



Effects of Two Weeks Finasteride Therapy on Per-Operative Decrease in Haemoglobin Patients after Transurethral Resection of Prostate (TURP)

Aqib Riaz¹, Ayesha Saddiq², Ansar Abbas³, Umair Zafar³, Ameer Hamza Imtiaz³, Mubashir Saeed³

¹Department of Urology, Combined Military Hospital, Multan, Punjab, Pakistan.

²Department of Urology, Sheikh Zayed hospital, Rahim Yar Khan, Punjab, Pakistan

³Department of Urology, Recep Tayyip Erdogan Hospital, Muzaffargarh, Punjab, Pakistan

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Correspondence to: Aqib Riaz, Department of Urology, Combined Military Hospital, Multan, Punjab, Pakistan.
Email: aqibriaz356@gmail.com

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ABSTRACT

Objective: "To compare the per-operative mean decrease in hemoglobin level in patients undergoing transurethral resection of the prostate (TURP) taking Finasteride for two weeks before TURP versus without pre-treatment of Finasteride. **Study Design:** Quasi experimental study. **Place and duration of study:** Department of Urology, Combined Military Hospital, Multan from September 2023 to September 2024. **Materials & Methods:** This Quasi experimental study was conducted at Department of Urology, Combined Military Hospital Multan from September 2023 to September 2024 after taking permission from hospital ethical review board (IRB NO.82-2024). Informed consent was obtained from all patients before they are included in this study. Firstly, selected patients were explained with the theoretical benefits of Finasteride, its duration and the time he has to wait for surgery. If that patient agrees to Finasteride therapy, he was included in group A; if he does not agree, he was left for group B. Group A having 72 BPH patients was given Finasteride (5 mg/day) for two weeks before surgery. Group B was designated as control group also having 72 BPH patients and no drug was given before surgery. Data analysis was carried out using SPSS version 26. Mean and standard deviations was calculated for quantitative variables like age, duration of BPH disease, pre-op hemoglobin, post-op hemoglobin and decrease in Hemoglobin. Frequency and percentage was calculated for age groups, hypertension, and diabetic history. An independent sample t-test was applied to see significant differences in the per-operative decrease in hemoglobin in both groups. **Results:** A total of 144 patients undergoing TURP due to BPH having mean age 62.13 ± 8.37 years (range; 49 - 79 years) were included. Of these 144 study cases, 44.4 % (n = 64) belonged to age group of up to 60 years while 55.6 % (n = 80) were aged more than 60 years. Fifty three (36.8 %) belonged to rural localities and 63.2 % (n = 91) belonged to urban areas. Fifty (34.7%) had poor social background and 65.3 % (n = 94) were from middle income families. IPSS severity was mild in 9.0 % (n = 13), moderate in 45.1 % (n = 65) and severe in 45.8 % (n=66). Of these 144 study cases, 32.6 % (n = 47) were diabetic and 46.5 % (n = 67) were hypertensive. Thirty six (25.0%) were obese with mean body mass index (BMI) was 25.71 ± 1.98 kg / m². Mean pre-treatment Hb level was 12.68 ± 0.53 g/dl in group A versus 12.81 ± 0.52 g/dl in group B (P = 0.144) while mean post-treatment hemoglobin level was 12.60 ± 0.56 g/dl in group A versus 12.37 ± 0.60 g/dl in group B (P=0.020). **Conclusion:** Our study support use of Finasteride in benign prostatic hyperplasia patients undergoing transurethral resection of the prostate (TURP) as per-operative mean hemoglobin level in patients undergoing transurethral resection of the prostate (TURP) taking Finasteride for two weeks before TURP was significantly higher as compared with control group. All urologists treating BPH patient with transurethral resection of the prostate can effectively employ Finasteride to achieve desired outcomes.

INTRODUCTION

Benign Prostatic Hyperplasia (BPH) is a non-cancerous enlargement of the prostate gland that primarily affects older men^{1,2}. Its prevalence increases significantly with age, affecting 50%–60% of men by their 60s and over 80% by their 80s. Geographic and ethnic differences have been

observed, with higher rates in Western populations compared to Asian ones³. Among ethnic groups, Black men tend to experience larger prostate volumes and more severe symptoms than White or Asian men⁴.

With global life expectancy rising, the number of men affected by BPH is expected to grow. Access to healthcare

and awareness influence diagnosis and treatment rates across regions ^{5,6}. BPH also imposes a significant economic burden due to costs associated with medical consultations, diagnostic procedures, medications, and surgical treatments like transurethral resection of the prostate (TURP) ^{7,8}.

Finasteride plays a supportive role in the management of Benign Prostatic Hyperplasia (BPH) for patients undergoing transurethral resection of the prostate (TURP). Administering finasteride prior to TURP can help reduce prostate size and vascularity, thereby decreasing the risk of intraoperative bleeding ⁹. Research indicates that preoperative therapy with finasteride, typically for several weeks to months, lowers prostate micro vascular density, making it especially useful for patients with larger prostates or increased bleeding risk ¹⁰⁻¹².

The baseline mean hemoglobin in the three groups were 13.8±1.8, 14.0±1.75 and 14.6±1.9, respectively. The 24-hour post-operative Hb in the three groups were 12.42±1.11, 12.87±0.79 and 13.36±0.97, respectively, giving a significant difference of finasteride therapy on the mean decrease in blood loss (p-value <0.05) ¹³.

Considering the disease burden and high incidence of blood loss owing to high angiogenesis, the comparative efficacy of finasteride will reflect the outcome in tackling the per-operative blood loss, which in turn will yield an improved outcome and decrease hospital stay of patients. This will fill the local literature gap and add to the international data. As evident from literature, it is observed that there has been mixed evidence regarding finasteride treatment in BPH patients. This study will help evaluate if there is any benefit of finasteride per-operative bleeding in TURP. If it has beneficial effects, then it was given as a standard treatment to every patient with benign prostatic hyperplasia before undergoing Transurethral resection of the prostate (TURP).

METHODOLOGY

This Quasi experimental study was conducted at Department of Urology, Combined Military Hospital Multan from September 2023 to September 2024 after taking permission from hospital ethical review board. A total of 144 patients (72 patients in each group) were included in this study. The sample size was calculated using an Openepi calculator where: Confidence Level: 95%, power of the Test: 80%, mean post-operative hemoglobin in the control group: 12.42±1.11 g/dl and mean per-operative hemoglobin in the Finasteride group: 12.87±0.79 g/dl ¹³.

Inclusion Criteria: All male patients of age 30 to 80 years with the diagnosis of benign prostatic hyperplasia planned to undergo TURP were included in our study.

Exclusion Criteria: Patients who underwent prior prostate or urethral surgery, with a diagnosis of prostate cancer on ultrasound studies, having chronic renal failure (Creatinine kinase levels > 2.0 mg/dl) and patients receiving aspirin, Coumadin or similar anticoagulant drugs before surgery were excluded from our study.

Informed consent was obtained from all patients before they are included in this study. Firstly, selected

patients were explained with the theoretical benefits of Finasteride, its duration and the time he has to wait for surgery. If that patient agrees to Finasteride therapy, he was included in group A; if he does not agree, he was left for group B. Group A having 72 BPH patients was given Finasteride (5 mg/day) for two weeks before surgery. Group B was designated as control group also having 72 BPH patients and no drug was given before surgery. The procedure was continued until 72 patients are selected for the study group. The patients were followed up at the start of recruitment, 14 days after the therapy for pre-treatment Hb, and two weeks after the TURP procedure for any procedure-related complications.

Data analysis was carried out using SPSS version 26. Mean and standard deviations was calculated for quantitative variables like age, duration of BPH disease, pre-op hemoglobin, post-op hemoglobin and decrease in Hemoglobin. Frequency and percentage was calculated for age groups, hypertension, and diabetic history. An independent sample t-test was applied to see significant differences in the per-operative decrease in hemoglobin in both groups, taking P-value <0.05 as significant.

RESULTS

A total of 144 patients undergoing TURP due to BPH having mean age 62.13 ± 8.37 years (range; 49 - 79 years) were included. Of these 144 study cases, 44.4 % (n = 64) belonged to age group of up to 60 years while 55.6 % (n = 80) were aged more than 60 years. Fifty three (36.8 %) belonged to rural localities and 63.2 % (n = 91) belonged to urban areas. Fifty (34.7%) had poor social background and 65.3 % (n = 94) were from middle income families. IPSS severity was mild in 9.0 % (n = 13), moderate in 45.1 % (n = 65) and severe in 45.8 % (n=66). Of these 144 study cases, 32.6 % (n = 47) were diabetic and 46.5 % (n = 67) were hypertensive. Thirty six (25.0%) were obese with mean body mass index (BMI) was 25.71 ± 1.98 kg / m ². Both groups were comparable in terms of baseline characteristics (Table No. 1). Mean pre-treatment Hb level was 12.68 ± 0.53 g/dl in group A versus 12.81 ± 0.52 g/dl in group B (P = 0.144) while mean post-treatment hemoglobin level was 12.60 ± 0.56 g/dl in group A versus 12.37 ± 0.60 g/dl in group B (P=0.020), (Table No. 2).

Table 1

Baseline characteristics in both groups. (n=144)

Characteristics	Groups		p value
	Group A (n = 72)	Group B (n = 72)	
Age groups			
≤60 Years (n= 64)	31 (43.1 %)	33 (45.8 %)	0.737
> 60 Years (n=80)	41 (56.9 %)	39 (54.2 %)	
Residential status			
Rural (n= 53)	25 (34.7 %)	28 (38.9 %)	0.604
Urban (n=91)	47 (65.3 %)	44 (61.1 %)	
Socioeconomic status			
Poor (n=50)	24(33.3 %)	26 (36.1 %)	0.726
Middle Income (n=94)	48 (66.7 %)	46(63.9 %)	
IPSS severity			
Mild (n = 13)	07 (9.7%)	06 (8.3%)	0.926
Moderate (n = 65)	33 (45.8%)	32 (44.4%)	
Severe (n = 66)	32 (44.4%)	34 (47.2 %)	
Diabetes			
Yes (n=47)	23(31.9 %)	24 (33.3 %)	0.859
No (n=97)	49 (68.1 %)	48 (66.7 %)	

Hypertension			
Yes (n=67)	35 (48.6 %)	32 (44.4 %)	0.542
No (n=77)	37 (51.4 %)	40 (55.6 %)	
Obesity			
Yes (n=36)	19 (26.4 %)	17 (23.6 %)	0.701
No (n=108)	53 (73.6 %)	55 (76.4 %)	

Table II

Distribution of post-treatment hemoglobin levels in both groups (n= 72)

Hemoglobin levels (g/dl)	Group A	Group B	p value
	Mean±SD	Mean±SD	
Pre-treatment Hb levels	12.68±0.53	12.81±0.52	0.144
Post treatment Hb levels	12.60±0.56	12.37±0.60	0.020

DISCUSSION

Finasteride, a 5-alpha reductase inhibitor, is commonly prescribed to reduce prostate size in patients with benign prostatic hyperplasia (BPH) before undergoing transurethral resection of the prostate (TURP). Its impact on hemoglobin levels is closely linked to its effect on perioperative bleeding. Preoperative use of Finasteride (typically for 4–8 weeks) has been shown to decrease both intraoperative and postoperative bleeding during TURP. This is due to reduced vascularity and lower expression of vascular endothelial growth factor (VEGF) in the prostate¹⁴. Reduced bleeding minimizes the likelihood of significant drops in hemoglobin levels. Patients taking Finasteride tend to experience a smaller decrease in hemoglobin levels compared to those not using the medication. This is directly correlated with the reduction in blood loss. Studies report that the hemoglobin decrease post-TURP is generally less pronounced in patients on Finasteride, although the extent of this effect varies among studies¹⁵.

A total of 144 patients undergoing TURP due to BPH having mean age 62.13 ± 8.37 years (range; 49 - 79 years) were included. Of these 144 study cases, 44.4 % (n = 64) belonged to age group of up to 60 years while 55.6 % (n = 80) were aged more than 60 years. Abt et al¹⁶ from Switzerland has reported 66.1 ± 9.8 years mean age of the benign prostatic hyperplasia undergoing TURP, similar to our results. Teng et al¹⁷ from Taiwan has reported 71 ± 8 years mean age of the benign prostatic hyperplasia undergoing TURP, similar to our results. A Syrian study by Daher et al¹⁸ has also reported 64 years mean age (range; 58 - 70 years) among patients undergoing TURP, similar to our results. Khan et al from Peshawar has also reported 56.42 ± 10.05 years mean age of the BPH, similar to our results¹⁹. Dutt et al²⁰ from India has also reported 67.2 ± 6.9 years mean age of the BPH patients showing similar trends.

Fifty three (36.8 %) belonged to rural localities and 63.2 % (n = 91) belonged to urban areas. Fifty (34.7%) had poor social background and 65.3 % (n = 94) were from middle income families.. of these 144 study cases, 32.6 % (n = 47) were diabetic and 46.5 % (n = 67) were

hypertensive. A Syrian study by Daher et al¹⁸ has also reported 61.7 % hypertension in PBH undergoing TURP while 52.7 % had diabetes, similar to our results. Khan et al from Peshawar has also reported 31.3 % hypertension and 22.4 % diabetes among patients of the BPH, similar to our results¹⁹.

IPSS severity was mild in 9.0 % (n = 13), moderate in 45.1 % (n = 65) and severe in 45.8 % (n=66). Abt et al¹⁶ from Switzerland has reported 17.59 ± 6.17 mean IPSS score of the benign prostatic hyperplasia undergoing TURP, similar to our results. Teng et al¹⁷ from Taiwan has reported 24 ± 5 mean IPSS score of the benign prostatic hyperplasia undergoing TURP, similar to our results. A Syrian study by Daher et al¹⁸ has also reported 18 mean IPSS score with 12.3 % mild severity, 40.8 % had mild severity and 47 % had severe IPSS severity level, similar to our results.

Thirty six (25.0%) were obese with mean body mass index (BMI) was 25.71 ± 1.98 kg / m². Abt et al¹⁶ from Switzerland has reported 27.0 ± 3.9 kg/m²s mean BMI of the benign prostatic hyperplasia undergoing TURP, similar to our results. Khan et al from Peshawar has also reported 23.07 ± 4.96 kg/m² mean BMI of the BPH, similar to our results¹⁹. Dutt et al²⁰ from India has also reported 22.39 ± 1.6 kg / m² mean BMI of the BPH patients showing similar trends.

Considering the disease burden and high incidence of blood loss owing to high angiogenesis, the comparative efficacy of finasteride will reflect the outcome in tackling the per-operative blood loss, which in turn will yield an improved outcome and decrease hospital stay of patients undergoing TURP. This will fill the local literature gap and add to the international data. Mean pre-treatment Hb level was 12.68 ± 0.53 g/dl in group A versus 12.81 ± 0.52 g/dl in group B (P = 0.144) while mean post-treatment hemoglobin level was 12.60 ± 0.56 g/dl in group A versus 12.37 ± 0.60 g/dl in group B (P=0.020). An Indian study conducted by Dutt et al²⁰ has reported similar results showing significant reduction of post-treatment Hb levels in control group as compared with treatment group. However, Khan et al¹⁹ has reported variable findings, showing mean Hb levels were comparable in both groups after treatment.

CONCLUSION

Our study support use of Finasteride in benign prostatic hyperplasia patients undergoing transurethral resection of the prostate (TURP) as per-operative mean hemoglobin level in patients undergoing transurethral resection of the prostate (TURP) taking Finasteride for two weeks before TURP was significantly higher as compared with control group. All urologists treating BPH patient with transurethral resection of the prostate can effectively employ Finasteride to achieve desired outcomes.

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