

## Original Research Article

## A Study on the Efficacy of Mesotherapy with Finasteride versus Oral Finasteride for the Treatment of Androgenetic Alopecia

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**Abstract:** Androgenetic alopecia is condition of patterned hair loss. It is a psychologically distressing condition. Mesotherapy is a technique of delivery of topical solutions in the middle layer of the skin. The aim is to evaluate the efficacy and safety of mesotherapy using finasteride versus oral finasteride for the treatment of androgenetic alopecia in forty male patients. We selected forty patients of androgenetic alopecia for the study. The patients were divided into two groups of 20 patients each. In group I patients, mesotherapy was given using topical finasteride solution with a mesotherapy needle using nappage technique. In group II patients, oral finasteride 1 mgm was given. After six sessions, excellent improvement was seen in 15(70%) patients in group I and 12(60%) patients in group II, very good improvement was seen in 3(15%) patients in group I and 2 (10%) patients in group II, good improvement was seen in 1(5%) patients in group I and 5 (25%) patients in group II, average improvement was seen in 1(5%) patients in group I and 3 (15%) patients in group II and no improvement was seen in 5(25%) patients in group I and 10 (50%) patients in group II. But, the difference of improvement between the two groups was no statistically significant. The commonest side effect (Table IV), was loss of libido seen in 2(5%) patients in mesotherapy group and 4 (10%) in oral finasteride group, folliculitis was seen in 2(5%) patients in mesotherapy group and in none of the patients in the oral finasteride group and erectile dysfunction was seen in none of the patients in the mesotherapy group and in 2(5%) patients on oral finasteride group. Loss of libido in the mesotherapy group indicates systemic absorption of the drug. Mesotherapy using topical finasteride is a good option for the treatment of patterned hair loss in men.

**Keywords:** Finasteride; androgenetic alopecia; patterned; mesotherapy; microneedling

### INTRODUCTION

Androgenetic alopecia is a psychologically distressing condition as it leads to lowered self esteem. Such patients are socially considered less attractive and it can lead to depression in some persons [1]. Oral finasteride has been used for the treatment of androgenetic alopecia, but it has many side effects and also the for the visible results to be seen, the oral medication has to be continuously given and once the drug is withdrawn recurrences are there. Finasteride is a type II 5 $\alpha$  reductase inhibitor [2, 3]. Oral finasteride has various side effects including impotence, decreased libido and ejaculation disorders.

### AIMS

To evaluate the efficacy and safety of mesotherapy using finasteride versus oral finasteride for

the treatment of androgenetic alopecia in forty male patients

### MATERIAL AND METHODS

We selected forty patients of androgenetic alopecia for the study. The patients were divided into two groups of 20 patients each. In group I patients, mesotherapy was given using topical finasteride solution with a mesotherapy needle using nappage technique. In group II patients, oral finasteride 1 mgm was given. Written informed consent was taken from all the patients before the study. Prior permission of hospital ethical committee was taken for the study. The mesotherapy was repeated every two weeks for a total of six sessions. The follow up of the patients was done for a period of six months after the last dose. Routine investigations were done n all the patients including complete blood count, fasting blood sugar, kidney and

liver function tests, semen examination and serum testosterone levels. Baseline tests including hair pull test and trichogram was done in all the patients. Evaluation of the patients was done using hair pull test, patients self assessment score and photographic assessment. Pretreatment photographs were taken in all the patients before the study and then at every visit. A total of six sessions 3 weeks apart were done and the follow up of the patients was done for a period of 6 months after the last dose. Response to the treatment was evaluated using a physician global assessment score which is as follows:

- Excellent Response - > 90% hair growth
- Very good Response - Between 75 – 90% hair growth
- Good Response - Between 50 – 75% hair growth
- Poor response – Between 25 – 50% hair growth

A patient satisfaction score was also done in all the patients.

**Inclusion Criteria**

- The following patients were included in the study:
- Patients between 18 – 60 years of age
- Patients with normal semen examination and normal testosterone levels

**Exclusion Criteria**

- The following patients were excluded from our study:
- Patients with diabetes and hypertension
- Patients with erectile dysfunction
- Patients on minoxidil for the past six months

**RESULTS**

The results were collected, tabulated and the results were analyzed statistically.

**Table 1: Table Showing Age Distribution of Patients**

SR NO	AGE DISTRIBUTION	NUMBER	PERCENTAGE
1	18 – 30 Years	6	15%
2	31 – 50 Years	22	55%
3	>51 Years	12	30%

**Table 2: Table Showing Improvement in Hair Growth after Six Sessions**

SR NO	GROUPS	IMPROVEMENT				
		EXCELLENT	VERY GOOD	GOOD	AVERAGE	NO IMPROVEMENT
1	I	15 (70%)	3(15%)	1(5%)	1(5%)	5(25%)
2	II	12(60%)	2(10%)	5(25%)	3(15%)	10(50%)

**Table 3: Table Showing Patients Subjective Assessment Score**

SR NO	GROUPS	SUBJECTIVE IMPROVEMENT		
		SCORE 8 – 14 (Marked improvement)	SCORE 4 – 7 (Moderate improvement)	SCORE 1 – 4 (Mild improvement)
1	Gp I	12 (60%)	6 (30%)	2 (15%)
2	Gp II	8 (40%)	8 (40%)	10 (50%)

**Table 4: Table Showing Side Effects of Treatment**

SR NUMBER	SIDE SFFECT	GP I		GP II	
		NUMBER	PERCENTAGE	NUMBER	PERCENTAGE
1	Folliculitis	2	5%	-	-
2	Loss of libido	2	5%	4	10%
3	Erectile dysfunction	-	-	2	5%

**DISCUSSION**

Regarding the age distribution of patients (Table I), maximum number (55%) of patients was between 31 – 50 years of age followed by 12(30%)

patients were above 50 years of age and 6 (15%) patients were between 18 – 30 years. After six sessions, excellent improvement was seen in 15(70%) patients in group I (Fig 1 ) and 12(60%) patients in group II, very

good improvement was seen in 3(15%) patients in group I and 2 (10%) patients in group II, good improvement was seen in 1(5%) patients in group I and 5 (25%) patients in group II (Fig 2), average improvement was seen in 1(5%) patients in group I and 3 (15%) patients in group II and no improvement was seen in 5(25%) patients in group I and 10 (50%) patients in group II. But, the difference of improvement between the two groups was not statistically significant (Table II). Regarding the subjective patients assessment score (Table III), marked improvement with score 8 – 14 was seen 12(60%) patients in group I and 8(40%) patients in group II, moderate improvement with score 4 – 7 was seen 6 (30%) patients in group I and 8(40%) patients in group II and mild improvement with score 1 – 4 was seen 2(15%) patients in group I and 10(50%)

patients in group II. Positive family history was seen in 54% patients. Statistically significant increase in antigen hairs was seen in 60 % patients. It was seen that after six sessions, on semen examination, the semen volume was decreased in three patients, but there was no difference in sperm count and morphology before and after eight sessions. The commonest side effect (Table IV), was loss of libido seen in 2(5%) patients in mesotherapy group and 4 (10%) in oral finasteride group, folliculitis was seen in 2(5%) patients in mesotherapy group and in none of the patients in the oral finasteride group and erectile dysfunction was seen in none of the patients in the mesotherapy group and in 2(5%) patients on oral finasteride group. Loss of libido in the mesotherapy group indicates systemic absorption of the drug.



Fig 1 & 1a - Pre and post treatment photograph of a 32 years old male after mesotherapy with finasteride



Fig 2 & 2a: Pre and post treatment photograph of a 38 years old male on oral finasteride

Androgenetic alopecia is a benign condition which can have a significant psychosocial impact on the patients. In androgenetic alopecia, there is a progressive

stepwise miniaturization of the entire follicular apparatus [4, 5]. The dermal papilla is central in the maintenance and control of hair growth and the size of

dermal papilla determine the size of hair bulb and ultimately the hair shaft produced [6]. Finasteride is a 5 $\alpha$  reductase inhibitor which arrests the progression of androgenetic alopecia in over 90% men and partially reverses the in over 65% men. It has a half-life of eight hours. Finasteride affects the androgen metabolism directly by reducing the amount of dehydrotestosterone converted from testosterone [7, 8]. An oral dose of 1mgm of finasteride reduces the scalp dihydrotestosterone by 64% and dihydrotestosterone by 68% [9].

Mesotherapy injection of various solutions into the middle layers of skin [10-13]. It was first invented by Frenchman Dr Michel Pistor in 1958 for some rheumatological indications. The complications of mesotherapy are rare and include scalp abscess and subcutaneous fat necrosis [14]. In a study by Nagat *et al.*; the efficacy of mesotherapy on androgenetic alopecia patients was studied [15]. It was concluded that mesotherapy is a good option for the treatment of male pattern hair loss. Mesotherapy causes cessation of hair loss and prevention of new hair growth.

#### CONCLUSIONS

To conclude, mesotherapy is an effective tool for the treatment of androgenetic alopecia in men. Oral finasteride has been used for the treatment of alopecia since a long time, but it has an effect on the erectile dysfunction. These effects are much less in the patients in the mesotherapy group. The main lacuna in our study was the small sample size. Also, there are no clear cut guidelines as to what should be the duration in between the mesotherapy sessions and how many sessions are recommended for the optimal growth of the hairs. So, this leaves many questions unanswered. Further studies with larger number of patients are recommended.

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