Obesity and high-risk prostate cancer as risk factors for severe urinary incontinence after robot-assisted radical prostatectomy

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Ryo Tanji, Nobuhiro Haga, Akifumi Onagi, Ruriko Honda, Seiji Hoshi, Junya Hata, Yuichi Sato, Hidenori Akaihata, Masao Kataoka, Soichiro Ogawa, Kei Ishibashi, Yoshiyuki Kojima*

Department of Urology, Fukushima Medical University School of Medicine

Aims

Robot-assisted radical prostatectomy (RARP) is enjoying widespread and expanding use for patients with prostate cancer. RARP shows better outcomes in terms of urinary continence as compared with conventional radical prostatectomy. However, some patients suffer prolonged urinary incontinence after RARP and the urinary incontinence interferes with the quality of life in the patients. The pathogenesis of post-prostatectomy incontinence has not been completely elucidated to date. We hypothesized that perioperative clinical parameters including preoperative patient status might affect the severity of postoperative incontinence.
In this study, we examined the relationships between perioperative clinical parameters and postoperative incontinence to identify risk factors for prolonged severe urinary incontinence.

Materials

Severity of urinary incontinence according to the 1-h pad test and number of pads used per day

>50 g/h in the 1-h pad test or >3 pads/day at 12 months after RARP

No	Yes
Non / slight urinary incontinence group	**Severe urinary incontinence group**
272 patients (91.0%)	**27 patients (9.0%)**
1-h pad test (g) 2.4 ± 5.1	1-h pad test (g) 65.7 ± 68.2
number of pads/day 0.5 ± 0.6	number of pads/day 2.7 ± 0.5

We assessed 299 patients who initially underwent RARP at our institute. The severity of urinary incontinence was assessed using one-hour pad test and the number of pad exchanges per day at 12 months postoperatively. We defined patients with more than 50g in 1-h pad test or more than three pads in a day as severe urinary incontinence group, and defined those without them as the slight or no urinary incontinence group.

Methods

Evaluation items

Preoperative patients status
- Age
- BMI
- PSA
- D'Amico risk classification
- Charlson Comorbidity Index (CCI)
- pT classification

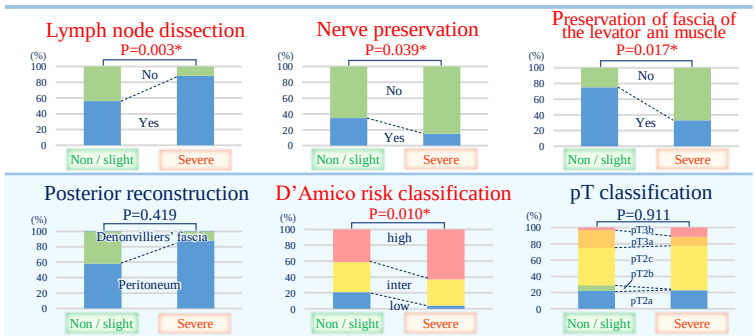
Perioperative parameters
- Operation time
- Bleeding
- Weight of prostate
- Posterior reconstruction
- Lymph node dissection
- Nerve preservation
- Preservation of fascia of the levator ani muscle

We examined the relevance of preoperative patients status and perioperative parameters.

Results (1)

The relevance of severe urinary incontinence (Univariate analysis)

	Non / slight urinary incontinence Mean±SD	(Min-Max)	Severe urinary incontinence Mean±SD	(Min-Max)	P-value
Patients (no.)	299		27		
Age (years)	66.7 ± 5.2	(52-78)	69.3 ± 3.9	(59-75)	0.011*
BMI (kg/m²)	24.1 ± 3.0	(16.8-37.2)	25.6 ± 2.3	(20.4-30.6)	0.001*
CCI	0.4 ± 0.8	(0-5)	0.7 ± 1.2	(0-5)	0.157
PSA (ng/ml)	9.46 ± 7.34	(0.02-49.64)	8.79 ± 7.05	(0.1-26.91)	0.591
Operation time (min)	218 ± 47	(124-511)	223 ± 43	(158-306)	0.487
Bleeding (ml)	269 ± 247	(0-1750)	299 ± 232	(50-820)	0.503
Weight of prostate (g)	43.6 ± 16.7	(15-130)	51.3 ± 26.6	(25-150)	0.163



Univariate analysis revealed severe urinary incontinence correlated with older age, high BMI, lymph node dissection, no preservation of nerve, no preservation of the fascia of the levator ani muscle, and being at high risk by D'Amico risk classification.

Results (2)

The relevance of severe urinary incontinence (Multivariate analysis)

	B	P-value
Age	0.01	0.284
BMI	0.733	0.009*
Lymph node dissection	-0.961	0.344
Nerve preservation	-0.438	0.279
Preservation of fascia of the levator ani muscle	-1.86	0.087
D'Amico risk classification	3.17	0.007*

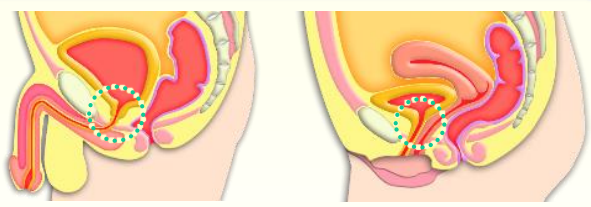
Severe urinary incontinence was significantly correlated with high BMI and being at high risk by D'Amico risk classification.

Discussion

Risk factors for prolonged severe urinary incontinence

1. High BMI

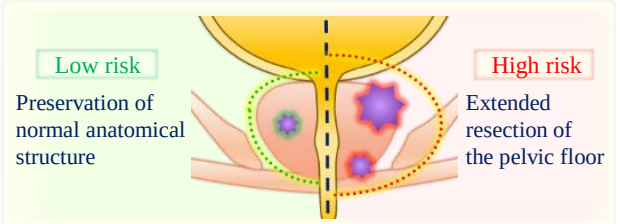
Anatomical structures of males after RARP resemble those of normal females. It is well known that excess body weight increases abdominal pressure, which in turn increases bladder pressure and urethral mobility, leading to stress urinary incontinence and exacerbation of detrusor instability and overactive bladder. Obesity increases abdominal pressure, which might cause urinary incontinence by the same mechanisms as those of female stress urinary incontinence.



Excess body weight → Increase of abdominal pressure → Urinary incontinence

2. High risk by D'Amico risk classification

It is important for urinary continence that the normal anatomical structure in the pelvis be preserved as much as possible. RARP for patients at high risk by D'Amico risk classification requires extended resection of the pelvic floor to achieve radical cure. Extended resection might cause more severe damage to the lower urinary tract, with a risk of prolonged severe urinary incontinence.



Conclusions

Obesity and extended resection of the prostate to achieve radical cure were risk factors for prolonged severe urinary incontinence after RARP in the present study. Thus, for the patients with obesity or high risk prostate cancer, sufficient informed consent that prolonged severe urinary incontinence would occur in these patients is needed preoperatively.

References

Kojima Y et al."Urinary incontinence after robot-assisted radical prostatectomy: Pathophysiology and intraoperative tequniques to improve surgical outcome" Int J Urol(20),2013,1052-1063

Ficarra V et al."Systematic review and meta-analysis of studies reporting urinary continence recovery after robot-assisted radical prostatetectomy" Eur.Urol(62),2012,405-17

COI disclosure information I have no financial relationships to disclose.