BANGLADESH JOURNAL OF
UROLOGY
Bangladesh J. Urol. 2022; 25(1): 33-36
www.banglajol.info/index.php/BJU
DOI: https://doi.org/10.3329/bju.v25i1.68077

Original Article

ISSN : 2304 - 8514 (Print)
ISSN : 2304 - 8522 (Online)

Treatment of refractory hematospermia with Finasteride: A prospective placebo-controlled study

Imtiaz Enayetullah[1], Md. Asaduzzaman Rajib[2], Sharif Md. Shahadat Ali Khan[3], Md. Abdul Baten Joarder[4], Tanbir Al-Misbah[5], Md. Faisal Islam[6]

Received: 05 - 09 - 2021
Accepted: 25 - 011 - 2021
Conflicts of interest: None

Abstract

Background: *Finasteride is being used to treat recurrent hematuria due to BPH. Androgen has an essential role in the production of angiogenic factors such as VEGF. Vessel density & VEGF decreases after finasteride treatment and thus improve haematospermia.*

Objective*: To test the efficacy of finasteride to control refractory idiopathic hematospermia for which conservative treatment has failed.*

Methodology: *This Prospective placebo-controlled study was carried out from July 2019 to June 2022 with 48 patients of hematospermia presented to the outpatient department of NIKDU. Twenty-two patients had refractory hematospermia of idiopathic nature. They were randomized into two equal groups, 11 patients in each group. One group received 5 mg finasteride daily for 3 months, and the other group received placebo. Patients were followed up with semen analysis and TRUS for 3 consecutive months and after 1 year.*

Result: *In the finasteride-treated group, remission of hematospermia occurred in 5 patients (45%) within 1 month. Patients continued treatment for 3 months without the recurrence of hematospermia. After stopping finasteride treatment, hematospermia recurred in 3 out of 9 patients 12 months later. Two cases were not improved, but a significant decrease in frequency & amount of bleeding was observed in semen analysis. In the placebo-treated group, cessation of hematospermia occurred in 3 cases (27%) versus 9 (81%) in the finasteride group (P = 0.03) after 3 months of treatment.*

Conclusion: *Three months of treatment with finasteride for refractory idiopathic hematospermia significantly cures hematospermia with no undesirable side effects.*

Keywords: Hematospermia, Idiopathic, Finasteride, Semen analysis, Prostate.

Introduction

The visible presence of blood in the semen is called hematospermia. Hematospermia is relatively rare; incidence is 1% of urological referrals. The majority of cases (70%) were functional & idiopathic hematospermia. The source of blood in semen is the prostate gland, ejaculatory duct, seminal vesicle, vas deferens, epididymis, testis, urethra & urinary bladder[1]. The etiology of hematospermia is prolonged sexual abstinence, excessive sexual activity, interrupted coitus, infectious, prostatitis, epididymitis, genital organ malignancy, iatrogenic, trauma, blood

1. Assistant Professor, Department of Urology, NIKDU, Dhaka.
2. Assistant Registrar Department of Urology, NIKDU, Dhaka.
3. Medical Officer Department of Urology, NIKDU, Dhaka.
4. IMO, Department of Urology, DMCH, Dhaka.
5. Assistant Professor, Department of Urology, Enam Medical College & Hospital, Savar, Dhaka.
6. Associate Professor, Department of Urology, NIKDU, Dhaka.

Correspondence: Dr. Imtiaz Enayetullah, Assistant Professor, Department of Urology, NIKDU, Dhaka. Email: imtiazenayetullah@gmail.com

diseases, and idiopathic[2]. Urogenital infections are the most common cause of hematospermia in men younger than 40 years of age. Inflammatory processes causing mucosal irritation, hyperemia, and edema of the accessory sexual glands and their ducts may lead to bleeding and the clinical manifestation of hematospermia. This inflammation can be a result of traumatic, chemical, or infectious causes[1].

Treatment of hematospermia depends on the etiology and diagnostic findings[2]. Hematospermia is usually benign and self-limiting, requiring no additional treatment or evaluation[1]. Several reports exist about finasteride's use in treating recurrent haematuria in patients with BPH[3]. Androgen has a vital role in the production of angiogenic factors such as VEGF. There are studies that vessel density & VEGF decreases after finasteride treatment[4].

Hematospermia often impairs the quality of life due to associated anxiety, and it is taken seriously by the patient and the physician, particularly if recurrent, refractory, and painful. Most patients typically visit their primary care physician after a single episode of hematospermia, being concerned about this serious condition. So, allaying the anxiety of the patients and their partners by treating hematospermia is necessary[1].

There is insufficient evidence to recommend using Finasteride to treat refractory idiopathic hematospermia[5]. Only Badawy et al.[2] reported a small prospective placebo-controlled trial and recommended a large-scale, well-designed, randomized, placebo-controlled trial to assess the utility of Finasteride for the management of refractory idiopathic hematospermia. So, this study has been designed to test the outcome of finasteride as a treatment for refractory hematospermia.

Methodology

A total of 48 patients presented with hematospermia at the outpatient department (OPD) of the urology department, NIKDU, between July 2019 and June 2022. This was a prospective study. Local ethical committee approval was taken for the study. Complete history taking, general physical examination, and routine laboratory investigations like urine analysis & culture, semen analysis & culture, complete blood count, liver function test, and renal function tests were carried out. In patients aged more than 50 years, serum PSA, plain X-ray of KUB, abdominal ultrasound, and TRUS were carried out. Prostate biopsy was carried out in patients with raised PSA. Cystoscopy was done in patients with concomitant haematuria.

Inclusion criteria for the idiopathic hematospermia were: patients with negative urine culture, semen and prostatic secretion for bacterial culture, urethral swab culture for the exclusion of nonspecific and gonococcal urethritis.

Out of 48 patients, 22 patients with hematospermia were diagnosed as refractory hematospermia, where no organic etiology was found. Twenty-two patients were randomized into 2 equal groups by lottery. They were counseled about the treatment, and informed written consent was taken. One group received 5 mg finasteride daily for 3 months, and the other group received a pharmacologically inert placebo for the same duration. Results were analyzed using the t-test & Fisher's Exact Test with 95% confidence interval (*p*-value 0.05). Follow-up of the patients was with semen analysis & TRUS monthly for 3 months, then after 1 year.

Result

The most common etiology of hematospermia was idiopathic, followed by non-bacterial prostatitis, bacterial prostatitis, liver diseases, genitourinary TB, and prostatic calculi in our study (Table I).

Table I. *Different etiologies for hematospermia in 48 patients.*

Etiology	No of patients	Percentage
Idiopathic	18	37.5%
Nonbacterial prostates	13	27.08%
Bacterial prostatitis	11	22.91%
Liver diseases	3	6.25%
Genitourinary TB	2	4.16%
Prostatic calculi	1	2.1%

Regarding age & prostate volume, there is no statistically significant difference between the two groups (Table II).

In the finasteride-treated group, remission of hematospermia occurred in 5 patients (45%) within 1 month, and there was no recurrence within 3 months. After stopping finasteride treatment, hematospermia recurred in 3 patients. Two cases were not improved, but the frequency & amount of bleeding significantly decreased after Finasteride treatment. Vascular signal intensity was also decreased on TRUS examination with color Doppler imaging.

Table II. t-test for both finasteride and placebo group regarding age & prostate volume.

Parameter	Finasteride group (n=11)	Placebo group (n=11)	*p* value
Age	32.23±8.94	30.64±7.48	0.66
(Range)	(21-42 years)	(18-43 years)	
Prostate volume (cm^3)	35.7±4.87	34±3.56	0.36
(Range)	(28– 42 gram)	(26 –40 gram)	

Table III. Differences between finasteride and placebo group on follow up of patients.

Duration	Finasteride group (n=11)		Placebo group (n=11)		*p* value
	Improved	Not improved	Improved	Not improved	
1 month	5	6	2	9	0.36
2 months	6	5	2	9	0.18
3 months	9	2	3	8	0.03*
12 months	6	5	3	8	0.38

Cessation of hematospermia occurred in 3 cases (27%) in the placebo group, compared to 9 cases (81%) in the finasteride group (*P*=0.03). The p-value is statistically significant only in 3rd month of follow-up (Table 3). Semen analysis of 3 patients showed microscopic hematospermia (RBC >30/HPF) and TRUS examination showed no detectable changes in vascular signal intensity in the placebo group.

In the finasteride-treated group, 1 patient developed temporary erectile dysfunction, which was improved after stopping Finasteride.

Discussion

Hematospermia is a common benign condition among young men with a mean age of 37 years. The etiologies of hematospermia may be behavioral, such as excessive sex or masturbation, interrupted sex, prolonged sexual abstinence, infectious, benign, and malignant tumors of the urethra, prostate, seminal vesicles, spermatic cord, epididymis and testes, prostatic calculi, prostatic cysts, benign prostatic hyperplasia. Still, many patients with hematospermia have no organic causes[6]. In addition to bacteriological localization studies for the diagnosis of idiopathic hematospermia, TRUS is also needed for the differential diagnosis of hematospermia & for follow-up of patients. TRUS can detect stones, soft tissue masses, polyps, and cysts in the prostate, seminal vesicles, and ejaculatory ducts. Management of hematospermia depends on the etiologic cause.

In a review by Badawy et al., the etiological studies of hematospermia identified idiopathic followed by nonbacterial prostatitis, bacterial prostatitis & liver diseases as the most common causes[2]. In patients younger than 40 years, the infectious and inflammatory causes are the most common etiology. In this study, the idiopathic hematospermia is the most common etiology, found in 18 patients (37.5%) of 48 patients.

Finasteride is approved for the management of BPH. Finasteride inhibits the conversion of testosterone to dihydrotestosterone and is used for treating benign prostatic hyperplasia, haematuria of prostatic origin[7]. Finasteride may lead to some side effects, such as abdominal pain, back pain, decreased libido, and decreased volume of ejaculate. Still, we did not encounter these side effects in our 11 patients, and this may be due to psychological improvement after relieving their hematospermia symptoms and due to the relatively young age. However, three patients reported a decreased libido that improved after drug discontinuation.

The effect of finasteride on patients with idiopathic hematospermia appears to show a clear statistically significant beneficial effect than placebo (81% versus 27%); p-value is 0.03 in our study. The possible mechanism for the effects of finasteride on bleeding is that finasteride blocks the conversion of testosterone to dihydrotestosterone, which results in decreased activity of the androgen-controlled growth factors

responsible for angiogenesis, leading to decreased angiogenesis and, therefore, decreased prostatic bleeding. Patients with clinical BPH and recurrent gross hematuria have a significantly higher suburethral prostatic microvessel density than patients with BPH alone. VEGF, a potent promoter of angiogenesis, may be decreased in patients treated with finasteride. Recent data confirm that finasteride, a 5a-reductase inhibitor, is an effective agent for treating hematuria in these patients and may even decrease bleeding in those undergoing BPH-related surgery[8].

In our study, all men in the finasteride group were treated for 3 months and then discontinued medication. After the drug was withdrawn, 3 of 9 patients (33.3%) had recurrent hematospermia.

This study has some limitations. It was carried out in a single center with a small sample size. Large-scale, multicenter studies can be undertaken to increase the accuracy.

Conclusion

Three months treatment with finasteride for refractory idiopathic hematospermia significantly cures hematospermia with no undesirable side effects.

Acknowledgements

We acknowledge all the staffs of NIKDU, Dhaka who supported to conduct this study. No formal funding for this study.

References

1. Efesoy O, Çayan S, Akbay E. Novel algorithm for the management of hematospermia. Turkish Journal of Urology. 2020 Oct 23.
2. Badawy AA, Abdelhafez AA, Abuzeid AM. Finasteride for treatment of refractory hemospermia: prospective placebo-controlled study. International urology and nephrology. 2012 Apr;44(2):371-5.
3. Warlick, CA. Acute gross hematuria: Etiology and management. In The Brady Urology Manual 2019 Jul 16 (pp. 285-294). CRC Press.
4. Khwaja MA, Nawaz G, Muhammad S, Jamil MI, Faisal M, Akhter S. The effect of two weeks preoperative finasteride therapy in reducing prostate vascularity. J Coll Physicians Surg Pak. 2016 Mar 1;26(3):213-5.
5. Kang DI, Chung JI. Current status of 5á-reductase inhibitors in prostate disease management. Korean Journal of Urology. 2013 Apr;54(4): 213-9.
6. Suh Y, Gandhi J, Joshi G, Lee MY, Weissbart SJ, Smith NL, Joshi G, Khan SA. Etiologic classification, evaluation, and management of hematospermia. Translational Andrology and Urology. 2017 Oct;6(5):959.
7. Li Y, Ma J, Qin XH, Hu CY. The efficacy and safety of dutasteride and finasteride in patients with benign prostatic hyperplasia: a systematic review and meta-analysis. Translational Andrology and Urology. 2022 Mar;11(3):313.
8. Penumatcha P, SV KR. The effect of preoperative finasteride therapy on perioperative blood loss in transurethral resection of Prostate for patients with benign prostatic hyperplasia. International Journal of Surgery. 2020;4(1):215-8.