

Use of Topical Finasteride Vs Systemic Finasteride in Male Pattern Baldness

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Abstract

In this study we have analyzed the use of finasteride which is a type P-selective 5 α -reductase inhibitor. By decreasing dihydroxytestosterone (DHT) level, it is found to be effective in the treatment of male androgenic alopecia. In this study, we compared the effect of topical vs. systemic finasteride in the treatment of androgenic alopecia. Our study is a randomized clinical trial study having 30 male patients. They have come for alopecia treatment at Nesam hospital, Coimbatore, India. We have selected male patients with androgenic alopecia and divided them into two groups (A, B), randomly having 15 patients in each group. For group A, Topical finasteride (0.1%) with minoxidil (5%) solution was given. Group B patients received topical minoxidil with oral finasteride (1mg) tablets. All patients were regularly followed up till the end of 6 months. A Patient had a first review in the first week followed by monthly follow up. Following parameters were taken into account: size of bald area, total hair count, and terminal hair. Data was analyzed by Chi-square statistical test. Each month the terminal hair, size of bald area and hair count between the two groups were compared. In the initial few months group, A showed good improvement. But Serial measurements indicated that a significant increase in hair counts and terminal hair counts is seen in both groups. This study showed that on long term follow-up of more than 3 months, both topical and systemic finasteride groups had similar results.

Keywords: Androgenic alopecia, Finasteride, Terminal hair.

Introduction

Hair loss is the most common problem faced by modern society, which creates many psychological effects for the affected individual. The most common types of alopecia are baldness or androgenic alopecia [1, 2, 3, 4]. Androgenic alopecia (AGA) is the most common form of hair loss seen in genetically predisposed individuals. In androgenic alopecia, there will be progressive narrowing of hair in the vertex and fronto temporal area of the scalp [5]. There will be high testosterone receptors in scalp of the involved person. Dihydroxytestosterone (DHT) is an active form of testosterone that is produced by enzyme type II, 5- α reductase from testosterone. High DHT level affects hair follicle, resulting in hair shaft

thinning [6], shortening of anagen phase and prolongation of telogen phase [7]. Commonly used treatment for androgenic alopecia is composed of local minoxidil and oral anti-androgen or local progesterone-containing products. Finasteride reduces DHT level in blood by blocking type II 5 α reductase. Finasteride is most commonly used in oral form. Oral intake of finasteride causes side effects such as decreased libido, erectile dysfunction, etc [6, 8, 9]. Once we stop oral finasteride, the DHT level rises and reverses its effects, resulting in less dense hair [1, 10]. This leads to an indefinite use of oral finasteride treatment. Various studies which show that topical finasteride appears to have results equivalent to oral finasteride in AGA, and it has better

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tolerance. So, we have conducted a study to assess the efficacy of topical minoxidil fortified with finasteride [11]. If topical form is effective, it will prevent the undesirable side effects of a systemic form of drug [12, 13]. It will be a suitable treatment for this social problem, especially in adolescence and young age groups in whom hair protection (for cosmetic reasons) is essential for them.

Materials and Methods

It is a randomized clinical study. We selected 30 male patients for this study. AGA patients with Hamilton grading 5a and 6; falling in the age group of 20-40 years were selected for this assessment. They were selected among patients coming to Nesam hospital, Coimbatore, India, with AGA, from September 2017 to February 2020. All of the subjects were having androgenetic alopecia, according to their history and clinical examination. Proper written consent was obtained from all the patients and a standard questionnaire was presented to all of them.

Inclusion Criteria

- Males between age group 20- 40 years,
- Hair loss duration less than 5 years;
- Maximum hair density 20 hairs/cm²;
- Maximum diameter of the bald area less than 10 cm; and Having complete physical and psychological health.

Exclusion Criteria

- Patients with male alopecia that were under-treated, and
- Patients with baseline disease that causes hair loss.

Questionnaire Methods

We have prepared the two-part questionnaire. The first part mainly had questions about the demographic characteristics including age, sex, family status, education level, income, occupation and race. In the second half of the questionnaire, we collected information regarding the general health condition of the patient which includes history of diabetes, hypertension, heart disease, drug allergy etc. we have also recorded the information about hair loss like size of bald area, number of terminal hairs, and villus hair.

The patients entered the study based on inclusion criteria, and divided in two groups randomly; Group a Topical finasteride (0.1%) with minoxidil (5%) solution was given. Group B patients received topical minoxidil with oral finasteride tablets [14].

The patients in both groups are advised to use the solution twice daily by gently massaging their scalps. The total duration of the treatment was six months. We had a routine follow-up to evaluate the drug effectiveness, prognosis, and side effect. We have evaluated the patients at the beginning of the study and the end of first week of treatment, and then followed up monthly for 6 months. To assess the effectiveness of treatment we selected three areas of the scalp randomly [15, 16]. The size of each selected area is 10cm². The size of the bald area, the number of total hairs and the number of terminal hairs were counted by the naked eye. We calculated the mean and the result was recorded.

To evaluate the total response to treatment, we have formed a scoring system.

Table 1 Therapeutic Response (based on Size of Bald Area)

S no	Size of Bald Area per cm	Score
1	8.1-9.5 cm	1
2	6.6-8 cm	2
3	5.1-6.5 cm	3
4	5.1-6.5 cm	4

Table 2. Therapeutic Response (based on Total Hair Count)

S no	Total Hair Count	Score
1	100-124	1
2	125-149	2
3	150-174	3
4	175-200	4

Table 3. Therapeutic Response (based on Number of Terminal Hairs)

S no	Number of Terminal Hair	Score
1	65-89	1
2	90-114	2
3	115-139	3
4	140-165	4

The resulting scores were summarized:

- score 3-6 - bad response,
- score 7-9 - moderate response,
- Score 10-12 - good response to the treatment.

Finally, the analysis was done by descriptive and Chi-square statistical approach.

Results

In group A, terminal hair count increased at the third month of treatment ($P = 0.001$), but an increased in terminal hair count was shown in the second month itself in B group ($P = 0.015$). During therapeutic period, the size of alopecia area was not significantly altered in group A, but in group B, the change in size of alopecia area was significant in the fourth month of treatment ($P = 0.027$). Increased hair count in both the groups was significant in 4 months of treatment ($P = 0.001$, in group A and $P = 0.000$ in group B).

Discussion

In our study, after comparing topical and systemic finasteride [17], it was found that in second, third- and fourth-month follow-up, the therapeutic response to the tablet group was better than the topical solution group, but in the fifth and sixth months of treatment, the

therapeutic response in both groups was the same (3). Also, in our study, the serial measurements of hair count and terminal hair showed that there is a significant increase in total hair count and terminal hair in both groups. Like other studies, the total hair in both topical and systemic finasteride group demonstrated significant differences between first referral and 6 months after therapy ($P = 0.000$). This indicates the therapeutic efficacy of both drugs [9].

Conclusion

Our study shows that topical finasteride has considerable efficacy when it is used for male alopecia patients who have experienced hair loss in recent years. It can also be a good replacement for oral therapy, especially in those who worry about oral drug complications.

Conflict of Interest

There is no conflict of interest.

Acknowledgement

- I have prepared this paper with the help of many books, presentations and websites.
- Particular thanks to my guide Prof.Dr.K.Ravi and Dr.M.S.Abirami, who guided me in preparing this manuscript.

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