Long-term prevalence of post-prostatectomy urinary incontinence according to different definitions and its association with perioperative parameters

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Aims

This study aims to evaluate the medium to long-term prevalence of urinary incontinence in men who underwent open radical prostatectomy. We hypothesized that post-prostatectomy urinary incontinence (PPUI) prevalence was higher among patients with preoperative detrusor overactivity (DO).

Methods

Between January 2015 and December 2016, men aged ≥ 50 years, undergoing open radical prostatectomy due to localized intermediate-risk prostate cancer at a large tertiary hospital were prospectively enrolled. Preoperative assessments included validated questionnaires (IPSS and OAB-V8), lower urinary tract ultrasound and urodynamics.

Preoperative urodynamics were performed 2 weeks before open prostatectomy, in compliance with the ICS Good Urodynamic Practices (1). Bladder outlet obstruction (BOO) was defined by the formula: Detrusor pressure at maximum flow - (2x maximum flow). A value greater than 40 was regarded as BOO, less than 20 as no obstruction, and between 20 and 40 as undetermined. Detrusor underactivity was defined by the bladder contractility index (BCI), calculated by the formula: Detrusor pressure at maximum flow + (5x maximum flow). Values under 100 were regarded as detrusor underactivity.

Postoperative variables included pathological examination findings (Gleason score, presence of extra-prostatic tumor invasion, prostatic apex involvement and perineural invasion) and PSA follow-up. The self-administered questionnaires and medical evaluation of the continence status were undertaken in Jan 2018. **Continence status was classified according to two distinct definitions: (a) restrictive (no pad usage and ICIQ-SF = 0) and (b) liberal (≤ 1 pad/day).**

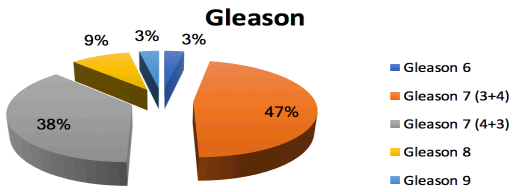
Data were expressed as mean ± standard deviation. Nominal variables were analysed using the Fisher exact test. Statistical analyses were performed using SPSS® version 22.0 for Windows (SPSS Inc., Chicago, IL, USA) and an alpha error inferior to 5% ($p<0.05$) was considered statistically significant.

Results

Thirty-two participants were prospectively included in the study, with a mean follow-up of 29,48 ± 8.44 months. Mean age was 68.34 ± 5.72 years and mean preoperative IPSS was 10.84 ± 8.05 points.

Mean preoperative PSA was 10.33 ± 9.54. Distribution of Gleason score is shown in figure 1.

Figure 1. Distribution of postoperative Gleason score in prostate cancer patients who underwent open radical prostatectomy



In regards to the pathological examination, prostatic apex involvement was found in 4 (12.5%) patients, extra-prostatic tumor invasion in 7 (21.9%), and perineural invasion in 17 (53.1%).

Table 1. Preoperative urodynamic findings of prostate cancer patients who underwent open radical prostatectomy

Urodynamic findings		N (%)
Reduced bladder sensation		
	Yes	6 (18,8)
	No	26 (81,3)
Urgency		
	Yes	10 (31,3)
	No	22 (68,8)
Reduced bladder compliance		
	Yes	9 (28,1)
	No	23 (71,9)
Detrusor overactivity		
	Yes	9 (28,1)
	No	23 (71,9)
Detrusor underactivity		
	Yes	16 (50,0)
	No	16 (50,0)
Bladder outlet obstruction		
	Yes	25 (78,1)
	No	7 (21,9)

Mean postoperative IPSS score was 4.71 ± 4.31 ($p<0.001$), mean OAB-V8 score was 3.50 ± 5.35, and mean ICIQ-SF score was 5.84 ± 6.67.
Concerning continence status, **20 (62.5%) patients were regarded as incontinent according to the restrictive definition and 7 (21.9%) according to the liberal one.**
There was no statistically significant association between postoperative continence status and pathological examination findings ($p > 0.05$).
Variables associated with post-prostatectomy urinary incontinence (restrictive definition) were age ≥ 70 years ($p = 0.04$) and preoperative DO ($p = 0.04$).

Conclusions

Our study showed that the prevalence of PPUI varies widely according to the different definitions used in clinical research. Advanced age and preoperative DO were associated with PPUI in the long run (mean follow-up = 29.48 months).
Preoperative DO and advance age were associated with PPUI in the long term.

References

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