

## THE EFFECTS OF COMBINATION OF PERIANAL-INTRARECTAL LIDOCAINE-PRILOCAINE CREAM AND PERIPROSTATIC NERVE BLOCK FOR PAIN CONTROL DURING TRANSRECTAL ULTRASOUND GUIDED BIOPSY OF THE PROSTATE: A RANDOMIZED, CONTROLLED TRIAL

### Hypothesis / aims of study

Transrectal ultrasound guided prostate biopsy (TRUS-Bx) is painful method of prostate cancer detection. About 65% to 90% of patient reported have discomfort and and 20% of them experienced severe pain (1). If the proper pain-alleviating method is applied, it can support the compliance of the patients, and make it easier to get a patient agreement if re-biopsy is needed. Pain during TRUS-Bx has a 2-fold source, originating from the insertion and permanence of the TRUS probe in the rectum, which is innervated below the dentate line by the inferior rectal branches of the pudendal nerve, and from multiple needle punctures through the prostate capsule, which is innervated by autonomic branches of the neurovascular bundles running between the posterolateral aspect of the prostate and rectum (2). Peri-prostatic nerve block (PPNB) is gold standard for pain control during TRUS-Bx (3). However, this manner only is not enough to control the pain which arises when the transducer goes through anus. We tested the efficacy and safety of combination of perianal-intra-rectal lidocaine-prilocaine cream with periprostatic nerve block during prostate needle biopsy.

### Study design, materials and methods

From October 2007 to August 2009, we conducted prospective randomized-controlled study. Patients who satisfied certain criteria were enrolled in this study, including patients with increased PSA with or without abnormal digital rectal examination and those with lesion suspected malignancy on TRUS with or without abnormal digital rectal examination. Exclusion criteria were as follows: history of previous prostate biopsy, chronic prostatitis, anal diseases such as anal fissure, hemorrhoid, anal surgical history, chronic prostatitis/pelvic pain syndrome, concomitant analgesic medication, any other medical condition interfering with pain assessment, a history of warfarin treatment or bleeding tendency and impaired intellectual ability. A total of 74 men were randomized by a computer generated schedule into two groups. In group 1 (n = 36), patients received combination of perianal-intra-rectal lidocaine-prilocaine cream with periprostatic nerve block, and group 2 (n = 38), they received lubricant jelly and periprostatic nerve block. After 30 minute with the left lateral decubitus position, TRUS-Bx was performed and 12 systematic prostatic cores, including 6 parasagittal and 6 laterally targeted biopsies covering the base, mid zones and apexes, were obtained using an 18 gauge spring loaded biopsy gun. Pain is evaluated with a 10-point visual analog scale (VAS) at three hours after the biopsy. All the patients were discharged after checking if they had complications such as gross hematuria, rectal bleeding, voiding difficulty and fever. A week later, they were followed up to see the result of the biopsy and other side effects. The primary outcome was the pain score on VAS 3-hours after the biopsy.

### Results

Mean patient age, serum PSA, total prostate volume were similar between the two groups (Table 1). 26 patients (35%) were diagnosed with prostate cancer; 13 patients belonged to the group 1 (36%), 13 to the group 2 (34%), which was no significantly different between two groups. The mean VAS score in group 1 was significantly lower than that in group 2 (2.2 vs. 3.0; p=0.001). Also there was a significant difference in the percentage of the patients who marked 3 or more on VAS (44% in the group 1 vs. 65% in the group 2).

There was no general or local adverse effect associated with the anesthetics. There were only minor complications such as mild gross hematuria, mild hematochezia and hemospermia.

Mild gross hematuria occurred in 33 patients, mild hematochezia in 3, and acute urinary retention in 1. All patients recovered with conservative management and no patient needed hospitalization due to complications. There was no difference in complication rates between two groups.

### Interpretation of results

Pains during prostate needle biopsy are usually responsible for two main factors: anal discomfort due to the ultrasound probe and pain due to insertion of needles through the prostate gland (2). PPNB is effective when biopsy needle pierces the rectal wall, but when ultrasound probe penetrated the rectum-related pain is not sufficient. Lidocaine-prilocaine cream can reduce the pain as ultrasound probe penetrate the anus and rectum. Our results suggested that combination of intra-rectal lidocaine-prilocaine cream with PPNB was more effective in pain control during TRUS-Bx than PPNB only.

### Concluding message

A combination of perianal-intra-rectal lidocaine-prilocaine cream and periprostatic nerve block is an effective and useful technique that is well tolerated by the patient with minimal complications. This safe, simple technique can be considered before prostate needle biopsy to reduce patient discomfort

Table 1. Comparisons of baseline characteristics and VAS between two groups

| Mean±SD           | Cream + PPNB | PPNB only   | p value |
|-------------------|--------------|-------------|---------|
| Number of patient | 36           | 38.         |         |
| Age (yr)          | 65.4(±7.3)   | 64.1(±11.1) | 0.569   |

|                       |             |             |       |
|-----------------------|-------------|-------------|-------|
| PSA (ng/ml)           | 16.3(±28.2) | 10.6(±12.8) | 0.261 |
| Median (Range)        |             |             |       |
| Prostate volume (ml)  | 32.4(±13.1) | 33.6(±16.0) | 0.723 |
| VAS                   | 2.22(±0.89) | 3.02(±1.15) | 0.001 |
| Complication rate (%) | 50          | 53          | 0.45  |

#### References

1. Collins GN, Lloyd SN, Hehir M, McKelvie GB. Multiple transrectal ultrasound-guided prostatic biopsies--true morbidity and patient acceptance. Br J Urol 1993;71:460-3
2. Jones JS, Ulchaker JC, Nelson D, Kursh ED, Kitay R, Angie S, Horvat M, Klein EA, Zippe CD. Periprostatic local anesthesia eliminates pain of office-based transrectal prostate biopsy. Prostate Cancer Prostatic Dis 2003;6:53-5
3. Pareek G, Armenakas NA, Fracchia JA. Periprostatic nerve blockade for transrectal ultrasound guided biopsy of the prostate: a randomized, double-blind, placebo controlled study. J Urol 2001;166:894-7

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| <b>Is this a clinical trial?</b>                                      | <b>Yes</b>  |
| <b>Is this study registered in a public clinical trials registry?</b> | <b>No</b>   |
| <b>Is this a Randomised Controlled Trial (RCT)?</b>                   | <b>Yes</b>  |
| <b>What were the subjects in the study?</b>                           | <b>HUMAN</b>  |
| <b>Was this study approved by an ethics committee?</b>                | <b>Yes</b>  |
| <b>Specify Name of Ethics Committee</b>                               | <b>Institutional Review Board Dongguk University Hospital</b> |
| <b>Was the Declaration of Helsinki followed?</b>                      | <b>Yes</b>  |
| <b>Was informed consent obtained from the patients?</b>               | <b>Yes</b>  |