Comparing Effectiveness of Intracorpus Spongiosum Block (ICSB) by Transurethral ICSB Vs Percutaneous ICSB during Visual Internal Urethrotomy for Urethral Stricture Disease in High Risk Patients

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ABSTRACT

Introduction: Urethral stricture is a common cause of morbidity related to urologic problem, mostly in underdeveloped countries. So the study was done to compare the efficacy and safety of intracorpus spongiosum block (ICSB) by transurethral route verses percutaneous route during visual internal urethrotomy (VIU) in high risk patients.

Material and methods: The study was conducted in Department of Urology, Santhiram Medical College and General Hospital, From August 2013 to September 2015, Thirty consenting high risk patients with single, short, passable anterior urethral stricture were randomized into two groups. Group 1 patients received 5 ml 1% lignocaine by transurethral block with William cystoscopic needle through 17 F integrated cystoscope under vision. Group 2 patients received 5 ml of 1% lignocaine ICSB via percutaneous route with 24 G needle. A standard Storz 21 Fr cold cutting urethrotome was used under guidance of a 0.035-inch guidewire. A single 12 o'clock incision was made.During and after the procedure pain perception was recorded by visual analog scale. Vital parameters are recorded before,during and after the procedure and were analysed. Statistical analysis was done using the standard t-test.

Results: The mean+/-standard deviation VAS scores intraoperatively for both groups (2.8+/-1.21, 2.87+/-1.46) are not significant and mean+/-standard deviation VAS scores postoperatively for both groups (1.4+/-1.12, 1.53+/-0.99) are not significant. The intraoperative rise in pulse rate and in blood pressure in group 1 patients (8.13+/ -3.5/min, 7.33+/-4.8 mm of Hg) and in group 2 patients (8.93+/-4.21/min, 7.8+/-5.12 mm of Hg) are not significant.

Conclusion: ICSB with transurethral route Vs percutaneous route are equally safe and effective for providing pain relief during VIU in high risk groups. Transurethral ICSB needs special needle.

Keywords: ICSB, Transurethral ICSB, Percutaneous ICSB, Visual Internal Urethrotomy, Urethral Stricture Disease

INTRODUCTION

Urethral stricture is a common urologic problem, with the highest prevalence in underdeveloped countries. Urethral stricture results from a number of different etiologies. An understanding of the cause of stricture is useful in determining the appropriate type of treatment. Etiology of anterior urethral stricture is broadly devided into iatrogenic, traumatic, inflammatory, and idiopathic causes. Inflammatory and iatrogenic causes of stricture are most common. Visual internal urethrotomy (VIU)[1] is one of the most commonly practiced treatments for urethral stricture disease. It is most useful for short segment bulbar urethral strictures. In patients with stricture recurrence but favourable characteristics (single, < 1 cm bulbar stricture) and time to recurrence > 6 months, VIU achieves Traditionally good results. VIU is performed under general or regional anesthesia.[2] Intracorpus spongiosum block (ICSB)[3,4] was described in a few studies. This technique proved to be a simple, inexpensive, and effective procedure with good analgesia comparable to general anaesthesia in a recent nonrandomized study. In our Prospective randomized study, we compared the techniques of ICSB i.e. Transurethral route and percutaneous route.

MATERIAL AND METHODS

This Prospective Randomized study was conducted in Department of Urology, Santhiram Medical College and General Hospital, From August 2013 to September 2015, 30 High risk patients were assessed. All patients aged older than 50 years with a single anterior urethral stricture of 2 cm or less were included in study. Detailed history and clinical examination was obtained to know stricture etiology and associated comorbidities. The stricture length, location (proximal bulbar, midbulbar, and distal bulbar/penobulbar), and possibility were determined by retrograde urethrography (RGU). Patients with multiple strictures, stricture of fossa navicularis, stricture length of more than 2 cm, known allergy to lignocaine, associated urologic comorbiditiesare excluded from study. After patients provided written informed consent, they were randomized into 2 groups of 15 patients each.

Before the procedure morphine intravenous injection (0.1 mg/ kg of body weight) given to all the patients to minimize anxiety. All patients received preoperative antibiotic (Inj Amikacin 500 mg).

Group 1 patients received 5 ml of 1% lignocaine, transurethral block with William cystoscopic needle through 17 F integrated cystoscope under vision, and group 2 patients received 5 ml of

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1% lignocaine ICSB via percutaneous route with 24 G needle before VIU was performed.

In Group 1 patients, with the help of cystoscope we passed a 0.035 guide wire across the stricture into the bladder. 5 ml of 1% lignocaine injected around the stricture into corpus spongiosum with Williams cystoscopic injection needle through 17 F integrated cystoscope under vision.

In group 2 patients, stricture site marked externally in the perineum during the passage of guide wire, 5 ml of 1% lignocaine injected around the stricture with 24-guage needle and gentle massage was done. In both groups 2% lignocaine jelly was used for introduction of the VIU sheath. All the procedures were done with the patient in the lithotomy position. Single 12 o'clock incision was made over the stricture with the help of Storz 21 Fr cold cutting urethrotome under guidance of a 0.035-inch guidewire. 18F Foley catheter was left for 5-7 days. Before, throughout the procedure and after the procedure pulse rate and blood pressure and respiratory rate were monitored.

All subjects were assessed for pain perception with the help of a visual analog scale (VAS) during and after the procedure. The VAS includes scores 0 through 10, 0 represents no pain and 10 reflects maximum pain. Pain assessment was done 1 hour after the procedure. The changes in pulse rate (preoperative vs maximum perioperative pulse rate) and the changes in systolic blood pressure (SBP) were compared and assessed for each patient as an indicator of the sympathetic response to pain. Complications of VIU and of the anesthesia techniques were also recorded.

STATISTICAL ANALYSIS

SPSS version 21 was used for statistical analysis. Data were analyzed using the t test.

RESULTS

The patients in both groups had matching baseline variables, including mean age, preoperative blood pressure and pulse rate, and length, location of the stricture. VIU was successfully completed in all patients in both groups. The mean (+/-standard deviation) intraoperative VAS scores (mean+/- standard deviation) in group 1 (2.8+/ -1.21) and in group 2 (2.87+/-1.46) patients are not significant (P-value is 0.44). The mean 1-hour postoperative VAS score were also not significant (P -value is 0.73), in group 1 patients (1.4+/-1.12) and in group 2 patients (1.53+/-0.99). The change in pulse rate (preoperative vs maximum perioperative) were not significant in group 1 (8.13+/-3.5 beats/min) and in group 2 (8.93+/-4.21 beats/min, P-value is >0.05). The change in SBP were also not significant, in group 1 (7.33+/-4.8 mm Hg) and in group 2 (7.8+/-5.12 mm Hg, P-value is >0.05). All patients were discharged on the 1st postoperative day. Oral antibiotic was continued postoperatively until the catheter was removed. The Foley catheter was removed in all patients after 5 -7 days except for a patient in group 2 who developed urinary extravasation (Clavien grade I). He was treated conservatively, and the urethral catheter was removed after 7 days. All patients voided well after catheter removal. No anesthesia-related complications were noted.

DISCUSSION

Sachse introduced direct vision internal urethrotomy (DVIU) to treat urethral strictures by cold-knife incision.[5] Optical urethrotomy by either incision or ablation has been considered standard therapy for anterior urethral strictures and is regarded, along with dilation, as the initial treatment of choice for most urethral strictures. In view of minimally invasive, and with shorter procedure time and less morbidity, VIU remains widespread and popular procedure of choice for single and short segment anterior urethral stricture. Baring a few, contemporary studies have shown good long-term outcomes of VIU for short-segment strictures with superficial spongiofibrosis. This procedure reduces operating time and the risks and hazards associated with general or spinal anesthesia drugs, when performed under local anesthesia. Furthermore, performing VIU

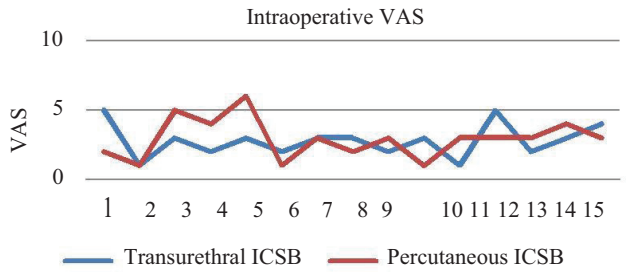

Figure-1: Intraoperative VAS

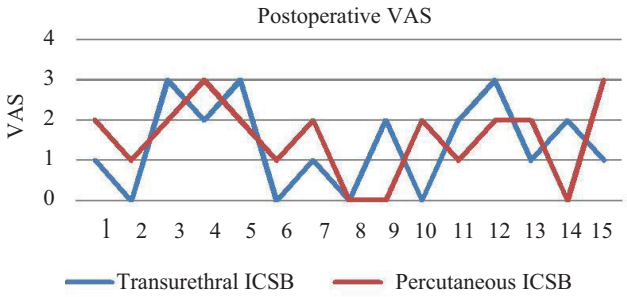

Figure-2: Postoperative VAS

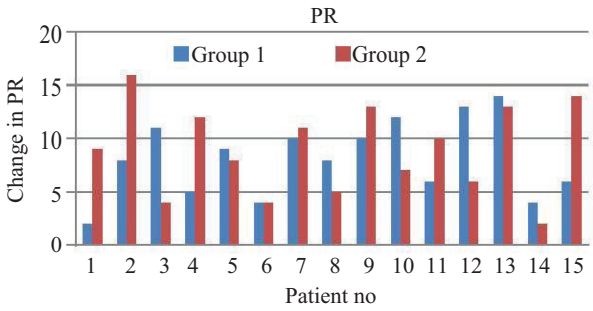

Figure-3: Change in PR in both groups

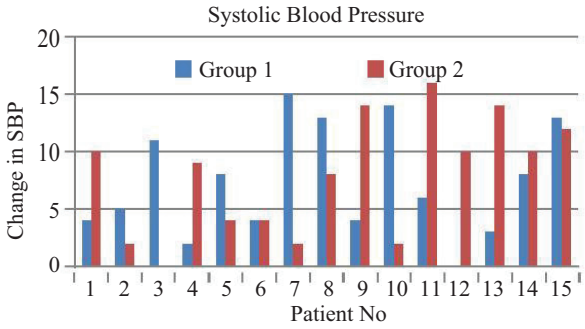

Figure-4: Change in SBP in both groups

under general and regional anesthesia requires the presence of a qualified anesthesiologist and also increases the overall cost of the procedure substantially. To overcome this problem, a variety of local analgesic techniques have been applied.

Ye et al showed the feasibility of ICSB[6,7] for performing VIU. Ather et al compared ICSB with general anesthesia[8] for VIU and showed this novel technique was equally effective and beneficial. In a study Bharghav et al[9] studied Efficacy of Intracorpus Spongiosum Block in High Risk Patients for Visual Internal Urethrotomy and it is found effective and safe. Till now, no study directly compared transurethral ICSB with percutaneous ICSB.

All strictures in both groups of our study population were located in bulbar urethra. Etiologically, most of the strictures were of idiopathic origin in both groups, with traumatic and inflammatory strictures thereafter in both groups. In this study, we were able to finish the procedure in all patients, indicating the effectiveness of both techniques. The intraoperative VAS scores were not significant in both groups, reflecting the similar analgesic effect of Transurethral ICSB and Percutaneous ICSB. The postoperative VAS scores were also not significant in the both groups. Along with the subjective evidence of similar analgesic effect of Transurethral ICSB and Percutaneous ICSB, there were objective data too, as evidenced by, no significant difference in change in pulse rate and SBP in the both group.

There was no anesthetic complication encountered. We used a fixed dose of morphine in all patients, which had additive analgesic effect along with eliminating the anxiety. The analgesic effect of morphine was applicable to all patients in both groups, so there is no effect on the analysis. The outcome of VIU[10,11] was not included in this study, 2 patients had recurrent stricture during the study period of 2 years. Being a surgical trial, it was not possible to blind the surgeon or the patient. However, the nurses in the postoperative ward were not specifically informed about the type of anesthesia applied, thus we tried to limit the bias. Limitation of our study is that we did not separately document the pain perceived while injecting lignocaine percutaneously for ICSB, which might have added some discomfort and may have been reflected in the VAS score. However, pain due to the injection should have been reflected in the overall intraoperative and postoperative VAS scores. Yet, these scores were significantly similar in both groups; therefore, the pain due to the percutaneous injection was likely not very significant.

CONCLUSION

Percutaneous ICSB and transurethral ICSB are equally effective techniques for providing pain relief during VIU and are safe procedures. However Transurethral ICSB needs a special needle (William cystoscopic needle). In view of its proven efficacy and safety, Percutaneous ICSB and transurethral ICSB should be the preferred techniques of anesthesia for VIU, particularly in patients at high risk for general anesthesia. Percutaneous ICSB and transurethral ICSB could become the anesthesia technique of choice for performing VIU of anterior urethral strictures on an outpatient basis and in view of cost efficacy.

REFERENCES

1. Dubey D. The current role of direct vision internal urethrotomy and self-catheterization for anterior urethral strictures. Indian J Urol. 2011;27:392-396.
2. Kreder KJ, Stack R, Thrasher JB, et al. Direct vision internal urethrotomy using topical anesthesia.Urology. 1993;42:548-550.
3. Greenland JE, Lynch TH, Wallace DM. Optical urethrotomy under local urethral anaesthesia. Br J Urol. 1991;67:385-388.
4. Munks DG, Alli MO, Abdel Goad EH. Optical urethrotomy under local anaesthesia is a feasible option in urethral stricture disease. Trop Doct. 2010;40:31-32.
5. Sachse H. Treatment of urethral stricture: Transurethral slit in view using sharp section [Article in German]. Fortschr Med. 1974; 92:12-15.
6. Ye G, Rong-gui Z. Optical urethrotomy for anterior urethral stricture under a new local anesthesia: intracorpus spongiosum anesthesia. Urology. 2002;60:245-247.
7. Ye G, Shan-Hong Y, Xiang-Wei W, et al. Use of a new local anesthesia-intracorpus spongiosum anesthesia-in procedures on anterior urethra.Int J Urol. 2005;12:365-368.
8. Ather MH, Zehri AA, Soomro K, et al. The safety and efficacy of optical urethrotomy using a spongiosum block with sedation: a comparative nonrandomized study.J Urol. 2009;181:2134-2138.
9. R. Malleswari, K. Bhargava Vardhana Reddy, U. Seshapani, K. M. S. Reddy, T. Nagraj, B. Sridevi, V. Srilaxmi. A Prospective Study of Efficacy of Intracorpus Spongiosum Block in High Risk Patients for Visual Internal Urethrotomy. Journal of Evidence based Medicine and Healthcare; Volume 2, Issue 16, April 20, 2015; Page: 2241-2245.
10. Chilton CP, Shah PJR, Fowler CG, et al. The impact of optical urethrotomy on the management of urethral strictures.Br J Urol. 1983;55:705-710.
11. Gaches CGC, Ashken MH, Dunn M, et al. The role of selective internal urethrotomy in the management of urethral stricture: a multicenter evaluation.Br J Urol. 1979;51:579-583.

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