

## ORIGINAL ARTICLE

### Efficacy of different local anaesthesia techniques during TRUS-guided biopsies: A comparative study

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#### ABSTRACT:

**Background:** TRUS-guided prostate biopsy has been preferred as a standard prostate cancer diagnostic method. At least two local anesthesia techniques are currently available during transrectal ultrasound (TRUS)-guided biopsy: local anesthesia with 2% lidocaine gel and periprostatic nerve block. Hence; the present study was undertaken for comparing the efficacy of different local anesthesia techniques during TRUS-guided biopsies. **Materials & Methods:** A total of 90 patients who were referred for TRUS-guided biopsy for the first time were enrolled in this study. Pains scores were assessed on the grade of 0 to 5 with 0 indicating no pain and 5 indicating unbearable intolerable pain. All the patients were randomized into three study groups: Lidocaine gel: patients in which Lidocaine gel was used topically, Peri-anal block group: Patients in which peri-anal block was used, and Peri-prostatic block Group: Patients in which peri-prostatic block was given. **Results:** Mean pain score among the patients of Lidocaine gel group, Peri-anal block group, and Peri-prostatic block group was 3.96, 1.85 and 1.72 respectively. Significant results were obtained while comparing the mean score in between Lidocaine gel group and Peri-anal block group and in between Lidocaine gel group and Peri-prostatic block group. However; while comparing the mean pain score in between Peri-anal block group and Peri-prostatic group, non-significant results were obtained. **Conclusion:** Lidocaine gel is associated with little anaesthetic advantage to patients. Peri-prostatic nerve block and Peri-anal decreased pain significantly.

**Key words:** Transrectal ultrasound, Biopsy, Lidocaine

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#### INTRODUCTION

TRUS-guided prostate biopsy has been preferred as a standard prostate cancer diagnostic method since it was introduced in 1937. It is an easy, quick, and less painful procedure, particularly with the development of improved equipment and technology refinements related to biopsy.<sup>1-3</sup> However, because TRUS-guided prostate biopsy obtains tissues through the rectum, potential risks including infectious complications, such as pyuria, bacteriuria, and fever; hemorrhagic complications including hematuria; relatively minor complications such as vasovagal syncope due to the pain of biopsy; and major complications, such as structural damage to surrounding anatomical structures and infectious septicemia, can occur. Bleeding after TRUS-guided biopsy is reportedly the most common minor complication.<sup>4-6</sup> At least two local anesthesia techniques are currently available during transrectal ultrasound (TRUS)-guided biopsy: local anesthesia with 2% lidocaine gel and periprostatic nerve block.<sup>5</sup> Hence; the present study was undertaken for comparing the efficacy of different local anesthesia techniques during TRUS-guided biopsies.

#### MATERIALS & METHODS

The present study was undertaken for comparing the efficacy of different local anesthesia techniques during TRUS-guided biopsies. A total of 90 patients who were referred for TRUS-guided biopsy for the first time were enrolled in this study. All the subjects were scheduled for TRUS with biopsy because of abnormal digital rectal examination findings and/or an elevated prostate-specific antigen (PSA) level (4 ng/mL or greater). Patients with presence of any systemic illness, any known drug allergy or had diabetes were excluded from the present study. Pains scores were assessed on the grade of 0 to 5 with 0 indicating no pain and 5 indicating unbearable intolerable pain. All the patients were randomized into three study groups: Lidocaine gel: patients in which Lidocaine gel was used topically, Peri-anal block group: Patients in which peri-anal block was used, and Peri-prostatic block Group: Patients in which peri-prostatic block was given. All the results were recorded and analysed by SPSS software. Student t test was used for analysing the level of significance.

## RESULTS

Mean age of the patients of Lidocaine gel group, Peri-anal block group, and Peri-prostatic block group was 45.8 years, 46.9 years and 43.8 years respectively. Mean pain score among the patients of Lidocaine gel group, Peri-anal block group, and Peri-prostatic block group was 3.96, 1.85 and 1.72 respectively. Significant results were obtained while comparing the mean score in between Lidocaine gel group and Peri-anal block group and in between Lidocaine gel group and Peri-prostatic block group. However; while comparing the mean pain score in between Peri-anal block group and Peri-prostatic group, non-significant results were obtained.

Table 1: Mean pain scores

Type of anesthesia	Mean	SD
Lidocaine gel	3.96	1.23
Peri-anal block	1.85	0.45
Peri-prostatic block	1.72	0.39

Table 2: Comparison of mean pain scores

Variable	t-value	p-value
Lidocaine gel Versus Peri-anal block	-1.25	0.00
Lidocaine gel versus Peri-prostatic block	-1.84	0.01
Peri-anal block Versus Peri-prostatic block	12.69	0.45

## DISCUSSION

The gold standard to prove the presence or absence of prostate cancer is the surgical removal of the entire prostate with step-section histological analysis of the entire gland. Short of this clinically impossible maneuver, there is no superior method to prove the presence or absence of prostate cancer than a prostatic biopsy. Transrectal ultrasound (TRUS)-guided prostate biopsy has become a routine procedure in urology and can be performed safely without anesthesia as an outpatient procedure.<sup>6-9</sup> Hence; the present study was undertaken for comparing the efficacy of different local anesthesia techniques during TRUS-guided biopsies.

In the present study, mean age of the patients of Lidocaine gel group, Peri-anal block group, and Peri-prostatic block group was 45.8 years, 46.9 years and 43.8 years respectively. Mean pain score among the patients of Lidocaine gel group, Peri-anal block group, and Peri-prostatic block group was 3.96, 1.85 and 1.72 respectively. Sergey Kravchick et al conducted a study to introduce two forms of anesthesia and compare them with standard local anesthesia techniques. A total of 114 consecutive patients underwent prostate needle biopsy. The patients were sequentially randomized to receive different kinds of anesthesia: 2% rectal lidocaine gel,

40% dimethyl sulfoxide (DMSO) with lidocaine, perianal injection of 1% lidocaine, or periprostatic nerve block. The lowest pain scores for probe insertion were for the perianal injection and DMSO/lidocaine groups (0.89 and 1.38, respectively). The difference between these scores and those for the other two groups was statistically significant ( $P < 0.001$ ). Pain perception during biopsy did not differ significantly among the DMSO/lidocaine, perianal, or periprostatic groups and was greatest in the lidocaine gel group (4.147;  $P < 0.001$ ). We did not observe any statistically significant correlation between the pain level during probe insertion and biopsy and pain tolerance ( $P = 0.514$  and  $P = 0.788$ , respectively). The anesthesia type was the strongest single predictor of the pain level during biopsy ( $P < 0.001$ ). The use of 40% DMSO with lidocaine instilled into the rectal vault for 10 minutes avoids any need for injection and is capable of decreasing the discomfort or pain experienced during probe insertion and prostate biopsy comparable to the perianal and periprostatic protocols.<sup>10</sup>

In the present study, significant results were obtained while comparing the mean score in between Lidocaine gel group and Peri-anal block group and in between Lidocaine gel group and Peri-prostatic block group. However; while comparing the mean pain score in between Peri-anal block group and Peri-prostatic group, non-significant results were obtained. Engin Kandirali et al determined the optimal place to apply the local anesthetic agent and to investigate the efficacy of lidocaine-prilocaine cream on the perianal and intrarectal region during prostate biopsy. The study included 80 patients. Patients were randomized into four groups: group 1 served as the control group and was administered no anesthesia; group 2 received 5 ml lidocaine-prilocaine cream perianally; group 3 received 5 ml lidocaine-prilocaine cream intrarectally, and group 4 received lidocaine-prilocaine cream perianally and intrarectally. In group 1, the mean pain score was significantly higher during probe insertion than that during biopsy ( $p < 0.001$ ). For the mean overall pain scores, there was no significant difference between groups 1 and 3 ( $p = 0.942$ ), but the results of group 1 were statistically different from groups 2 ( $p = 0.001$ ) and 4 ( $p < 0.001$ ). When we compared the biopsy pain scores, there was no significant difference among the groups ( $p > 0.05$ ). During probe insertion, subjects in groups 2 and 4 reported significantly lower pain scores than the control group. Perianal anesthesia with lidocaine-prilocaine cream may solely be sufficient to decrease the pain during prostate biopsy.<sup>11</sup> Gianluca Giannarini et al tested the efficacy and safety of combined perianal-intrarectal lidocaine-prilocaine cream and periprostatic nerve block during transrectal ultrasound guided prostate biopsy. A total of 280 patients were randomized to receive combined perianal-intrarectal lidocaine-prilocaine cream and

periprostatic nerve block (group 1), perianal-intrarectal lidocaine-prilocaine cream alone (group 2), periprostatic nerve block alone (group 3) or no anesthesia (group 4) before transrectal ultrasound guided prostate biopsy. Stratified analysis showed that visual analog scale sampling was lower in group 1 vs 2 and 3 in patients 65 years old or younger, those with a prostate greater than 49 cc and those with lower anorectal compliance. Their findings suggested that the combination of perianal-intrarectal lidocaine-prilocaine cream and periprostatic nerve block provides better pain control than the 2 modalities alone during the sampling part of transrectal ultrasound guided prostate biopsy with no increase in the complication rate.<sup>12</sup>

### CONCLUSION

From the above results, the authors conclude that Lidocaine gel is associated with little anaesthetic advantage to patients. Peri-prostatic nerve block and Peri-anal decreased pain significantly.

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