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ORIGINAL ARTICLE

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

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ABSTRACT

Aim: To compare the per-operative mean decrease in haemoglobin level in patients undergoing transurethral resection of prostate taking finasteride for two weeks before transurethral resection of prostate versus without pre-treatment of finasteride.
Study Design: Randomized control trial
Place and Duration of Study: Department of Urology, Indus Hospital, Karachi from 23rd May 2017 to 22nd November 2017.
Methodology: Sixty patients were included and divided into two groups. In Group A, patients were finasteride (5 mg/day) for two weeks before surgery and Group B (control group) no drug will be given before surgery. All patients underwent transurethral resection of prostate and then had intra-operative bleeding noted.
Results: Only 4 (8.7%) of the patients had the history of supplement use. No significant difference was observed in age, baseline creatinine, protate size, duration of BPH, before surgery hemoglobin and after surgery hemoglobin between both the groups. There was slight decrease in hemoglobin in placebo group adjusting for age, baseline creatinine, duration of BPH and prostate size. However, the results did not reach statistical significance.
Conclusion: Finesteride given 2 weeks prior to surgery does not significantly decrease intra-op bleeding.
Keywords: Effect, transurethral resection of prostate (TURP), Finasteride

INTRODUCTION

Transurethral resection of prostate have been used as a gold standard surgical treatment for benign prostatic hyperplasia irresponsive to the conventional medical treatment.[1] Transurethral resection of prostate can result in per-operative bleeding, urinary retention, retrograde ejaculation and erectile dysfunction.[2] Per-operative bleeding is the most common complication of TURP, it may result in poor operative field visualization, hemodynamic instability, clot retention and need for surgical re-exploration.[3] In the last few decades, several modifications have been made to reduce bleeding complications of TURP, these include instillation of coagulation or sclerosing agents (fibrin adhesives, premaquin or phenol solution), use of 5-alfa reductase inhibitors and catheter traction method.[4]

5-alpha reductase inhibitors such as finasteride have modulating effects on angiogenesis growth factors in the prostate and help to reduce BPH-associated gross hematuria and bleeding associated with TURP.[5] It has been shown that two weeks pre-treatment with finasteride has been associated with reduced expression of vascular endothelial growth factor and reduced micro-vascular density in prostate tissue.[6] A few studies have been conducted to address the clinical effects of preoperative treatment with 5-alpha-reductase inhibitors on bleeding complications of TURP but with variable outcomes.[4,7] In the study of Ozdal et al[8], the mean per-operative decrease in haemoglobin after TURP was 1.88±0.93g/dl in patients who received treatment of finasteride before TURP and 3.19±1.18g/dl in patients who underwent conventional TURP surgery without any treatment. Ozdal at al[8] also concluded that pre-treatment with finasteride has been associated with reduced risk of per-operative bleeding in patients undergoing TURP for the treatment of benign prostatic hyperplasia. In another study there was no significant difference in decrease in mean haemoglobin in Finasteride group and placebo group; 279 ml in finasteride group and 287 ml in placebo group.[9] A recent study also did not found any significant effect of finasteride therapy on per-operative decrease in haemoglobin.[4]

We have a plan to conduct a study to evaluate the effects of 2 weeks pre-treatment of finasteride on per-operative bleeding in patients of benign prostatic hyperplasia undergoing transurethral resection of prostate (TURP) versus without finasteride pretreatment. The literature has mixed evidence regarding finasteride treatment in BPH patients. This difference in results of these studies may be due to duration of pre-treatment of finasteride therapy or may be due to patient's characteristics or experience of operating surgeon. So there is need to evaluate the effectiveness of finasteride therapy in our patients.

MATERIALS AND METHODS

This randomized clinical trial was conducted at Department of Urology, Indus Hospital Karachi from 23rd May 2017 to 22nd November 2017. A total of 60 patients were included and they were dived in two equal groups. Each group comprised 30 patients. Group A was allotted to patients in whom finasteride (5 mg/day) was given for two weeks before surgery and group B (control group): was allotted to the patients in whom no drug was given before surgery. All male patients of age 30 to 80 years, prostate size up to 60 grams assessed on trans-abdominal ultrasound, duration of benign prostatic hyperplasia (BPH) and all catheterized patients with diagnosis of benign prostatic hyperplasia planned to undergo TURP were included. Patients who underwent prior prostate or urethral surgery, diagnosis of prostate cancer on ultrasound, chronic renal failure (creatinine kinase levels > 2.0 mg/dl) diagnosed during laboratory investigations, receiving aspirin, coumadin or similar anticoagulantdrugs prior to surgery (evaluated on previous history of patients) were excluded. Post-operatively hemoglobin was measured 24 hours post-surgery in all patients. Prostate size was measured using trans-abdominal ultrasound. Transurethral resection of prostate was performed by consultant urologist having a minimum of five years post-fellowship experience and I (the investigator) was the assistant in every procedure. All the operations were performed under either spinal or epidural anesthesia. The TURPs will be performed by using a 24F resectoscope. The amount of blood loss was calculated by measuring pre and post-operative hemoglobin. All the collected data regarding surgery and per-operative decrease in haemoglobin was be recorded on a pre-designed proforma along with other demographic variables e.g. age of the patient and co-morbid diseases such as hypertension and diabetes. Data analysis was carried out using SPSS-21.0.

RESULTS

Only 5 (8.3%) of the patients had the history of supplement use. Two (3.3%) patients had ischemic heart disease, 8 (13.3%) were diabetic and 13 (21.5%) patients were hypertensive (Table 1). No significant difference was observed in age, baseline creatinine, prostate size, duration of BPH, before surgery hemoglobin and after surgery hemoglobin between both the groups (Table 2).

Furthermore, results revealed that there was slight decrease in hemoglobin in placebo group adjusting for age, baseline

creatinine, duration of BPH and prostate size. However, the results did not reach statistical significance (Table 3). Furthermore, the compliance rate in finesteride group was 100% and none of the patients were found to have any adverse reaction of the drug.

Table 1: Frequency of supplement use and co-morbids (n=60)

Characteristics	No.	%
Supplements used		
Chewable tobacco	1	1.6
Smoking	4	6.8
None	55	91.6
Co-morbids		
Ischemic heart disease	2	3.3
Diabetes mellitus	8	13.3
Hypertensive	13	21.5
None	39	65.0

Table 2: Comparison of finesteride and placebo groups

Characteristics	Finesteride group	Placebo group	P value
Age	62.6±7.8	60.7±9.1	0.402
Baseline creatinine	1.0±0.3	1.1±0.3	0.127
Baseline prostate size (gm)	56.4±8.5	51.2±11.9	0.059
Duration of BPH	5.1±1.8	4.9±1.9	0.614
Before surgery Hb	13.3±1.7	13.5±1.8	0.679
After surgery Hb	12.7±1.8	12.6±1.8	0.764

Table 3: Change in hemoglobin adjusting for baseline characteristics

Variable	Coefficient	S.E	95% CI	P-value
Constant	11.400	1.01	9.5,13.4	0.000**
Placebo vs Finesteride	-0.380	.32	-1.02, 0.26	0.244
Baseline creatinine	-0.170	.57	-1.3, 0.96	0.773
Baseline prostate size (gm)	0.007	0.01	-0.02, 0.296	0.586
Duration of BPH	0.323	0.09	0.15, 0.49	0.000**

**P-value<0.0001, generalized linear model

DISCUSSION

Obstructions in the urinary tract as a consequence of BPH are commonly reported in the men above 50 years. The therapeutics medical treatment of BPH includes the administration of finasteride which is a 5-alpha reductase inhibitor which causes blocking of the testosterone conversion into dihydrotestosterone which is more potent hormone.[10] The dihydrotestosterone suppression causes reduction in the growth of the tissues through glandular decrease as well as reduction in fibromascular tissue. This process has reported an overall reduction in the prostate size by 30 percent in 3-6 months' time. The androgen-controlled activity of vascular endothelial growth factor is also suppressed by the administration of 5ARI which further results in declined angiogenesis as well as reduced prostatic bleeding.[11]

Transurethral-resection of prostrate (TURP) is considered as the gold standard for BPH treatment. Despite the fact that the aforementioned method do provides good treatment results but is also associated with the intra and post-operative complication specifically bleeding. The daily consumption of finasteride has proven reduction in the hematuria by 77-100 percent in context with prostatic bleeding.[12,13] There has been a variance in its usage from 2 weeks till 3 months. Foley et al[14] elaborated a reduction in the hematuria cases up to 86% in patients using Finasteride. Similarly Hagerty et al[15] and Mebust et al[16] another study also reported in their research that blood loss related with TURP was reduced in cases taking finasteride with no long lasting complications (>3 months).

Perioperative hemorrhage reduction in BPH cases prior to TURP was also reported by Sandfeldt et al[17] and Donohue and Barber[18] wherein insignificant variance in loss of blood was observed as well as hemoglobin decrease, operative time and weight/volume of prostate tissue/prostate respectively. McVary et al[19] also detailed significant reduction in the perioperative blood loss, post operative complications in cases receiving finasteride. Similar finding were also detailed in other researchers work.[20-22]

Study by McConnell et al[23] reported reduction in the prostate volume by finasteride administration for a 1-week period. The decreased in volume was seen as 40cc. In cases where increased up to 150cc prostate volume was present the treatment was based on 45 days plan for the reduction outcome. Donohue et al[18] although did not find any significant variance in intra operative bleeding of patients, however it was observed that placebo group has more hemoglobin loss than the group taking finasteride postoperative. Sandfeldt et al[9] identified reduction in the blood loss in finasteride administered cases (having ≥18 g prostate) with no long-term side effects (> 30 months) observed.

CONCLUSION

Finesteride given 2 weeks prior to surgery does not significantly decrease intra-op bleeding. Hence based upon results of our study and studies done before, we will strongly recommend routine use of finesteride as an aid in TURP for decreasing blood loss.

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