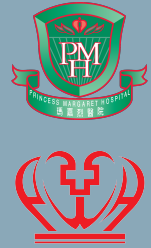


Road to Tredit: A territory-wide study on the predictors of 30-day complications in transrectal versus transperineal prostate biopsy

Chan Chun Ki¹, Chi-Ho Leung², Ying-Zhi Liu³, Lowell Ling³, Ka-Lun Lo⁴, Wai-Kit Ma¹, Kai-Man Li⁴, Chi-Hang Yee², Peter Ka-Fung Chiu², Chi-Fai Ng², Jeremy Yuen-Chun Teoh²

1. Department of Surgery, Princess Margaret Hospital, Hong Kong, China.
2. S.H. Ho Urology Centre, Department of Surgery, Prince of Wales Hospital, Chinese University of Hong Kong, Hong Kong, China.
3. Department of Anaesthesia and Intensive Care, Prince of Wales Hospital, Chinese University of Hong Kong, Hong Kong, China.
4. Department of Surgery, North District Hospital, Hong Kong, China.



Introduction

We aimed to conduct a territory-wide study to investigate the complication rates of transrectal (TR) versus transperineal (TP) prostate biopsy, and the predictors of complications.

Methods

All prostate biopsies performed from Jan 2016 to Dec 2019 were extracted from a territory-wide electronic patient record (ePR) system. Baseline data (including age, diabetes, PSA level), biopsy details, and complications (including 30-day complications requiring hospital attendance such as culture-proven urinary tract infection (UTI), bleeding, and blood culture proven septicemia) were recorded. Multivariable logistic regression analyses were performed using SPSS version 26.0 and significance level was set at $p < 0.05$.

Results

The cohort included 10919 patients. Baseline characteristics showed higher baseline PSA level and higher proportion of diabetes in the TP group ($p < 0.05$) (Table 1).

Overall complication rates were similar (Table 2). TP approach was found to be a significant protector for per rectal bleeding ($p = 0.015$), septicemia (OR 0.19, 95% CI 0.06-0.62, $p = 0.006$) and UTI (OR 0.5, 95% CI 0.30-0.86, $p = 0.012$). On the other hand, TP (OR 1.63, 95% CI 1.16-2.29, $p = 0.004$) and prior use of alpha blocker (OR 2.73, 95% CI 2.16-3.44, $p < 0.001$) were significant risk factors for acute urinary retention.

Table 2. 30-day complication rate in TR and TP group and multivariable logistic regression analyses

Outcome	TR (n = 9918)	TP (n = 1001)	Adjusted OR (95% CI) ^a	p ^a
Per rectal bleeding	58 (0.6)	0	–	<u>0.015</u> ^b
Acute urinary retention	317 (3.2)	53 (5.3)	1.63 (1.16 - 2.29)	<u>0.004</u>
Hematuria	181 (1.8)	23 (2.3)	1.42 (0.89 - 2.26)	0.136
Septicemia	149 (1.5)	3 (0.3)	0.19 (0.06 - 0.62)	<u>0.006</u>
UTI	323 (3.3)	17 (1.7)	0.50 (0.30 - 0.86)	<u>0.012</u>
Any complication	825 (8.3)	81 (8.1)	0.94 (0.72 - 1.23)	0.666

^a Adjusted by age, PSA, diabetes, use of alpha blocker, use of antiplatelet/anticoagulant, use of anti-muscarinics and fusion biopsy

^b Pearson's chi-square test

Table 1. Baseline characteristics

	TR (n = 9918)	TP (n = 1001)	p ^a
Age	67.9 ± 7.1	67.9 ± 6.6	0.745
PSA	54.8 ± 373.8	67.2 ± 402.6	<0.001
Diabetes	1067 (10.8)	129 (12.9)	0.040
Use of alpha blocker	1869 (18.8)	196 (19.6)	0.571
Use of antiplatelet/anticoagulant	571 (5.8)	64 (6.4)	0.412
Use of anti-muscarinics	83 (0.8)	4 (0.4)	0.138
Fusion biopsy	60 (0.6)	174 (17.4)	<0.001

^a Mann-Whitney U test or Pearson's chi-square test

Conclusion

Transperineal approach could reduce post-biopsy UTI and sepsis. On the other hand, the procedure carries a higher rate of acute urinary retention, especially in patient with pre-existing benign prostatic obstruction requiring alpha-blockers.