EFFECT OF DUTASTERIDE (5 ALPHA-REDUCTASE INHIBITOR) TREATMENT ON REDUCING BLOOD LOSS, IN PERIOPERATIVE PERIOD OF OPEN PROSTATECTOMY DONE IN LARGE PROSTATE.

Urology

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ABSTRACT

OBJECTIVE- Open prostatectomy (OP) is still a very valid option in treatment of very large volume prostates in the absence of holmium laser enucleation (holmium laser is a rarity and expensive in govt and self funded medical colleges), its main complication being intra and perioperative bleeding. Preoperative use of dutasteride has shown to decrease perioperative bleeding in TURP (transurethral resection of prostate), though till date OP being a standard procedure in large prostate management ,there is no study showing effect of dutasteride in perioperative bleeding in OP. The aim of this study was to evaluate whether pretreatment with dutasteride for 6 weeks before OP could reduce blood loss in surgery, as high watt holmium laser is still not available in most of the medical colleges ,treating patients for free .

MATERIAL AND METHODS- Data of 218 patients who underwent OP for BPH (benign prostatic hyperplasia), were investigated retrospectively. Of 218 patients ,46 were pretreated with dutasteride for 6 weeks and the rest were not under dutasteride treatment. Age, prostate volume , prostate specific antigen(PSA) levels, coagulation profile, platelet count, pre and post operative hemoglobin(Hb) levels ,and blood transfusion history were recorded .Blood loss was estimated as follows : pre operative Hb(-) post operative Hb(+) amount of blood transfusion. The 2 groups were compared by independent samples t-test and a p value of 0.05 was considered significant.

RESULTS - The groups were similar in terms of age , prostate volume ,platelet counts, coagulation tests and post operative Hb levels. Preoperative Hb levels were lower in dutasteride group (13.4 vs 14.3,p=0.002) and amount of bleeding (-2.72g/dl vs.-1.93g/dl, p=0.01) was shown to be significantly lower in dutasteride group.

CONCLUSION- Our result showed that pretreatment with dutasteride for 6 weeks before OP for very large prostates, reduces perioperative bleeding , and can be used in medical colleges where treatment is free ,instead of using holmium laser, though further prospective randomized trials would support the effectiveness of such treatment.

KEYWORDS

Open Prostatectomy, Dutasteride

INTRODUCTION – BPH (Benign prostatic hyperplasia) is a problem in aging male, though new pharmacological drugs are present, still surgery is needed. Endoscopic management (electroresection or holmium) is the standard of care (1),though adenomas more than 80-100 gms, require open surgery when holmium laser is not available as in most developing countries and medical colleges in INDIA .

OP open prostatectomy has been shown to be successful in treating large adenomas (1-4), though has the disadvantage of prolonged hospital stay and perioperative hemorrhage(2-4)

Dutasteride a(5-alpha reductase inhibitor) has shown to reduce prostate vascularity in 6 weeks (5), this effect of drug is used in controlling perioperative bleeding in patients undergoing endoscopic treatment of prostate, to our knowledge there is no published study regarding the effect of dutasteride on reducing perioperative bleeding in patients undergoing OP.

In this study, we aim to evaluate weather pretreatment with dutasteride can reduce bleeding rates in patients undergoing OP.

MATERIAL AND METHODS- in this retrospective study, data of 218 patients who underwent OP at our college between May 2009 to May 2017 was evaluated. Patients were divided into two groups :in group 1 patients received dutasteride for 6 weeks prior to surgery and group 2 were dutasteride naïve. Patients with renal failure , bleeding diathesis and on anticoagulant therapy were excluded , and written consent was obtained in all patients.

Age, prostate volume, prostate specific antigen (PSA) levels ,and routine blood parameters were done pre operatively. Hemoglobin (Hb) ,hematocrit(Hct) and platelets levels were recorded within 24 hrs of surgery. The amount of blood loss was calculated as follows : preoperative Hb levels(-) postoperative Hb levels (+) amount of blood transfusion (estimating that 1 unit of erythrocyte suspension increases Hb levels by 1 g/dl)

Statistical analysis

Data was expressed as mean +-SD and students's t-test and chi-square test were used for comparison. A p value of 0.05 was considered statistically significant.

RESULTS-

The mean age of population was 71.4+- 7.2 years and the mean

prostate volume was 135.1+-42.3 ml. The mean Hb and Hct levels were 14.2+-1.7 and 42.3+-5.2 respectively ,and the mean platelet count was 240000+-66000. The groups were similar in terms of preoperative characteristics ,except for preoperative Hb levels, which were significantly higher in group 2(14.3+-1.7) than in group 1 (13.4+-1.5)(p=0.002),the results are summarized in Table 1.

Blood transfusion was needed in 21 (45.6%) patients in group 1and 82 (47.6%) in group 2 (p=0.14).The difference in Hb levels disappeared in the post operative period (12.6+- 1.2 vs 12.4+-1.4, p=0.344).The amount of bleeding was higher in group 2 (2.72+-1.43) than in group 1(1.93+-1.34)(p=0.01).

Table 1.Comparison of the 2 groups with respect to demographic characteristics and blood levels

Parameter	Group 1	Group 2	P value
Age (mean +-SD)	71+-7.8	71.4+-7.2	0.97
PSA (ng/ml)	10.27+-8.22	10.01+-9.06	0.861
Prostate volume (ml)	142.1+-42.3	133+-41.8	0.204
Preoperative Hb(gm/dl)	13.4+-1.5	14.3+-1.7	0.002
Preoperative platelet count (mean+-SD)	256000+-65900	235000+-65800	0.06
Postoperative Hb(g/dl)	12.6+-1.2	12.4+-1.4	0.344
Amount of bleeding (mean +-SD)	1.93+-1.34	2.72+-1.42	0.01

SD=standard deviation, Hb: hemoglobin, Plt: platelets, PSA: prostate specific antigen

DISCUSSION

OP is still an alternative in surgical treatment of large volume prostate >80-100 gms, though the most important complication of OP is perioperative bleeding ,increased gland vascularity (neoangiogenesis) supports the development of BPH, dutasteride (5-ARIs) block the conversion of testosterone ,reducing the activity of androgen controlled growth factor responsible for angiogenesis (7).

Some studies have supported the use 5-ARIs in reducing surgical blood loss (8-11), and also its use in reducing blood loss during TURP. However the effect of 5-ARI has never been studied in patients undergoing OP. This is a pioneer study evaluating the perioperative effect of dutasteride in reducing the amount of bleeding in patients

undergoing OP, and this study has shown the bleeding to be lower in patients pretreated with dutasteride for 6 weeks prior to OP.

The present study results has shown pretreatment with dutasteride for 6 weeks prior to OP reduces surgical bleeding. No difference was found with respect to patients age ,prostatic volume or PSA levels. None patient was under anticoagulant treatment .

The most important draw back of this study is its retrospective nature and the relatively low number of patients in the dutasteride group, in addition postoperative complications were not documented in this cohort to evaluate the role of dutasteride use in prevention of complications. However , further randomized control trials may be conducted on patients receiving 5-ARIs and undergoing OP.

In conclusion , at least 6 weeks of dutasteride treatment prior to OP appear to reduce the amount of bleeding .Further randomized prospective trials are needed to confirm the use of dutasteride to decrease prostate tissue vascularity and amount of bleeding in patients undergoing OP. INDIA being a developing country where health care mostly is paid by patients, and the society is price conscious ,more studies should be done ,and all patients with large prostates should not be subjected to Holmium ,and increase the financial burden of patients who are in senior age group, depending on there saved money for daily needs .

Informed consent- written informed consent was taken from all patients who participated in this study.

REFERENCES

1. Oelke M, Bachmann A, Descaseaud A, Emberton M, Gravas S, Michel MC et al .Eay guide lines on treatment and follow up of non-neurogenic male lower urinary tract symptoms including benign prostatic obstruction .Eur Urol 2013;64:118-40.
2. Tubaro A, Carter S, Hind A, Vicentini C, Miano L.A prospective study of the safety and efficacy of suprapubic transvesical prostatectomy in patients with benign prostatic hyperplasia .J Urol 2001;166:172-6
3. Gassi M, Bartoletti R, Figlioli S, Sarati E, Eisner B, Boddi V, et al . Urinary symptoms ,quality of life and sexual function in patients with benign prostatic hypertrophy before and after prostatectomy : a prospective study .BJU Int 2003 :91:196-200
4. Varkarakis I, Kyriakakis Z, Delis A, Protogerou V, Deliveliotis C, Long term results of open transvesical prostatectomy from a contemporary series of patients. Urology 2004;64:306-10
5. Kravchick S, Cytron S, Mamonov A, Peled R, Linov L. Effect of short term dutasteride therapy on prostate vascularity in patients with benign prostatic hyperplasia :A pilot study;Urology 2009;73:1274-8
6. Hahn RG ,Fagerstrom T, Tammela TL, Van Vierssen Trip O, Beisland HO ,Duggan A, et al Blood loss and post operative complication associated with transurethral resection of prostate after pretreatment with dutasteride .BJU Int 2007;99:587-94
7. Pastore AL, Mariani S, Barrese F, Palleschi G, Valentini AM, Pacini L, et al Transurethral resection of prostate and the role of pharmacological treatment with dutasteride in decreasing surgical blood loss.J Endourol 2013;27:68-70
8. Miller MI, Puchner PJ. Effects of finasteride on hematuria associated with benign prostatic hyperplasia ;long term follow up Urology 1998;51 :237-40
9. Hagerty JA , Ginsberg PC , Harmon JD, Harkaway RC. Pretreatment with finasteride decreases perioperative bleeding associated with transurethral resection of prostate .Urology 2000;55:684-9
10. Crea G ,Sanfilippo G, Anastasi G, Magno C, Vizzini C ,Inferrea A .Presurgical Finasteride therapy in patients treated endoscopically for benign prostatic hyperplasia .Urol Int 2005;74:51-3
11. Donohue JF, Sharma H ,Abraham R, Natalwala S, Thomas DR, Foster MC. Transurethral prostate resection and bleeding :A randomized ,placebo controlled trial of finasteride for decreasing operative blood loss .J Urol 2002;168:2024-6