

Early versus standard catheter removal after complete anatomical reconstruction during robot-assisted radical prostatectomy: results from a prospective single-institutional randomized trial (RIPRECA)

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INTRODUCTION & OBJECTIVES

To evaluate urinary retention rate, discomfort and postoperative functional outcomes of early (3rd postoperative day, POD) vs standard catheter removal (5th POD) in patients treated with robot assisted prostatectomy (RARP) for clinically localized prostate cancer (PCa)

MATERIAL AND METHODS

- **Prospective randomized trial** conducted from Sept 2016 to May 2017
- Patients candidated for RARP were randomized into two groups (Group A: 3rd POD catheter removal vs. Group B: 5th POD catheter removal).
- Exclusion criteria : previous urethral and/or prostate surgery, age > 75 yrs, positive "leakage test"
- An anatomical reconstruction was performed in all cases where both posterior and anterior layers were recreated
- **Urinary retention and urinary fistula rate** after catheter removal were recorded. **Functional outcomes** were evaluated with the following questionnaires at dismissal and 1, 3 and 6 months after surgery: ICIQ-MLUTS, IPSS, IIEF5. Postoperative discomfort was quantified according to abdominal, urethral and perineal VAS score at dismissal and 1 month after surgery. **Urinary continence** (defined as the use of 0 or 1 pad/day) was evaluated at dismissal and at 1 month.

RESULTS

- Overall 72 (49.3%) and 74 (50.7%) underwent POD 3 and POD 5 catheter removal respectively.
- **Acute urinary retention** was experienced in 2 (2.8%) and 1 (1.4%) cases in group POD 3 and POD 5 respectively (p=0.5). Only 1 event of **urinary fistula** was reported in POD 3 arm (1.4%)
- **Continence rate at dismissal** was 50% (n 36) and 44.6% (n 33) in POD 3 and POD 5 groups (p=0.5) while at 1 month was 71% (n 51) and 77% (n 57) in POD 3 and POD 5 groups (p=0.4) respectively.
- Urethral discomfort at dismissal was higher (p=0.02) in patients who underwent standard catheter removal. At 1 month uroflowmetry, median maximum flow rate was comparable between group POD 3 and POD 5 (17 vs 18 ml/s;p=0.29) while median voided volume was higher for POD 5 catheter removal arm (179 vs 234 ml; p=0.05)
- Median ICIQ MLUTS Incontinence Symptoms score at 3 months was higher in POD 3 arm (4 vs 3, p=0.03), however there was no difference between the two groups at 6 months (p=0.26)

Baseline patients characteristics			
Variables	Post-operative catheter removal		p-value
	Day 3	Day 5	
Age (Yrs) Median (Range)	63 (48-75)	64 (45-75)	0.76
BMI (Kg/m ²) Median (Range)	25 (19-33)	25.5 (20-35)	0.16
Prostate volume (mL) Median (Range)	43.5 (17-121)	44 (16-180)	0.81
Total PSA (ng/mL) Median (Range)	9 (3-27)	8 (4-24)	0.19
Clinical stage (n, %)			0.79
T1c stage	43 (60)	47 (63.5)	
T2 stage	26 (36)	25 (33.8)	
T3 stage	3 (4)	2 (2.7)	
Biopsy Gleason score ≥ 7	47 (65.3%)	51 (68.9%)	0.64
Median IPSS (Range)	6 (0-30)	8 (0-28)	0.42
Median ICIQ-VS (Range)	3 (0-17)	4.5 (0-19)	0.38
Median ICIQ-IS (Range)	2 (0-15)	2 (0-15)	0.77
Median ICIQ-BS (Range)	12 (0-93)	11 (0-64)	0.53
Median IIEF-5 (Range)	22.5 (1-30)	22 (2-30)	0.89

Intraoperative and Perioperative characteristics			
Variables	Post-operative catheter removal		p-value
	Day 3	Day 5	
Operative time (mins) Median (range)	155 (103-270)	195 (112-300)	<0.01
Blood loss (mL) Median (range)	150 (50-400)	150 (50-500)	0.174
Nerve sparing procedures (n, %)	67 (93.1)	68 (91.9)	0.70
Hospital stay, days Median (range)	4 (3-7)	6 (4-8)	<0.01
Intraoperative complications (n, %)	0	0	-
Complications 30 days after surgery (n, %)			0.69
Clavien Dindo I	6 (8.3)	3 (4.1)	
Clavien Dindo II	1 (1.4)	1 (1.4)	
Clavien Dindo III	3 (4.2)	2 (2.7)	
Acute urinary retention rate (n, %)	2 (2.8)	1 (1.4)	0.54
Urinary fistula (n, %)	1 (1.4)	0	0.30
UTI at 30 days (n,%)	3 (4.2)	2 (2.7)	0.62

Functional outcomes 3 months after surgery			
Variables	Post-operative catheter removal		p-value
	Day 3	Day 5	
Median ICIQ-MLUTS- VS (mean) [range]	0 (0.6) [0-4]	0 (1.12) [0-10]	0.38
Median ICIQ-MLUTS- IS (mean) [range]	4 (5) [0-14]	3 (3.6) [0-12]	0.03
Median ICIQ-MLUTS- BS (mean) [range]	6 (10.5) [0-103]	3 (6.2) [0-35]	0.07
Median IPSS (mean) [range]	6 (6.6) [2-17]	6 (6.2) [1-20]	0.56
Median IIEF (mean) [range]	6 (9.3) [1-27]	9 [11.6] [1-29]	0.15

Functional outcomes 6 months after surgery			
Variables	Post-operative catheter removal		p-value
	Day 3	Day 5	
Median ICIQ-MLUTS- VS (mean) [range]	0 (0.7) [0-11]	0 (0.8) [0-7]	0.18
Median ICIQ-MLUTS- IS (mean) [range]	3 (4) [0-18]	3 (3.2) [0-9]	0.26
Median ICIQ-MLUTS- BS (mean) [range]	3,5 (9) [0-93]	3 (5.4) [0-35]	0.39
Median IPSS (mean) [range]	5(5.6) [1-20]	5 (4.4) [1-14]	0.17
Median IIEF (mean) [range]	10 (10.5) [1-25]	13 (12.7) [1-29]	0.34

Functional and urodynamics findings at dismissal			
Variables	Post-operative catheter removal		p-value
	Day 3	Day 5	
Median ICIQ-MLUTS- VS (mean) [range]	4 (5) [0-20]	5 (5.6) [0-20]	0.70
Median ICIQ-MLUTS- IS (mean) [range]	5 (6.6) [0-25]	7 (7.4)[0-22]	0.20
Median ICIQ-MLUTS- BS (mean) [range]	18,5 (27.5) [0-110]	18 (27.4) [0-94]	0.74
Median VAS abdominal score (mean) [range]	0 (0.3) [0-4]	0 (0.5) [0-5]	0.30
Median VAS perineal score (mean) [range]	0 (0.23) [0-4]	0 (0.4) [0-5]	0.08
Median VAS urethral score (mean) [range]	0 (0.3) [0-3]	0 (0.7) [0-6]	0.03
Continence rate at dismissal (n, %) [PAD test ≤1 pad/day]	36 (50%)	33 (44.6 %)	0.51

Functional and urodynamics findings 1 month after surgery			
Variables	Post-operative catheter removal		p-value
	Day 3	Day 5	
Median ICIQ-MLUTS- VS (mean) [range]	0 (1.3) [0-7]	0 (1.5) [0-11]	0.8
Median ICIQ-MLUTS- IS (mean) [range]	5 (6.7) [1-24]	4 (5.3) [1-18]	0.11
Median ICIQ-MLUTS- BS (mean) [range]	8 (14.7) [1-74]	7 (12.7) [0-92]	0.61
Median VAS abdominal score (mean) [range]	0 (0.1) [0-3]	0 (0.13) [0-5]	0.7
Median VAS perineal score (mean) [range]	0 (0) [0-2]	0 (0.4) [0-7]	0.06
Median VAS urethral score (mean) [range]	0 (0.2) [0-3]	0 (0.1) [0-4]	0.6
Continence rate (n, %) [PAD test ≤1 pad/day]	51 (71%)	57 (77%)	0.39
Uroflowmetry at 30 days			
Median Qmax	17 (16.8) [5-35]	18 (18.3) [5-36]	0.29
Median Qave	12 (11) [4-22]	12 (11.8) [3-21]	0.41
Median Voided volume	179 (184) [14-467]	234 (236) [36-596]	0.05
Median post void residual	0 (3.7) [0-43]	0 (3,7) [0-45]	0.95

CONCLUSION

Early catheter removal represents a feasible and safe option in patients treated with RARP. Our findings may promote the adoption of this strategy in the routine clinical management of patients with PCa, in order to decrease hospital stay and patient discomfort