



“EFFECT OF PREOPERATIVE DUTASTERIDE IN REDUCING PERIOPERATIVE BLOOD LOSS IN TRANSURETHRAL RESECTION OF PROSTATE FOR BENIGN PROSTATIC HYPERPLASIA- A MIXED DESIGN COHART STUDY”

Urology

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ABSTRACT

Introduction- BPH is problem in ageing male. Endoscopic management of prostatic adenomas by electro-resection or laser surgery is standard of care. **Aims :-** To determine whether preoperative treatment with Dutasteride decreases surgical blood loss in patients who undergo transurethral resection of the prostate for benign prostatic hyperplasia with prostate 30cc- 60cc volume. **Objective:-** To compare the mean post-operative drop in Hemoglobin and PCV in the two groups (Dutasteride and control group). **Material And Methods :-** In this mixed cohort study, 80 patients who attend the urology opd of MDM Hospital from January 2024 to march 2025 with symptomatic BPH with moderate and severe IPSS score with prostate size 30 – 60 cc on ultrasound underwent indicated Transurethral resection of prostate (TURP) and studied in 2 groups. Group A (cases) 40 patients with symptomatic BPH who was taking tab Dutasteride for 2 weeks 0.5 mg HS dose prior to surgery. Group B (controls) 40 patients with symptomatic BPH who was not taking tab Dutasteride for 2 weeks 0.5 mg HS dose prior to surgery. Two groups were compared using unpaired t-test and percentage. **Results :-** There is significantly more drop of haemoglobin & PCV and more number of blood transfusion in patients who were not taking dutasteride. There is also less resection time in patients who were taking dutasteride. **Conclusion :-** As post operative blood loss is less in patients taking dutasteride, it may be recommended for short term before surgery when performed by experienced urologists. However further study is needed to confirm the use of dutasteride to decrease prostatic tissue vascularity.

KEYWORDS

TURP, BPH, Dutasteride, PCV

INTRODUCTION

Benign prostatic hyperplasia (BPH) is an abnormal stromal and glandular proliferation of the prostate gland and is a common benign tumor found in men above 50 years of age.¹ The prevalence of histological confirmed BPH is 14 %, 37% and 39% of men 50 to 59, 60 to 69 and older than 70 years of age, respectively.² Proliferation of prostatic stromal cells is dependent on androgens, the most important being Dihydro-testosterone (DHT). This androgen is essential for early embryological development and growth of the prostate gland.³ DHT is synthesized from testosterone by the isoenzyme 5 α -reductase, which has two subtypes - type1 and 2. 5 α -reductase type 2 is the main enzyme in the prostatic stroma that is responsible for conversion of testosterone to DHT and maintains intra prostatic dihydro-testosterone in sufficient level to cause prostatic hyperplasia.⁴ Management of patients with BPH is based on the clinical symptoms and complications associated with BPH. The absolute indications for surgical treatment are history of refractory urinary retention, recurrent urinary tract infection, hematuria, azotemia and vesical stone formation.^{5,6} The aim of surgical treatment is the removal of as much prostatic tissue as possible, with minimal perioperative morbidity and shorter hospitalization and catheterization.⁶ Though TURP is considered the worldwide accepted gold standard tool in management of BPH, it is associated with significant complications like intra op and peri- operative bleeding, which may be life threatening.⁷ Proliferation of the prostatic glandular tissue depends on the androgen dihydrotestosterone, hence inhibition of 5 α -reductase causes reduction of gland volume, that will indirectly reduce the duration of surgery and decrease the blood loss.⁸ There have been few studies that have suggested the 5 α -reductase inhibitors finasteride and dutasteride to have anti-angiogenic properties and cause reduction of intraprostatic and sub urethral microvessel density.⁹ Dutasteride inhibits both 5 α -reductase type1 and 2. Studies have reported that patients treated with finasteride prior to surgery have lesser bleeding following TURP than those who had been on dutasteride.¹⁰ Since the development of prostate is dependent on the dihydrotestosterone, and rogen suppressive therapy¹¹ can be used as the medical therapy for BPH. Testosterone conversion into dihydrotestosterone (DHT) is inhibited by the 5 α reductase inhibitors like Finasteride and

Dutasteride. These drugs will inhibit the prostate growth. Hematuria will occur in BPH depends on the microvessel density in the prostatic urothelium. Several studies showed that finasteride prevents recurrent gross hematuria in BPH.¹² Some research studies suggest that the androgen controlled vascular endothelial growth factor2 is suppressed by finasteride and leads on to decreased angiogenesis. The finasteride inhibits only type2 5 α reductase and the dutasteride inhibits both type1 and type2 isoenzymes. So, if finasteride decreases TURP bleeding complication, dutasteride also can decrease the bleeding complication of TURP.¹³

MATERIAL AND METHODS:-

In this mixed cohort study, included the patients who attend the urology opd of MDM hospital, jodhpur, from January 2024 to March 2025 with symptomatic BPH with moderate and severe IPSS score with prostate size 30 – 60 cc (on ultrasound) and underwent indicated Transurethral resection of prostate (TURP) and studied in 2 groups.

Group A (cases) Symptomatic BPH who was taking Tab Dutasteride for 2 weeks 0.5 mg HS dose prior to surgery.

Group B (controls) Symptomatic BPH who was not taking Tab Dutasteride for 2 weeks 0.5 mg HS dose prior to surgery.

Patient underwent monopolar TURP with single stem TUR loop by experienced urologists and glycine as irrigant. The settings 110 W cutting and 80W coagulation for the resection of prostate. Blood samples were taken preoperative and 24 hours after the surgery.

Patients with previous h/o prostatic surgery, prostatic diseases (like carcinoma prostate) other than BPH, with PSA >9 ng/dl, on anticoagulants or bleeding

Statistical Analysis :- Data was expressed in percentage, mean $\pm$ Standard Deviation and student t test and percentage were used for comparison. P value of <0.05 was considered to be significant.

RESULTS

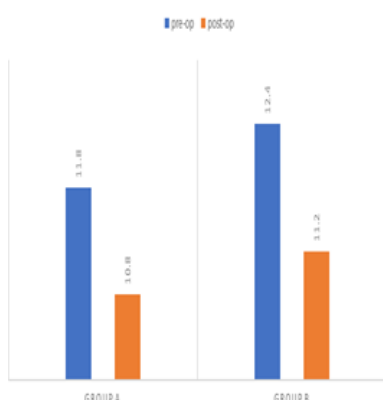
The MEAN age in group A and B was 64.8 and 65.1 with minimum and maximum age in group A and B was 58 & 78 and 56 & 80 years respectively. Age distributions in both the groups were comparable.

Mean preoperative Haemoglobin of both the groups A – 12.4 ± 1.7 and B – 11.8 ± 1.5 with p-value 0.098, not statistically significant. Therefore both the groups were comparable. Mean post-operative Haemoglobin of both the groups A – 10.8 ± 0.3 and B – 11.2 ± 0.5 with p-value <0.0001 , statistically significant more blood loss in Group B.

Mean preoperative PCV of both the groups A – 31.51 ± 1.6 and B – 31.54 ± 1.4 with p-value 0.9291, not statistically significant. Therefore both the groups were comparable. Mean post-operative pcv of both the groups A – 29.6 ± 1.011 and B – 28 ± 1.029 with p-value <0.0001 , statistically significant more PCV loss in group B.

Transurethral resection time was calculated from the start of resection of prostate upto the withdrawal of resectoscope from the urethra. The difference in the average resection time between the two groups was 5 minutes with group B having more resection time with P-value of 0.0183 which is statistically non significant. Therefore both the groups were comparable.

PRE AND POST OPERATIVE HAEMOGLOBIN



PRE & POST OPERATIVE PCV

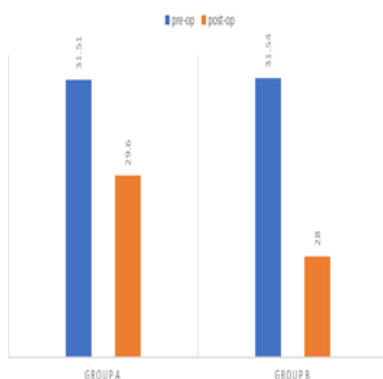


Table 1 Comparison Of 2 Groups With Respect To Demographic Characteristics And Blood Levels:

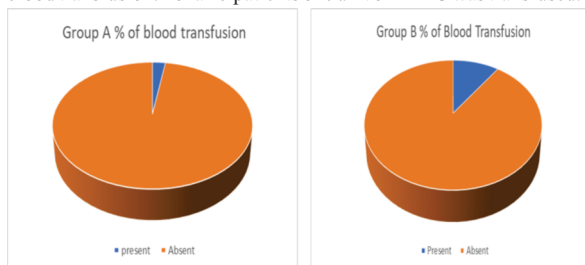
Parameters	Group A	Group B	P-Value
Age (in years)	64.8 ± 8.2	65.1 ± 8.3	0.8712
PSA (ng/dl)	7 ± 1.1	6.7 ± 0.9	0.1858
Pre-op Hb	11.8 ± 1.7	12.4 ± 1.5	0.098
Post op Hb	10.8 ± 0.3	11.2 ± 0.5	<0.0001 (SIGNIFICANT)
Pre-op PCV	31.51 ± 1.6	31.54 ± 1.4	0.9291
Post-op PCV	29.6 ± 1.011	28 ± 1.029	<0.0001 (SIGNIFICANT)
RESECTION TIME (IN MINUTES)	45 ± 10	50 ± 8.5	0.0183

Need Of Blood Transfusion

GROUP	PRESENT	ABSENT	%
A	1	39	2.6

B	4	40	10
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1 (2.6%) patient in group A and 4 (10%) patients in group B required blood transfusion. For all 5 patients one unit of PRBC was transfused.



DISCUSSION:

Intra operative and post operative bleeding following TURP is one of the serious complication. 5 alpha reductase inhibitors have anti angiogenic properties that indirectly reduces vascularity of prostate. The primary aim of our study was to assess whether pre treatment with dutasteride reduces blood loss during TURP. In this study, patients with preoperative short course of dutasteride have a significant reduction in post operative blood loss. R.G.Hahn¹⁵ et al assessed the effect of preoperative dutasteride on surgical blood loss and postoperative complications following TURP. He reported that even though there is reduction of serum DHT levels in the dutasteride arm, there was no significant effect on blood loss following TURP for BPH. Another French study by Boccon-Gibod L¹³ et al assessed the effect of preoperative dutasteride therapy on postoperative blood loss in patients undergoing TURP. The results showed less blood loss in dutasteride group but the data was not found to be statistically significant.

Due to decrease vascularity, less bleeding in dutasteride group during surgery give better visualisation to the operating surgeon that leads to lesser resection time.

CONCLUSION :-

From this study, we conclude that pre operative 2 weeks dutasteride therapy reduces perioperative bleeding that also helps in decreasing resection time. However further study is needed to confirm the use of dutasteride to decrease prostatic tissue vascularity.

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Conflicts Of Interest :- There is no conflict of interest.

REFERENCES

- Meigs JB, and Barry MJ: Natural history of benign prostatic hyperplasia, in Kirby R, McConnell JD, Fitzpatrick JM, et al (Eds), Textbook of Benign Prostatic Hyperplasia. Oxford, UK, Isis Medical Media Ltd, 1996, pp 139–148.
- Robson MC: the incidence of benign prostatic hyperplasia and prostatic carcinoma in cirrhosis of the liver, J Urol 92:307-310, 1964
- Berry SJ, Coffey DS, Walsh PC, et al: The development of human benign prostatic hyperplasia with age. J Urol 132:474–479, 1984.
- Russell DW, Wilson JD. Steroid 5alpha-reductase: two genes/two enzymes. Annu Rev Biochem 1994;63:25
- De la Rosette J, Alivizatos G, Madersbacher S, et al. Guidelines on Benign Prostatic Hyperplasia. European Association of Urology. 2006.
- Mebust WK, Holtgrewe HL, Cockett AT, et al. Transurethral prostatectomy: immediate and postoperative complications. A cooperative study of 13 participating institutions evaluating 3,885 patients. J Urol. 1989;141:243–7
- Reich O, Gratzke C, Stief CG. Techniques and long-term results of surgical procedures for BPH. Eur Urol. 2006;49:970–978
- Dutasteride tablets [package insert]. GlaxoSmithKline, Research Triangle Park, NC, 2002
- Donohue, J. F., Hayne, D., Karnik, U., Thomas, D. R. & Foster, M. C. Randomized, placebo-controlled trial showing that finasteride reduces prostatic vascularity rapidly within 2 weeks. BJU Int. 96, 1319–1322 (2005)
- Comparison of dutasteride and finasteride for treating benign prostatic hyperplasia: the Enlarged Prostate International Comparator Study (EPICS). BJU
- J. D. McConnell, J. D. Wilson, F.W. George, J. Geller, F. Pappas, and E. Stoner, —Finasteride, an inhibitor of 5-reductase, suppresses prostatic dihydrotestosterone in men with benign prostatic hyperplasia, J. Journal of Clinical Endocrinology and Metabolism, vol. 74, no. 3, pp. 505–508, 1992.
- M. T. Sutton, M. Yingling, A. Vyas et al., —Finasteride targets prostate vascularity by inducing apoptosis and inhibiting cell adhesion of benign and malignant prostate cells, J. Prostate, vol. 66, no. 11, pp. 1194–1202, 2006.
- Boccon-Gibod L, Valton M, Ibrahim H, Boccon-Gibod L, Comenducci A. [Effect of dutasteride on reduction of intraoperative bleeding related to transurethral resection of the prostate]. Prog Urol 2005; 15: 1085–9
- Kim KS, Jeong WS, Park SY, Kim YT, Moon HS. The effect of two weeks of treatment with dutasteride on bleeding after transurethral resection of the prostate. The world journal of men's health. 2015 Apr;33(1):14.

- 15) Hahn RG, Fagerström T, Tammela TL, Van Vierssen Trip O, Beisland HO, Duggan A, Morrill B. Blood loss and postoperative complications associated with transurethral resection of the prostate after pretreatment with dutasteride. *BJU international*. 2007 Mar;99(3):587-94.