Short Research Article

EFFICACY OF SUPPOSITORY VOLTAREN IN ADJUNCT WITH PERI- PROSTATIC NERVE BLOCK WITH LIGNOCAINE AS ANALGESIA FOR TRANSRECTAL ULTRASOUND- GUIDED BIOPSY OF PROSTATE.

ABSTRACT

Objectives:

To evaluate the efficacy of suppository voltaren as an adjunct analgesia during TRUS biopsy using numerical pain score.

Methods:

A total of 48 patients who were subjected to TRUS biopsy of prostate were enrolled in this study. Patients were randomly divided into 2 groups equally. In group 1, patients received the standard peri- prostatic nerve block (PPNB) consisting of 10ml of 1% lignocaine. In group 2, patients received peri- prostatic nerve block consisting of 10ml 1% lignocaine and in addition of suppository voltaren 100mg which was administered 1 hour before the procedure. During procedure, patient were assessed on their pain score using numerical pain score of 0-10 during insertion of transrectal probe, administration of peri- prostatic nerve block, during biopsy and 1 hour post- biopsy.

Results:

There was significant lower pain score in the group 2 during probe insertion, PPNB administration and during biopsy. Pain score 1 hour post- procedure was not significant as the pain score in both groups were generally low.

Conclusions:

We believe that by adding suppository voltaren 100mg 1 hour before the procedure would be an advantage for patients as this study shows significant lower pain score throughout the procedure with no increase in morbidity.

Keywords: TRUS, PPNB, suppository voltaren

1. INTRODUCTION

Transrectal ultrasound- guided (TRUS) biopsy of prostate is a widely used method in diagnosis of prostate carcinoma. Approximately 65%- 90% of men experienced mild to severe pain during this procedure and about 20% of men reported that they were not willing to undergo the biopsy again without analgesia [1]. *Crundwell et al* found that 24% patients experienced pain score greater than 5 on an analogue scale of 0 to 10 [2].

Pain is defined as unpleasant sensory and emotional experience associated with actual potential or actual tissue damage[10]. Pain is generally experienced during placement and movement of probe into anal canal, during needle puncture for local anaesthesia (PPNB block) and during puncturing of needle biopsy.[11]

In anorectum, apex of the prostate gland is below the dentate line. Areas below dentate line is sensitive to pain as they are innervated by inferior rectal nerve originating from pudendal nerve [2]. Superior to the dentate line, the anorectum is innervated by splanchnic nerve, derived from S3-S4 spinal segments through the pelvic and prostatic plexus. Therefore, the pain below the dentate line is inadequately controlled by the periprostatic nerve block alone. Additional pudendal nerve block or a simpler topical anaesthetic application is needed. [11]

Suppository voltaren with recommended dose of 100mg provides additional pain relief when used in combination with the peri- prostatic nerve block since these reduces the pain caused by probe insertion and needle punctures, which is not controlled by the periprostatic nerve block alone. [11]

Thus, we performed a randomized control comparison study betweem TRUS biopsy with peri-prostatic nerve block using 10ml of 1% lignocaine (group 1) and TRUS biopsy with peri- prostatic nerve block using 10ml 1% lignocaine with additional of suppository voltaren 100mg 1hour before TRUS biopsy (group 2).

2. MATERIALS AND METHODS

A total of 48 patients who were subjected to TRUS biopsy of the prostate were enrolled. Indications of TRUS biopsy were any PSA more than 4ng/ml, abnormal digital rectal examination and those with life expectancy more than 10 years.

Eligible patients were randomly assigned into 2 groups using online randomisation application ' GraphPad Quick Cals'. 24 envelopes with standard treatment and 24 envelopes with adjunct suppository diclofenac 100mg are numbered 1- 48 following randomisation. These envelopes were then sealed and kept in the clinic.

Group 1 consists of 10ml of 1% lignocaine for peri- prostatic nerve block while group 2 consists of 10ml of 1% lignocaine for peri- prostatic nerve block with additional of suppository voltaren 100mg. An hour before procedure, patients in group 2 were instructed to insert the suppository.

Patient were placed in left lateral decubitus position. TRUS biopsy was performed in clinic setting, using an 8-MHz transrectal probe. Size of the prostate will be measured (height x width x length x 0.52), followed by administration of PPNB with lignocaine 1% of 10ml and finally, systematic 12 cores of biopsy with 6 cores from each right and left prostate will be performed.

All patients were assessed on their pain score using numerical pain score of 0-10 during insertion of probe, during administration of local anaesthesia, during biopsy and 1 hour after biopsy.

All patients were counselled regarding complications of procedure such as per rectal bleeding, hematuria, haematospermia, urinary tract infection and urosepsis. They were seen in clinic in 6 weeks post- procedure to assess for the complications.

3.STATISTICS

The sample size calculation with 2 groups in this study was based on standard deviation of pain score of 2.29 type 1 error of 0.05 and a probability power of 0.8. With an additional 20% dropout rate, the sample size is 24 samples per group.

We performed data analysis using the IBM SPSS Statistics for Windows Version 24.0. Independant t- test was used for normally distributed numerical data between two independant groups in age group while the Mann- Whitney test was used in not normally distributed data which is the PSA, prostate volume, pain score during probe insertion, pain score during PPNB block, pain score during biopsy and pain score 1 hour post- procedure.

4.RESULTS

A total of 48 patients were enrolled for this study. 24 patients received only standard PPNB while another 24 patients received standard PPNB and suppository voltaren 100mg 1 hour before the procedure.

There was no significant difference in mean age in group 1 and group 2 (mean age 66.92 vs 66.25, p=0.029). Mean of prostate volume in group 1 and group 2 were 61.85 and 68.27 respectively. The mean of PSA in group 1 was 119.5 while in group 2 was 389.5.

There was significant difference in pain score during probe insertion during TRUS biopsy. Mean of group 1 was 4.5 while group 2 was 2.29 with p value of 0.003. In group 1 where only PPNB with lignocaine was given while in group 2 where PPNB with lignocaine and an additional suppository voltaren of 100mg given 1 hour prior to procedure, there was significant lower pain score between the 2 groups (mean of pain score group 1: 4.17, group 2: 2.79, p= 0.027). There was also statistic difference in pain score during biopsy between group 1 and group 2 (Mean group 1: 4.96, Mean group 2: 2.83, p= 0.005).

However, there was no statistic difference in pain score after 1 hour post- procedure with mean score of 1.25 in group 1, mean score in group 2: 0.83 with p= 0.201.

There was no patients with significant bleeding that requires hospitalisation or intervention. (7 patients with haematospermia and 4 with hematuria). None of the patients had fever or developed urosepsis post- procedure.

5.DISCUSSION

TRUS biopsy of prostate is still the standard procedure in Malaysia for diagnosing prostate carcinoma as it is a simple procedure and is done in the clinic. Generally, TRUS biopsy can be an uncomfortable procedure with mild to severe pain score whereby, most patients were unable to tolerate the pain especially during insertion of probe, administration of PPNB and during biopsy [1]. 20% of patients would not opt this procedure for the second time due to the pain [2].

Proximal to the dentate line, prostate is innervated by splanchnic nerve derived from S3-S4 through pelvic and prostatic plexus. Below the dentate line where the apex of the prostate is, the nerve innervation is through inferior rectal nerve from pudendal canal. Hence, the pain in this area is inadequately controlled by peri- prostatic nerve block. An additional pudendal nerve block or topical anaesthetia application such as suppository voltaren is recommended [11].

Suppository voltaren is available in most hospitals in our country and is easily administered by patients. The suppositories were not visualized during the procedure because the suppositories had dissolved within 1 hour of administration [2].

I*rer B et al* recommended administration of suppository diclofenac during TRUS biopsy as it is simple, non- invasive and effective method of pain control. Pain scores were evaluated during end of biopsy 2 hours and 1 day after biopsy. Pain scores at all times were lower in patients who received suppository voltaren than in placebo group. [1]

Haq et al showed improved comfort in patients after suppository voltaren treatment during TRUS biopsy. A significant difference in mean pain score was noted in treatment group (2.8) as compared to control group (4.9) [2]. *Singh JC et al study* also showed that there was significant lower pain score in group with lignocaine injection & suppository voltaren as compared to their control group - lignocaine injection & glycerin as placebo. [6]

Ragavan N et al published a journal in The Journal of Urology in August 2005 comparing pain score of 3 groups- group1: only lidocaine PPNB, group 2: only suppository voltaren and group 3:a combination of lidocaine PPNB and suppository voltaren. Pain during biopsy and pain post-procedure were significantly lower in lignocaine group and combination group. [5]

In a journal published in year 2013 by *Haroon et al*, 100 patients were recruited with 1 arm of patients with suppository voltaren and 10cc of 2% xylocaine gel were given pre-procedure while another arm consisted of patients with only xylocaine gel. The mean pain score at the time of probe insertion, immediately after taking biopsy cores and 2 hours after biopsy were statistically significantly higher in the arm of only xylocaine gel as compared to the combination analgesia of xylocaine and suppository voltaren. [4]

Aus G et al published a journal in Scandinavian Journal of Urology and Nephrology in the year of 2009. Different analgesias were in included in his study for TRUS biopsy of the prostate. Suppository voltaren 100mg was proven to be an effective analgesias in comparison with placebo. [8]

Table 1 showed mean of age, PSA and prostate volume in group 1 (standard PPNB) and group 2 (standard PPNB and suppository voltaren).

	Group 1	Group 2
Mean Age	66.92	66.25
PSA	119.58	389.5
Prostate volume	61.85	68.79

Table 2 : Representation of pain score and significance between group 1 and group 2

Pain score	Group 1	Group 2	Significance
Probe insertion	4.5	2.29	*P= 0.003*
During PPNB	4.17	2.79	*p= 0.27*
During biopsy	4.96	2.83	*p=0.005*
1 hour post procedure	1.25	0.83	*p=0.201*

Table 2 showed mean of pain score and significance in comparison between group 1 and group 2. Pain score was statistically significant during probe insertion, during PPNB administration and during biopsy. Pain post- procedure was not statistically significant.

The patients were evaluated during the procedure and no drug- related adverse events were observed. The patients were given clinic appointment 6 weeks later to evaluate for any major TRUS biopsy- related complications. No major complications were seen in both groups.

We would recommend the use of suppository voltaren as an adjunct to PPNB during TRUS biopsy of the prostate as this helps in reducing pain score during the procedure.

6.CONCLUSION

TRUS biopsy can be an unpleasant experience during this procedure. We believe by adding suppository voltaren 100mg 1 hour before the procedure would be an advantage for patients as shown in this study which showed significant lower pain score throughout the procedure. As for pain 1 hour post- procedure, the mean of pain score in both groups were generally low with pain score of 1 and below in both groups. Complications in both groups were not significant and were not debilitating in both groups. None of the patients requires any hospitalisation.

CONSENT

Patient's writtenn consent had been collected and preserved by author (s) as per international standard or universities standard.

ETHICAL APPROVAL

Written ethical approval had been collected and preserved as per international or universities standard.

ABBREVIATIONS

TRUS: transrectal ultrasound

PPNB: peri- prostatic nerve block

References

1. *Irer B, Gulcu A, Aslan G, Goktay Y, Celebi I. Diclofenac suppository administration in conjunction with lidocaine gel during transrectal ultrasound-guided prostate biopsy: prospective, randomized, placebo-controlled study. Urology. 2005 Oct;66(4):799–802.*

2. *Haq A, Patel HRH, Habib MR, Donaldson PJ, Parry JRW. Diclofenac suppository analgesia for transrectal ultrasound guided biopsies of the prostate: a double-blind, randomized controlled trial. J Urol. 2004 Apr;171(4):1489–91.*
3. *https://www.npra.gov.my/images/reg-and-noti/PI/scheduled-poison/Diclofenac_Sodium_Suppository.pdf*
4. *Haroon N. Diclofenac Suppository As a Preemptive Analgesia in Ultrasound Guided Biopsy of Prostate: Randomized Controlled Trial [Internet]. clinicaltrials.gov; 2013 Sep [cited 2021 May 5]. Report No.: NCT01939743.*
5. *Ragavan N, Philip J, Balasubramanian SP, DeSOUZA J, Marr C, Javle P. A RANDOMIZED, CONTROLLED TRIAL COMPARING LIDOCAINE PERIPROSTATIC NERVE BLOCK, DICLOFENAC SUPPOSITORY AND BOTH FOR TRANSRECTAL ULTRASOUND GUIDED BIOPSY OF PROSTATE. Journal of Urology. 2005 Aug;174(2):510–3.*
6. *Singh JC, Kekre NS. Diclofenac suppository administration in conjunction with lidocaine gel during transrectal ultrasound-guided prostate biopsy. Indian Journal of Urology. 2005 Jul 1;21(2):125.*
7. *Analgesia for Prostate Biopsy: Efficacy of Diclofenac Patch versus Diclofenac Suppository as Compared to Placebo during Prostate Biopsy | Semantic Scholar [Internet]. [cited 2021 Sep 7].*
8. *Aus G, Damber J-E, Hugosson J. Prostate biopsy and anaesthesia: An overview. Scandinavian Journal of Urology and Nephrology. 2005 Apr 1;39(2):124–9.*
9. *Nazir B. Pain during Transrectal Ultrasound-Guided Prostate Biopsy and the Role of Periprostatic Nerve Block: What Radiologists Should Know. Korean Journal of Radiology. 2014 Oct;15(5):543.*
10. *Treede R-D. The International Association for the Study of Pain definition of pain: as valid in 2018 as in 1979, but in need of regularly updated footnotes. Pain Reports [Internet]. 2018 Mar [cited 2022 Feb 25];3(2). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5902252/.*
11. *Nazir B. Pain during Transrectal Ultrasound-Guided Prostate Biopsy and the Role of Periprostatic Nerve Block: What Radiologists Should Know. Korean Journal of Radiology. 2014 Oct;15(5):543.*
12. *Voltarol 12.5 mg Suppositories - Summary of Product Characteristics (SmPC) - (emc) [Internet]. [cited 2022 Mar 16]. Available from: https://www.medicines.org.uk/emc/product/1044/smpc#gref*
13. *European Association of Urology Guideline 2021*