Asian Journal of Andrology (2016) 18, 496–497

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LETTER TO THE EDITOR

Prostate isease

Can radical prostatectomy shortly after prostate biopsy affect intra-operative and postoperative outcomes?

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Asian Journal of Andrology (2016) **18**, 496–497; doi: 10.4103/1008-682X.165949; published online: 27 October 2015

Dear Editor,

We retrospectively evaluated the patients who underwent radical prostatectomy (RP) for prostate cancer (PCa) if the interval between PB and RP had any impact on immediate outcomes after surgery treatment.

The study population comprised 473 patients with localized or locally advanced PCa (clinical stage T1c to T3c) diagnosed via a transrectal ultrasound-guided prostate biopsy (TPB) conducted by three urologists. The patients who underwent RP (109 with laparoscopic technique and 364 with open technique) from March 2007 to April 2013 at our Department of Urology were reviewed. All RP procedures were performed by three experienced surgeons. TPB was performed with the patient in the left lateral decubitus using a General Electric Logiq 7 machine (GE Healthcare, Milwaukee, WI, USA) equipped with a 5–9 MHz multi-frequency convex probe "end-fire." After having image the prostate, sampling was carried out with an 18-gauge Tru-Cut (Bard Biopsy Systems, Tempe, AZ, USA) needle powered by an automatic spring-loaded biopsy disposable gun. The patients were divided into three groups according to the time interval between biopsy and RP, Group 1 (G1): ≤4 weeks, Group 2 (G2): >4 weeks and ≤6 weeks, and Group 3 (G3): >6 weeks. We excluded patients who received neoadjuvant androgen ablation therapy and/or radiotherapy before RP, diagnosis at the time of surgery for benign prostatic hyperplasia such as transurethral resection of the prostate, and fewer than six biopsy cores at diagnosis. Demographic and clinicopathologic variables (patient's age, body mass index [BMI], prostate-specific antigen [PSA] level at the time of diagnosis, prostate volume [PV], and biopsy Gleason score) were recorded and compared these variables between three groups. Using a series of univariate and multivariate logistic regression analysis, it was evaluated whether the interval between biopsy and RP was a significant independent predictor of operative duration (OD), estimated blood loss (EBL), positive surgical margin (PSM), hospital stay (HS), and urinary continence (UC) after RP. Multivariate logistic and linear regression models were performed to examine the effect of the interval between biopsy and RP on OD, EBL, PSM, HS, and UC. Demographic and clinicopathologic variables were analyzed using a Fisher's exact test and Chi-square analysis to determine statistical differences between the three groups. All statistical analyses were conducted on Microsoft Excel 2010 platform version 10.1. $P<0.05$ was considered statistically significant.

A total of 116 patients (24.5%) were in G1, 179 (37.9%) in G2, and 178 (37.6%) in G3. The mean ± standard deviation age of enrolled patients was 63.2 ± 6.8 years, with a PV of 34.4 ± 11.7 ml, initial PSA of 10.8 ± 9.7 ng ml^{-1}, and BMI of 27.8 ± 4.3 kg m^{-2}. The number of biopsy cores was 10.4 ± 3.0. No significant difference was noted between the three groups when comparing age, preoperative PSA level, prostate volume, BMI, biopsy number, clinical stage, and Gleason grade. On univariate analysis, the mean OD time (223.4 ± 78.5 min) was longer ($P < 0.002$) and EBL (652.11 ± 321.07 ml) was greater ($P < 0.001$) in G2 (**Table 1**). The mean core number <10 (*n*: 68) was 7.6 (range: 7–9) and the mean core number >10 (*n*: 405) was 13.8 (range: 10–24). In cases of extended biopsy (more than 10 cores obtained), operative time was longer (232.4 min *vs* 214.9 min), but no clinical significance was showed on multivariate analysis. An increasing EBL was associated with an elevated BMI in all groups ($P < 0.001$). Longer OD times were associated with an elevated BMI ($P < 0.001$) and Gleason grade ($P = 0.003$). Also, positive surgical margins were associated with pathologic stage ($P = 0.006$), PSA level ($P < 0.002$), Gleason grade ($P = 0.003$), and extracapsular extension ($P < 0.002$). Finally, urinary continence was associated with patient age ($P = 0.001$). Both univariate and multivariate analyses, however, failed to show that the interval from biopsy to surgery had any significant relations with PSM, HS, and postoperative urinary continence. There were no statistically significant differences in terms of complication rate between three groups ($P = 0.325$). Fifty patients (10.5%) developed complications, including pelvic hematoma in 4.9% (23/473), transfer to intensive care for cardiac and respiratory monitoring in 2.3% (11/473), and lymphocele formation in 3.4% (16/473). No patient died.

Prostate cancer is a major cause of morbidity among men worldwide. It is generally considered a relatively slow-growing malignancy.[1] The delay for pretreatment diagnostics or psychological reasons between diagnosis and active therapy of PCa is often common.[2] The prostate biopsy is the most common used procedure to detect PCa. During the last decade, the number of needle biopsy cores taken has increased, as have biopsies in younger patients and repeated biopsies.[3] Traditionally, urologists recommend an interval of >4–6 weeks after transrectal prostate biopsy before RP, to allow time

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Received: 29 March 2015; Revised: 24 April 2015;
Accepted: 06 September 2015

Table 1: Demographic, clinicopathologic features and perioperative outcomes of patients undergoing radical prostatectomy

Variables	*Group 1 (≤4 weeks) (n=116)*	*Group 2 (>4 and ≤6 weeks) (n=179)*	*Group 3 (>6 weeks) (n=178)*	*P*
Age (year), mean±s.d.[a]	63.1±7.3	64.2±6.1	65.3±7.4	NS[c]
BMI (kg m^{-2}), mean±s.d.[a]	26.7±4.6	27.2±3.9	27.5±4.1	NS[c]
Prostate volume (ml), mean±s.d.[a]	36.4±12.7	35.9±11.3	34.8±12.1	NS[c]
PSA[b] level (ng ml^{-1}), mean±s.d.[a]	10.3±8.7	11.6±9.1	11.1±8.3	NS[c]
N° biopsy cores, mean±s.d.[a]	12.6±2.8	11.9±2.4	12.2±2.5	NS[c]
Clinical stage, *n* (%)				NS[c]
T1	38 (32.7)	57 (31.9)	63 (35.4)	
T2 or T3	78 (67.3)	122 (68.1)	115 (64.6)	
Biopsy Gleason score, *n* (%)				NS[c]
≤6	47 (40.5)	68 (38)	71 (39.9)	
≥7	69 (59.5)	111 (62)	107 (60.1)	
Operative duration (min), mean±s.d.[a]	205.4±61.3	223.4±78.5	202.9±65.1	<0.002
Estimated blood loss (ml), mean±s.d.[a]	573.64±261.18	652.11±321.07	562.53±273.32	<0.001
Positive surgical margin, *n* (%)	39 (33.6)	63 (35.2)	57 (32)	NS[c]
Hospital stay (days), mean	9.2	8.9	8.8	NS[c]
Continent at 1 year, *n* (%)				NS[c]
Yes	84 (72.4)	131 (73.2)	129 (72.5)	
No	32 (27.6)	48 (26.8)	49 (27.5)	

[a]s.d.: standard deviation; [b]PSA: prostate-specific antigen; [c]NS: not significant; BMI: body mass index

for resolution of biopsy-induced inflammation that might eliminate the surgical planes of dissection.[4,5] In the study of Ikonen *et al.*,[6] assessing endorectal magnetic resonance imaging after prostate biopsy, 77% of the patients had visible hemorrhage after biopsy. The effects diminish after 21 days, with an obvious decrease in the amount of blood by 28 days. A fair number of studies have been carried out on surgical outcomes compared according to the interval from prostate biopsy to surgery.[7–9] Lee *et al.*[5] showed, on a series of 169 patients, no significant correlation in perioperative outcomes and complications with the interval after biopsy. However, they noted a statistically significant association between prostate biopsy and RP in terms of intraoperative blood loss. Eggener *et al.*[4] reported that a shorter interval between prostate biopsy and RP did not adversely affect surgical outcome. Similar to these studies, our data suggest that the interval from biopsy to surgery had no significant correlations with OD, EBL, PSM, and urinary continence (P = 0.527). Similarly, extension of biopsy core number to 14 cores did not influence the short-term result of RP. However, in this study, long-term postoperative outcomes such as the rates of biochemical recurrence and overall survival were excluded. In this respect, further studies are recommended with a prospective experimental design and in a larger subject group, particularly in terms of functional and biological recurrence.

AUTHOR CONTRIBUTIONS

LD carried out the preliminary analysis, drafted the manuscript. GC performed statistics analysis. SP participated in its design and coordination, and CI was the main surgeon of this study, participated in patients enrolls. All authors read and approved the final manuscript.

COMPETING INTERESTS

All authors declared no competing interests.

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