

ตีพิมพ์ต้นฉบับ



Randomized Prospective Study Periprostatic Local Anesthesia During Transrectal Ultrasound Guided Prostate Biopsy at Siriraj Hospital.

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Abstract

Purpose: To prospectively evaluate efficacy of periprostatic Lidocaine injection as anesthesia during transrectal ultrasound-guided prostate biopsy compared to the conventional method.

Methods: A prospective study in 100 patients underwent TRUS-guided prostate biopsy was conducted. Patients were randomized into 2 groups: group 1 (56 patients), who received 10 ml of 1% Lidocaine at periprostatic region; group 2 (44 patients), control patients, who did not have any anesthesia. After the procedure, pain score was assessed using a visual analog pain scale 0-5.

Results: Both groups were not significant difference at, age, number to rebiopsy, PSA level, pathological finding and complication rate. There was a significant difference in pain score between the two groups (group 1 = 2.41, group 2 = 3.02 ($p=0.006$)).

Conclusions: Periprostatic local anesthesia (bilateral periseminal infiltrations) significantly decreases pain associated with TRUS-guided prostate biopsy, we recommend this procedure be routinely offered to patients undergoing TRUS-guided prostate biopsy.

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Transrectal ultrasound -guided prostate biopsy is the procedure of choice for diagnosis prostate cancer, however many urologists do not provide any analgesia for biopsy and patients feel suffer and pain due to biopsy[1]. Many analgesic techniques did decrease pain from biopsy; periprostatic nerve blocks with local anesthesia in the intervention, easily, minimize morbidity. Although there have been several researches for periprostatic nerve block with local anesthesia but small size data and several researches has not been studied in Asia, which different at race and tradition. Several studies significant demonstrate to reduce pain when local anesthesia block at bilateral periseminal vesicles and apex was used. Our aim was to study in Thailand, randomizing to compare local periprostatic nerve block (only bilateral periseminal vesicles) without apex injection (the conventional procedure) to without local nerve block.

Materials and methods:

One hundred consecutive men suspicious of the prostate cancer were enrolled. All patients were provided of informed consents. We studied at Siriraj Hospital during 1 January 2007 - 31 November 2007.

Primary outcome studies relative pain score between injection of 1% Lidocaine and non-injection of 1% Lidocaine at TRUS -guided prostate biopsy using visual analog scale (VAS).

Secondary outcome studies: complication of TRUS -guided prostate biopsy such as hematuria, acute urinary retention, and post TRUS-guided prostate biopsy sepsis; pathological finding and intervention for prostate cancer.

- Inclusion criteria
 1. Abnormal DRE. And/or
 2. PSA >4 ng/ml
- Exclusion criteria
 1. Active UTI such as acute prostatitis
 2. Active anal and rectal condition hemor-

rhoids, anal fissure

3. Drug allergy Lidocaine, antibiotic

4. Users of drug effecting coagulation, stop aspirin when taking 7 day

All patients received

Arcoxia 120 mg oral preoperation,

Ciprofloxacin 500 mg 1x2 oral and Metronidazole 400 mg 1x3 oral 1-day preoperation and follow postoperation 6 day, Gentamicin 80 mg im,

SSE. Preoperation

Patients were randomized by coil into injected 1% Lidocaine and not injected 1% Lidocaine.

Group 1 (periprostatic local anesthesia) local anesthesia was performed with 1% Lidocaine without epinephrine through a 22-gauge spinal needle guide, 5 ml into each side, injected at 2 periprostatic. An '*ultrasonographic wheal*' was created at only bilateral periseminal vesicles at figure 1.

TRUS-guide, using automatic 18 -G needle and TRUS using the 7 MHz

Group 2 (conventional biopsy), prostate biopsy without 1% Lidocaine injected.

All biopsies were performed in the Urological Division by one of authors. 20 cores (10 cores at left, 10 cores at right) biopsy was performed with 18-G needle.

Pain was evaluated by visual analog scale post biopsy, grading scale from 0-5 at figure. 2.

Statistical analysis

Statistical analysis was evaluated [Independent t-test, with 95% of confidence interval ($p < 0.05$)].

Result

Total 100 men were enrolled in the study, 56 men randomized into group 1 and 44 men into group 2.

The two groups were similar with respect to age, PSA, pathological finding, complication. (Table 1)

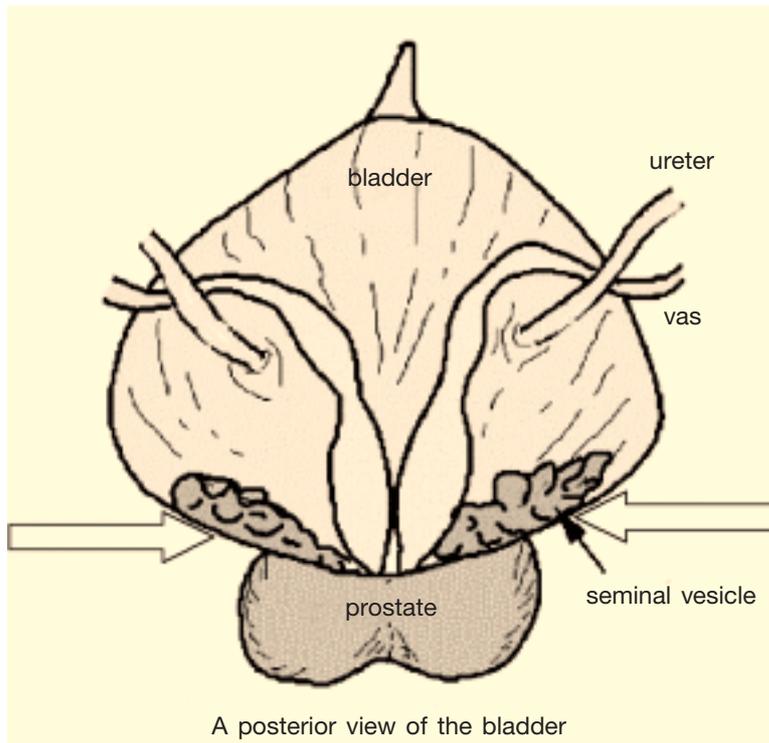


Figure 1 Periseminal vesicles injection at arrow. The 2 injections point at 1% Lidocaine 5 ml.

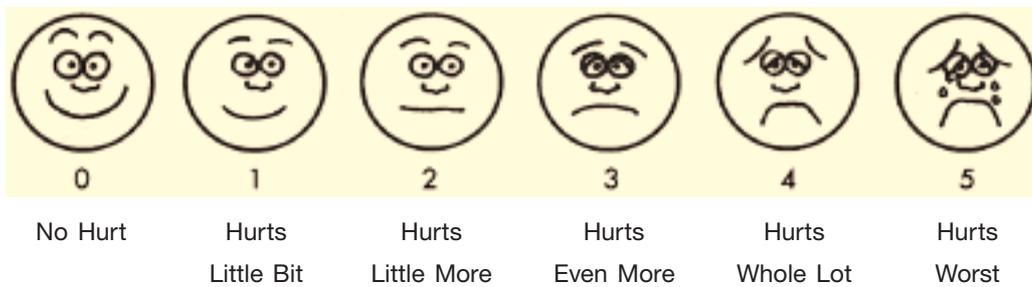


Figure 2 Visual analog scale from 0-5.

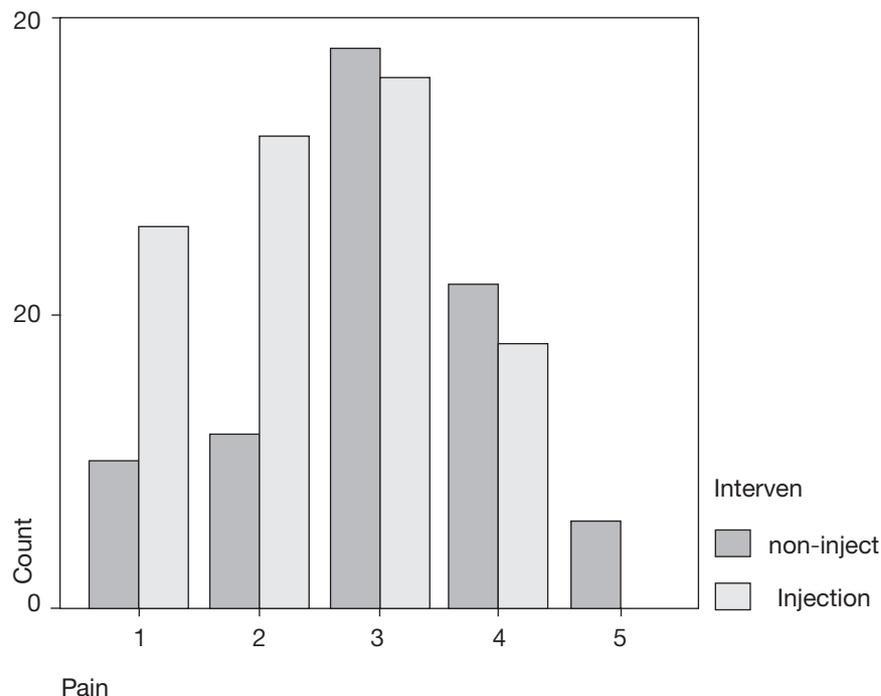
Table 1 Mean and standard deviation of the groups according to age.

	Group 1	Group 2	P value
Patient (s)	56	44	
Age (yr)	67.11 ± 7.04	67.66 ± 10.25	0.75
Mean ± SD	12.26 ± 25.04	11.32 ± 15.86	0.82
PSA (ng/ml)			
Mean ± SD	10 / 17.90%	12 / 27.30%	0.25
Adenocarcinoma of prostate (n/%)			

Table 2 Number of patients that presented complications when compared in two groups.

Complication (N/%)	Group 1 (N=56)	Group 2 (N=44)	Total (N=100)
Hematuria	2 / 3.57%	5 / 11.36%	7 / 7%
Prostatitis	-	1 / 2.27%	1 / 1%
AUR	1* / 1.78%	-	1 / 1%
Orchitis	1* / 1.78%	-	1 / 1%
Syncope	1 * 1.78%	-	1 / 1%
All complication	5 / 8.92%	6 / 13.63%	11 / 11%

* One patient had combined AUR and acute epididymo-orchitis.

**Figure 3** Distribution of patients according to pain score of 20-core biopsy in 56 patients who received periprostatic xylocain and 46 patients control group, pain was used the VAS from 0-5.

It was shown that the mean pain score was 2.41 in-group 1. A greater difference was seen in-group 2 (mean 3.02). (in table 3)

The pain level was significantly lower in-group 1 than in-group 2. The pain level significantly increased while performing at conventional biopsy in the control group, but to lesser extent in patients receiving periprostatic local (bilateral periseminal vesicles anesthesia).

The statistically significant differences were found in the VAS for the biopsy procedure ($p < 0.01$) between the two groups.

All patients were diagnosed as having carcinoma of prostate by pathological finding. Total carcinomas of prostate were adenoma carcinoma type. Further management after were diagnosed carcinoma of prostate, at table 4.

Table 3 Pain differences between group who received 10 ml of 1% Lidocaine and who did not received 10 ml of 1% Lidocaine.

Pain	Group 1 (N=56)		Group 2 (N=44)		t	p-value
	Mean	SD	Mean	SD		
Pain score	2.41	1.02	3.02	1.07	2.91**	0.004

** $P < 0.01$

Table 4 The further procedure after pathological finding were carcinoma of prostate.

Procedure	Patients (n)
RALRP	10
ELRP	7
ADT	4
Surgical castration	1

RALRP - Robotic assist laparoscopic radical prostatectomy

ELRP - Extra peritoneum laparoscopic radical prostatectomy

ADT - Androgen deprivation therapy

Discussion

We prospectively evaluate the efficacy of local periprostatic anesthesia to reduce pain during Transrectal ultrasound -guided prostate biopsy. At conventional Transrectal ultrasound -guided prostate biopsy, several studies show significant pain during procedure. Collins et al[2] and Clement et al[3] have shown significant discomfort and pain, reported by 65% and 90% of patients, respectively. Irani et al[4] reported that 19% of patients would not agree to undergo a repeat biopsy without some form of anesthesia.

Crundwell et al[5] reported that 26 (24%) of 108 patients complained of moderate or severe pain during the procedure, and 20 (19%) patients had maintained the symptoms for a week. Peyromaure et al[6] reported that only 51 (18.6%) patients submitted to prostate biopsy with 10 cores that related no

pain or discomfort. An alternative choice for reduce pain during Transrectal ultrasound-guided prostate biopsy such as local anesthesia at periprostatic capsule transrectum, local by xylocain jelly are reported[7]. Several studies had interested at local anesthesia by xylocain injected periprostatic capsule for reduce pain. M.tobias machado et al[8] reported that 40 randomized patients divided into 2-Groups: Group-1 periprostatic local anesthesia by 2.5 ml of 1% Lidocaine injected at bilateral periseminal vesicle and bilateral apical region, group-2 conventional biopsy. Result had significantly shown to reduced pain, $p < 0.01$. Issac Kaver et al[9], Jeffrey et al[10] and Lori Hergan et al[11] have shown that periprostatic block with local anesthesia can reduce pain using prostate biopsy. Knowledge in prostatic innervations used for local anesthesia, most of ventral afferent innervation is commanded by T12-L2[12] and sacral center S2-4 Autonomic fiber of pelvic plexus reaches the prostate through their anterior branch, contributing to 2 neurovascular bundles 2-3 cm. distal to junction of the bladder and prostate. Cavernous nerve arises between prostatic capsule and endopelvic fascia outer Denonvilliers' fascia, with localized in lateral neurovascular groove. Capsular nerve emerges mainly of 2 segments: the first is localized on anterior aspect of seminal vesicle and transversally cross the gland in caudal direction; the second arises in posteriolateral edge directing to posterior aspect and apex posterior aspect and apex.

Several studies had recommended routinely use of periprostatic block with local anesthesia for

Transrectal ultrasound - guided prostate biopsy, but it had controversial at site of local anesthesia such as (bilateral periseminal vesicle and apex), concentration of Lidocaine.

Our study had question for study?

1. Minimal trial studied in Asia, outcome may be different from Europe and America due to race, tradition, pain tolerance

2. Is periprostatic block by local anesthesia with only bilateral periseminal vesicle possible to improve pain tolerance?

Our study shows only bilateral periseminal vesicle (not injected at apex) local anesthesia block effectively to reduce pain during Transrectal ultrasound-guided prostate biopsy. Systematic biopsy procedure should include a minimal 8-13 cores.[13] Our study of 20 cores biopsy is effective for finding prostate cancer but may be increasing pain discomfort during procedure, infection and other complication post biopsy, but it shows, only bilateral perise-

minimal vesicles local anesthesia to be effective to reduce pain. Post biopsy urosepsis has been found only one case (1%). In the present study only one case (control group) without 1% Lidocaine injection did admitted due to clinical SIRS after biopsy on day three, receiving antibiotic intravenous during admitting. Other complication was not significantly different between both groups. Doses of Lidocaine injection are controversial for local anesthesia periprostatic block; our study with injection of 1% Lidocaine, 5 ml each side are effective for reduce pain (maximum dose 4.5 mg/kg).

Conclusion

Bilateral periseminal vesicles as local anesthesia being significant to reduce pain at Transrectal ultrasound -guided prostate biopsy, do not increase complication. It is recommended for routine usage in Transrectal ultrasound-guided prostate biopsy, especially those with numerous cores biopsy.

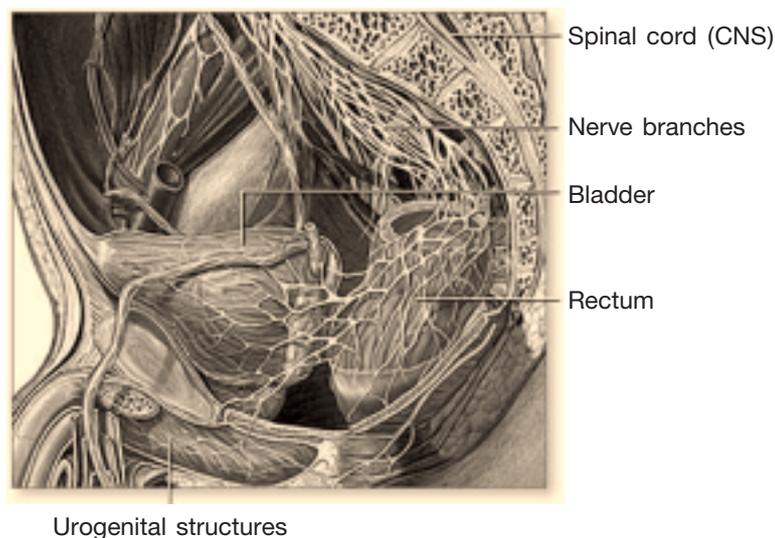


Figure 4 The pelvic plexus provides visceral branches that innervate the bladder, ureter, seminal vesicles, prostate, and rectum.

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