ORIGINAL RESEARCH

The role of finasteride in improving quality of life in male-pattern hair loss at a tertiary centre

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Abstract
Background: Androgenetic alopecia (AGA), which affects more than 70% of adult males and 50% of adult females, is the most common type of hair loss and is a genetically defined progressive process that gradually converts terminal hair into vellus hair. AGA is a benign condition that can significantly affect a person's psychological state and is influenced by both hormonal and hereditary factors.
Aims and Objectives: This study was planned to understand the effect of finasteride on the quality of life of an androgenetic alopecia (AGA) patient.
Methods and materials: This observational, prospective, open-label study was conducted in the outpatient department of dermatology in collaboration with the Pharmacology department, included a total of 80 male patients with AGA Grade I–VII of the Hamilton–Norwood classification who were between the ages of 18 and 60 years.
Results: The mean age of 30.5 ± 6.41 years; the average duration of hair loss was 24.5 months; and the maximum number of cases were in grade II, which was 27 (33.75%). About 86.25% patients showed improvement in hair growth; loss of hair in 6.25% was seen; in grade-wise analysis, maximum improvement was seen in grade II and grade III patients. Average DLQI scores before the treatment were 9.16 ±1.92, which decreased to 5.27±2.80 after the treatment. This difference was statistically significant ($p < 0.005$). A higher DLQI means a poorer quality of life.
Conclusion: This study indicates that treatment with finasteride improves hair growth considerably, which improves the quality of life in male patients with androgenous phalacrosis. Finasteride showed significant improvement in the progression of AGA in males.
Keywords: Androgenic Alopecia, Finasteride, Hair Loss, Quality Of Life (QoL)

Introduction

Androgenetic alopecia (AGA), which affects more than 70% of adult males and 50% of adult females, is the most common type of hair loss and is a genetically defined progressive process that gradually converts terminal hair into vellus hair.[1] AGA is a benign condition that can significantly affect a person's psychological state and is influenced by both hormonal and hereditary factors. AGA can have psychosocial complications, including depression, low self-esteem, altered self-image, and less frequent and enjoyable social engagements. In patients with AGA, due to continuous disease progression, quality of life (QOL) gets impaired.[1]Hair represents physical attractiveness and juvenility to men and women; thus, hair loss will have important negative impacts on confidence and quality of life. The foremost common cause of hair loss in men and women is androgenic alopecia (AGA), which could be a genetically determined, age-dependent, progressive hair-loss condition with gender-specific variations in frequency and severity. Male androgenic alopecia (MAGA), also called male pattern hair loss (MPHL), is characterised by the miniaturisation of the hair follicles within the frontal and parietal parts of the scalp.[2]It is the most common form of alopecia in men, with most men developing some degree of recession of the hairline during their lifetime. Although prevalence may vary, 50% of men over the age of 40 may have severe MPHL.[3,4] According to a study by Girman et al.[5], men

with more hair loss expressed more unhappiness with their hair's look, perceived noticeability to others, and concerns about becoming older than men with less hair loss.The male hormone androgen plays a vital role in the pathological process of AGA. Within the follicle cells, androgen is converted into dihydrotestosterone (DHT), a substance catalysed by the 5-alpha reductase enzyme. This binds to steroid hormone receptors within the follicle, and therefore the specific bond triggers cellular processes that reduce the duration of the anagen phase of the hair cycle. As a consequence, the hair undergoes the telogen phase earlier and falls out. The hair follicle becomes minute as terminal hair gradually converts into vellus hair, which is thinner and shorter (this is the retrograde phase of the cycle). Hair loss has a negative impact on men's confidence and quality of life.

Aims and Objectives: This study was planned to understand the effect of finasteride on the quality of life of an androgenetic alopecia (AGA) patient and also know the psychosocial aspects affecting the patient's life as a consequence of the disease's progression and its potential effects on a future population.

Methods and materials

This observational, prospective, open-label study was conducted in the outpatient department, Department of Skin & VD, in collaboration with the Pharmacology department at Bhagwan Mahavir Institute of Medical Sciences, Pawapuri, Nalanda, Bihar, India. The study included a total of 80 male patients with AGA Grade I–VII of the Hamilton–Norwood classification who were between the ages of 18 and 60. All patients who were interested in participating in the study gave their informed consent, and participation was entirely voluntary. The study had ethical approval from the institute. The duration of the study was from September 2022 to February2023.

Inclusion Criteria: All male patients of age between 18 and 60 years who were diagnosed with a case of androgenetic alopecia coming in skin OPD, BhagwanMahavir Institute of Medical Sciences, Pawapuri,Nalanda, Bihar, India.

Exclusion Criteria: Patients with any other dermatological disease were excluded from the study.

All the demographic parameters, including age, duration of alopecia, detailed family history, occupation, education, marital status, and history of onset, were recorded in the proforma. All patients were classified according to the BG Prasad classification for socioeconomic status. QOL in all patients was assessed using the Dermatology Life Quality Index (DLQI) scale. The DLQI is the most frequently used patient-reported outcome measure in randomised controlled trials in dermatology.DLQI: The DLQI form included ten questions about the following aspects of life: symptoms and feelings, daily activities, leisure, work and faculty, personal relationships, and treatment as dimensions. How to understand what DLQI means Scores: 0–1: absolutely no effect on the patient's life; 2–5: minor effects on the patient's quality of life; 6–10: effects on the patient's life that are mild; 11–20: significantly influencing the patient's life, 21–30 has an extremely large effect on the patient's life.Patient self-assessment: subjective assessment (the patient's perception of hair loss severity). Patients assessed their scalp hair on a hair growth assessment scale of 0 to 4.0: (No improvement); 1: (1-25% improvement); 2: (26-50% improvement); 3: (51-75% improvement); and 4: (76-100% improvement).The following formula is used for calculating the sample size:

$n = NZ^2P\ (1\text{-}P)/\ d^2\ (N\text{-}1) + Z^2\ P\ (1\text{-}P)$

Where,n = Sample sizez=z statistic for a level of confidence,P = expected prevalence or proportion (50%)d = precision (in proportion of one; if 3% = 0.03)N = population size.

Results

Although the study was started with 90 patients, 10 dropped out due to unknown reasons, so evaluation was done on 80 patients aged between 18 and 60 years with a mean age of 30.5 ± 6.41 years; the average duration of hair loss was 24.5 months; and the maximum number of cases were in grade II, which was 27 (33.75%). Hair growth was seen in decreasing order as the grade increased and improvement decreased. About 69 (86.25%) patients showed improvement in hair growth; in 5 patients, loss of hair (6.25%) was seen; in grade-wise analysis, maximum improvement was seen in grade II and grade III patients. Average DLQI scores before the treatment were 9.16 ±1.92, which decreased to 5.27±2.80 after the treatment. This difference was statistically significant ($p < 0.005$). A higher DLQI means a poorer quality of life.

Table 1: DLQI before and after treatment

Parameter	Before treatment	After treatment	P value
	Mean ± SD		
DLQI Score	9.16 ±1.92	5.27 ±2.80	<0.05

Table 1 show that the dermatology life quality index score change, before and after the treatment in it was 9.16±1.92 before treatment 5.27±2.80 after treatment. This was also statistically significant (p<0.05).The similar result also find in Yamazaki, Masashi et al study "oral finasteride improved the quality of life of androgenetic alopecia patients'' they also said finasteride improve the quality of life.[4]Other study by Xiao- Sheng (2013) et al also finds the similar result.[5]

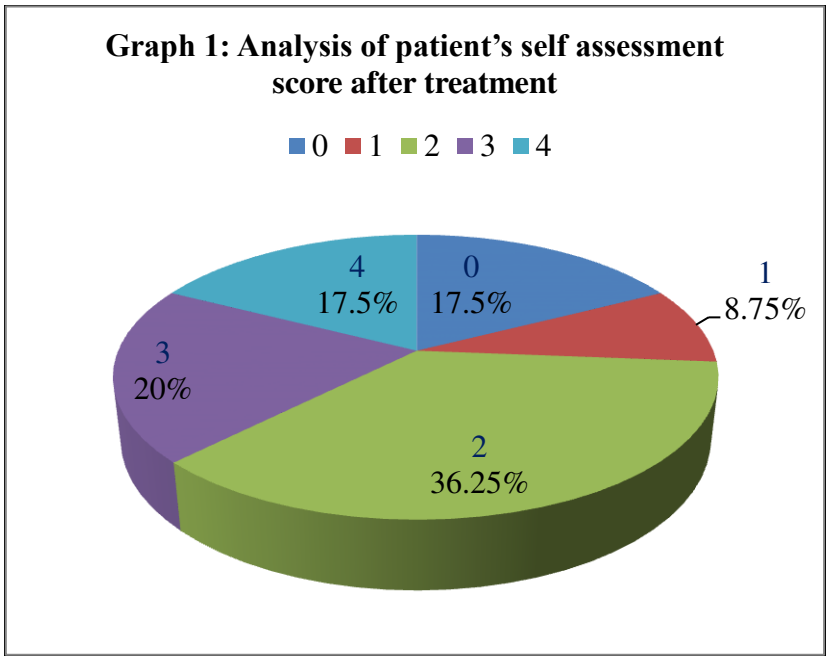
Table 2: Patient self- assessment score change from the baseline to subsequent follow up

Parameter	Before treatment	After treatment	P value
Base line- 3 Month	0	0.91 ±0.63	<0.002
6 Months	0	3.05±2.63	<0.001
9 Months	0	3.80±.1.71	<0.001

Table 2, show that patient self-assessment score changes from the baseline to subsequent follow up. Patient self-assessment score change from the baseline to 3-month was 0.91 ±0.63 and baseline to 6 & 9 months it was 3.05±2.63 and 3.80±.1.71 respectively that was statistically significant (P value <0.05).

Table 3: Analysis of patient's self-assessment after treatment

Patient self-assessment score	No. of patients (%)
0	14(17.5%)
1	7(8.75%)
2	29(36.25%)
3	16(20%)
4	14(17.5%)



Discussion

Table 3 &Graph 1 illustrates analysis of patient's self-assessment score after the treatment. About 66(82.5%) patients were satisfied with the treatment whereas 14(17.5%) patients were not satisfied with the treatment. Out of 66(82.5%) patients, 29(43.94%) patients were satisfied with the mild increase in hair growth and 26(39.39%) patients were satisfied with the moderate increase in hair growth. About 11(16.67%) patients showed a moderate increase in hair growth.

Quality of life assessments help, in clinical practice, clinicians to make judgments about which aspects of daily life are most affected by the disease. In our study, the mean DLQI score was 9.16 ±1.92 which are comparable to the mean score of 8.3±5.6 in 70 patients with alopecia reported by Williamson et al.[6]Other researcher found higher mean DLQI score.[7,8,9]

Our study showed that AGA moderately affected the Quality of Life, including feelings of loss of self-confidence and low self-esteem.

Table 4: The demographic parameters present in different studies of androgenetic alopecia

Parameters	Present study	Williamson D *et al*	Sanjeev Gupta et al	KehkshanTahir *et al*.	Rahul Bade *et al*.
DLQI	9.16 ±1.92	8.30±5.60	13.52±3.15	11.87±3.35	13.5±4.4

In our study, higher scores were recorded for questions 2, 3, and 5 inside the form, which mirrored the numerous lowered levels of self-worth and self-perception of one's appearance due to hair loss and hence the impaired social wellbeing of the patients. We have a tendency to ascertain higher DLQI scores in younger patients, patients with long-standing hair loss, and patients with higher grades of AGA. These results are in accordance with the findings of Gupta's study.[7]It has been discovered that men who had additional profound hair loss were more discontented with their look and were more involved with their older look than those with borderline hair loss and had a lower self-image.[10]Patients experienced a loss of desire to meet people, preferred staying at home, and did not even want to interact with close ones. Emotionally, patients experienced embarrassment, humiliation, and depression due to MPHL (Male pattern hair loss), which was in accordance with Wells et al.[11] Alfonso et al.[12] also reported negative effects on social life and feelings of depression, which were similar to our study.Clinical symptoms, functional behaviour, and emotional stability, in addition to anxiety and worry about hair loss, all affect the QOL of an individual. Patients showed deterioration at all levels.Most of the patients were middle-class, urban, settled, and unmarried. Stressful environments pertaining to the urban standards of living in a nuclear family and anxiety about losing hair are the key triggering factors in the progression of AGA. These changes were more perceived by the younger population, with an increase in stressful conditions in an urban setting.Recent advancements have led to the introduction of DNA testing of the androgen receptor gene to diagnose the condition and determine the future probability of baldness and relative prognosis. The newer treatment options, such as platelet-rich plasma (PRP) therapy and low-level laser light therapy (LLLT), in addition to standard drug treatments such as minoxidil and finasteride, have opened the gates for better control of AGA. However, the limited treatment options can only delay the process but cannot reverse it completely. PRP and LLLT therapy can help increase the thickness of hair by 30% if continued regularly, but the effects reverse if discontinued. Studies are needed to assess whether such interventions are effective in improving patient outcomes and reducing psychological disorders among those with alopecia.

Limitations of the study

The study sample size was small. Long-term studies are needed to note the treatment outcomes, particularly those related to hair loss itself and psychological support to overcome the stress of AGA. It would be interesting to examine psychological responses both during periods of hair loss and during periods of remission. All the patients in the present study were recruited in a Dermatology department, and selection bias may, therefore, have affected the results.

Conclusion

This study indicates that treatment with finasteride improves hair growth considerably, which improves the quality of life in male patients with androgenous phalacrosis. The first improvements in quantitative and qualitative hair growth could be observed as early as 3 months, whereas in long-term studies, it could be observed that patients presented with stable improvement without further disease progression. On finasteride treatment, a decreased level of DHT is closely related to the higher curative rate as significant positive outcomes are obtained, especially at the vertex area. A slight increase or constant level of testosterone can result from the treatment. In study, it is also observed that there is potential side effects of finasteride, such as sexual dysfunction and depression, with patients treated with finasteride for AGA.

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