline	320.5 ± 125.1	282.7 ± 140.2	304.0 ± 131.7	0.340
	Δ at 3-6mo	-24.0 ± 84.8	25.7 ± 155.3	-2.4 ± 121.7	0.172
	Δ at 12mo	-16.0 ± 119.3	55.3 ± 191.2	21.5 ± 161.0	0.350
Pdet (cmH2O)	Baseline	44.7 ± 22.4	50.6 ± 34.2	47.3 ± 28.0	0.487
	Δ at 3-6mo	-17.7 ± 23.8*	-25.8 ± 34.8*	-21.2 ± 29.0*	0.356
	Δ at 12mo	-21.6 ± 26.3*	-35.5 ± 39.3*	-25.9±33.7*	0.382
Qmax (mL/s)	Baseline	11.4 ± 6.2	10.5 ± 4.8	11.0 ± 5.6	0.587
	Δ at 3-6mo	0.0 ± 7.2	3.1 ± 8.6	1.3 ± 7.9	0.197
	Δ at 12mo	-1.8 ± 4.6	6.5 ± 3.2*	2.6 ± 5.7*	<0.001
Vol. (mL)	Baseline	278.6 ± 142.9	264.5 ± 138.4	272.5 ± 139.6	0.739
	Δ at 3-6mo	1.0 ± 104.2	15.6 ± 154.7	7.3 ± 127.2	0.703
	Δ at 12mo	-18.7 ± 116.9	67.6 ± 195.5	26.7 ± 164.7	0.266
PVR (mL)	Baseline	41.9 ± 72.3	18.2 ± 34.4	31.6 ± 60.8	0.192
	Δ at 3-6mo	-25.0 ± 70.4	10.1 ± 35.4	-9.8 ± 60.0	0.048
	Δ at 12mo	2.7 ± 12.2	-12.3 ± 38.6	-5.2 ± 29.5	0.270
BOOI	Baseline	21.9 ± 28.9	29.6 ± 39.4	25.2 ± 33.7	0.447
	Δ at 3-6mo	-17.7 ± 30.3*	-31.9 ± 44.6*	-23.9 ± 37.4*	0.207
	Δ at 12mo	-18.0 ± 30.2	-48.5 ± 43.6*	-34.1 ± 40.0*	0.097
DO	Baseline	61.5% (16)	50.0% (10)	56.5% (26)	0.328
	Δ at 3-6mo	46.2% (12)	60.0% (12)	52.2% (24)	0.454
	Δ at 12mo	46.2% (12)	60.0% (12)	52.2% (24)	0.454

Δ : change from baseline value; * : p value of the change (versus baseline) < 0.05
VUDS, videourodynamic study; LRP, laparoscopic radical prostatectomy; RaRP, robotic-assisted radical prostatectomy; FSF, first sensation of bladder filling; FS, full sensation; CBC, cystometric bladder capacity; Pdet, detrusor voiding pressure; Qmax, maximal urinary flow rate; Vol, voided volume; PVR, post-void residual volume



SUI, stress urinary incontinence; UUI, urgency urinary incontinence

Fig. 1. Urinary incontinence status of patients receiving RaRP during follow-up.

Interpretation of results

The changes of VUDS at 12 months postoperatively for radical prostatectomy included decrease of Pdet and BOOI, and increased Qmax. The recovery of the stress urinary incontinence status of RaRP group at 6 months after surgery was better than LRP group.

Concluding message

At 6 months, the RaRP group had a lower SUI rate than the LRP group. The key phase of urinary continence recovery was the first 6 months after the surgery.

Disclosures

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