INTRODUCTION

Benign prostatic hyperplasia (BPH) sometimes also known as benign prostatic hypertrophy, is an age dependent disorder characterized by hyperplastic changes in the tissue resulting in enlargement of the prostate that may lead to difficulty in micturition or impairment in the flow of urine from the bladder. Medical treatment is the primary option for the patient with mild to moderate voiding symptoms which consists of alpha blockers and 5-alpha reductase inhibitors either as mono-therapy or in combination therapy. Phosphodiesterase type-5 inhibitor and anticholinergic agents as other alternatives. Type 1 and type 2 isoenzymes of 5 alpha-reductase are present throughout the body and Dutasteride, a dual 5 alpha-reductase inhibitor acts competitively and specifically on type 1 and type 2 isoenzymes to inhibit the conversion of testosterone to the more potent dihydrotestosterone.

The American Urology Association recommends for surgical option if medical treatment fails or patient develops BPH related complications such as hematuria, urinary retention, recurrent urinary tract infection or bladder calculi. The different surgical approaches for the BPH comprises of open prostatectomy, transurethral resection of prostate (TURP), transurethral incision of

ABSTRACT

Introduction: Benign prostatic hyperplasia (BPH) is an age dependent disorder characterized by hyperplastic changes in the tissue resulting in enlargement of the prostate that may lead to difficulty in micturition or impairment in the flow of urine from the bladder. Medical treatment is the primary option for the patient with mild to moderate voiding symptoms which consists of alpha blockers and 5-alpha reductase inhibitors either as mono-therapy or in combination therapy.

Materials and Methods: A observational cross-sectional study was conducted in a teaching hospital. Total sixty-four patients were selected from hospital records. Group-A received Alpha blocker along with Dutasteride while group-B received Alpha blockers only as a primary medical treatment two weeks prior to transurethral resection of prostate for benign prostatic hyperplasia. Patients were followed up after 24 hours of surgery in which hematocrit levels were estimated. Blood loss was calculated by recording pre-operative and post-operative (after 24 hours) hematocrit level. Data were tabulated and analyzed by SPSS v25. Comparison of two groups' Group A Alpha-blocker with Dutasteride and Group B with Alpha-blocker only was done by applying independent sample t-test. A p-value ≤0.05 was taken as significant.

Results: A total of 64 patients were enrolled for this study. Patients were divided into two groups i.e. Group-A (TURP with Alpha-blocker & Dutasteride) and Group-B (TURP with Alpha-blocker). Mean age of group-A patients was 66.4±7.5 years and 66.5±7.2 years in group-B. Mean blood loss of group-A patients was 158.3±131.1 ml and 311.5±150.7 ml in group-B with a p-value of 0.000054, which is statistically significant.

Conclusion: Patients on Dutasteride have less perioperative bleeding during transurethral resection of prostate for benign prostatic hyperplasia.

Keywords: Transurethral Resection of Prostate, Alpha-blocker, Dutasteride, Benign Prostatic Hyperplasia
prostate (TUIP), holmium laser enucleation of prostate (HoLEP) and newer robotic techniques.²

BPH is characterized by increased proliferation of stromal and acinar cells around the urethra, prolonged by increased gland angiogenesis. The increased vascularity can result in massive bleeding during and after TURP. Finasteride a5-ARI inhibits the conversion of testosterone to DHT and the resulting activation of androgen-controlled growth factor, which stimulates angiogenesis.³ Preoperative 5 alpha reductase inhibitor treatment has been reported to reduce this bleeding. It reduced the expression of VEGF and lowered the sub-urethral microvessel density of the prostate.⁴

MATERIALS AND METHODS

Observational cross-sectional study was conducted from 17th October 2022 to 16th April 2023. After approval of the research proposal, from ethical committee [Ref F-NMC/610/079-080], sixty-four patients fulfilling inclusion criteria were selected from outpatient, Urology unit, Department of Surgery, National Medical College and Teaching Hospital, Birgunj, Nepal. Patients were divided into two groups: thirty-two in each group, Group A comprising of patients who were receiving treatment alpha-blockers and dutasteride (0.5mg daily) for at least two weeks before surgery whereas Group B were receiving alpha-blocker only.

Patients were included, Age 55-80 years, unresponsive to medical therapy, enlarged prostate(40-70 grams) with absolute indication for surgery, PSA within normal limit and preoperative creatinine <1.5mg/dl and INR <1.5. Patients were excluded who had bleeding disorder, chronic liver disease and co-morbidities as hypertension and diabetes mellitus.

Informed consent about the study was taken from the patient. Demographic data/information was recorded from hospital record. Investigations included complete blood picture, urine complete examination and ultrasonography abdomen and pelvis. Pre-operative hematocrit of each study patient was recorded. surgery was performed by Uro-Surgeon under spinal anesthesia. As recommendation, cystoscopy was done first with proper lubrication, resection of prostate was done with monopolar resectoscope using glycin as irrigation fluid. After completion of resection of gland, proper hemostasis was done by coagulation electrode followed by three-way catheterization and irrigation with Normal saline was started. Patients were followed up after 24 hours of surgery in which hematocrit levels were estimated. Blood loss was calculated by recording pre-operative and post-operative (after 24 hours) hematocrit level.

Data were tabulated and analyzed by SPSS v25. The quantitative data like age and duration of operation were presented in the form of mean. Qualitative variable like gender was presented as frequency and percentages. Comparison of two groups’ Group A with Dutasteride and Group B without Dutasteride was done by applying independent sample t-test. A p-value ≤0.05 was taken as significant.

RESULTS

A total of 64 patients were enrolled for this study. Patients were divided into two groups i.e. Group-A (TURP with Dutasteride along with alpha-blocker) and Group-B (TURP with alpha-blocker only). Mean age of group-A patients was 66.4±7.5 years and 66.5±7.2 years in group-B.

Mean IPSS of group-A patients was 23.9±2.0 and 21.1±2.3 years in group-B with a p-value of 0.0000006, which is statistically significant.

Mean blood hemoglobin of group-A patients was 12.9±1.7 g/dl and 12.9±2.1 g/dl in group-B with a p-value of 0.895, which is statistically insignificant.

Mean blood hematocrit at baseline of group-A patients was 38.5±4.3% and 38.9±5.6% in group-B with a p-value of 0.728, which is statistically insignificant.

Mean urine complete examination of group-A patients was 9.5±5.1 pus cells/HPF and 9.5±6.2 pus cells/HPF in group-B with a p-value of 0.965, which is statistically insignificant.

Mean ultrasound abdomen/pelvis of group-A patients was 56.1±11.1 gm prostate and 52.8±9.3 gm prostate in group-B with a p-value of 0.203, which is statistically insignificant.

Mean blood hematocrit after 24 hours of group-A patients was 35.4±4.0% and 32.9±6.8% in group-B with a p-value of 0.081, which is statistically insignificant.

In group-A, mean blood hematocrit at baseline was 38.5±4.3% and 35.4±4.0% after 24 hours with a p-value of 0.0000001, which is statistically significant.

In group-B, mean blood hematocrit at baseline was 38.9±5.6% and 32.9±8.8% after 24 hours with a p-value of 0.000067, which is statistically significant.
Table 1: Comparing mean of parameters between two groups.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group A</th>
<th>Group B</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>66.4±7.5</td>
<td>66.5±7.2</td>
<td>0.948</td>
</tr>
<tr>
<td>IPSS</td>
<td>23.9±2.0</td>
<td>21.1±2.3</td>
<td>0.00006</td>
</tr>
<tr>
<td>Mean Blood hemoglobin</td>
<td>12.9±1.7 g/dl</td>
<td>12.9±2.9 g/dl</td>
<td>0.895</td>
</tr>
<tr>
<td>Mean Blood hematocrit baseline</td>
<td>38.5±4.3%</td>
<td>38.9±5.6%</td>
<td>0.728</td>
</tr>
<tr>
<td>Mean Prostate size</td>
<td>56.1±11.1gm</td>
<td>52.8±9.3gm</td>
<td>0.203</td>
</tr>
<tr>
<td>Mean Blood hematocrit after 24 hours</td>
<td>35.4±4.0%</td>
<td>32.9±6.8%</td>
<td>0.081</td>
</tr>
<tr>
<td>Mean Blood loss after 24 hours</td>
<td>158.3±131.1ml</td>
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<td>0.00054</td>
</tr>
</tbody>
</table>

DISCUSSION

TURP still represents the gold standard in the surgical treatment of symptomatic BPH. One of the most important complications of TURP is intra- and perioperative bleeding, which sometimes leads to urine retention because of blood clots. BPH is characterized by increased proliferation of stromal and acinar cells around the urethra sustained by increased gland vascularity (neoangiogenesis).

Some studies demonstrated the effect of finasteride in reducing BPH-related hematuria. Finasteride, which blocks the conversion of testosterone to dihydrotestosterone, decreases the activity of androgen-controlled growth factors responsible for angiogenesis.

This feature was used to prevent intra-operative bleeding in patients undergoing TURP. Some studies supported the pharmacological use of finasteride to reduce surgical blood loss. Dutasteride is an inhibitor of type 1 and 2 isoenzymes of 5-alpha reductase commonly used, as is finasteride, for treatment of symptomatic BPH.

Some studies attempted to resolve whether dutasteride could be used to reduce bleeding after TURP in the same way that finasteride is. Hahn et al used dutasteride for 2–4 weeks before TURP without significant reduction in blood loss compared to the placebo group.

Various studies have been done but they show conflicting results. In one study use of 0.5 mg Dutasteride preoperatively resulted in significantly lower blood loss compared to control (p value <0.0491). While in another study they have found there was no difference in blood loss between treatment and control group (p value >0.98).

Other authors have confirmed these results, concluding that a short-term treatment with dutasteride was not superior compared to the control group in decreasing TURP-related blood loss, and suggested that a longer duration treatment will reduce intra-operative and postoperative bleeding.

Martov found a significant reduction in blood loss in patients by using dutasteride for at least 1 month before TURP compared to the control group. Kravchick demonstrated that 6 weeks of treatment with dutasteride reduced prostatic vascularity, especially in the periurethral area.

In the study conducted by Kim lower mean blood loss was observed in the dutasteride group immediately after and 24 hours after surgery peri operative and post-operative bleeding were significantly reduced in the group taking dutasteride for 2 weeks before TURP.

There were no significant effects on prostate volume or resected prostate volume, statistically meaningful difference were not detected between the 2 groups in PT, aPTT, INR and BT and based on these results, dutasteride may only affect vascularity related bleeding during TURP.

Based on these evidences, we attempted to evaluate if pretreatment with dutasteride (0.5mg/day) for 2 weeks before TURP could reduce surgical bleeding.

The results of the present study showed that treatment with dutasteride for 2 weeks before TURP reduces surgical bleeding. No differences were found with regard to prostatic volume, prostate resected weight, and operation time between the groups A & B.

CONCLUSION

BPH is a common problem of the ageing males. Since from the start of the endoscopic resection of enlarged prostate i.e. TURP, the surgeons have been much concerned with the bleeding during and after the procedure. Many studies reported that preoperative Dutasteride has an impact on perioperative hemorrhage during TURP for benign prostatic hyperplasia but it is still controversial.

We conducted a study to observe if two weeks of pretreatment with Dutasteride significantly reduces perioperative bleeding during procedure. The results were compared with another group of patients undergoing TURP without having preoperative Dutasteride.

The result concludes that patients on Dutasteride has less perioperative bleeding during transurethral resection of prostate for benign prostatic hyperplasia.

REFERENCES


