International Journal of Dermatology, Venereology and Leprosy Sciences

E-ISSN: 2664-942X
P-ISSN: 2664-9411
Impact Factor (RJIF): 5.67
www.dermatologypaper.com
Derma 2026; 9(1): 29-32
Received: 24-10-2025
Accepted: 26-11-2025

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Efficacy of Dutasteride Intradermal Injection in The Treatment of Androgenetic Alopecia

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DOI: https://www.doi.org/10.33545/26649411.2026.v9.i1a.258

Abstract
Background: Androgenetic alopecia, mostly influenced by genetic and hormonal determinants, is the predominant hair loss form in adults condition. Intradermal dutasteride represent effective localized and regenerative treatment alternatives with fewer systemic side effects. This study intended to assess the intradermal dutasteride injections efficacy in treating androgenic alopecia.
Methods: This prospective randomized study was conducted on 15 male patients with AGA. All patients underwent full history taking, Comprehensive assessment to rule out systemic diseases, dermatological evaluation for androgenetic alopecia regarding site and severity according to Norwood-Hamilton classification.
Results: There was significant clinical improvement 1 and 3 months after treatment. The maximum clinical improvement was noted at one-month post-treatment. The medication was well-tolerated, with no significant side effects noted. There was no significant correlation between maximum clinical improvement as well as age, while there was significant negative correlation between maximum improvement and disease duration in studied patients (P=0.005).
Conclusions: Intradermal dutasteride injection was effective and safe for AGA treatment.

Keywords: Dutasteride intradermal injection, androgenetic alopecia, hair loss

Introduction

Androgenetic alopecia (AGA) considers the predominant nonscarring alopecia, distinguished by a progressive and specific alopecia pattern. [1]. An association was found between AGA and moderate impairment of not only health-related life quality but also emotions, suggesting that patients with this disease may need psychological as well as psychosocial support [2].

The pathogenesis of AGA is a complex genetic interaction, hormonal, as well as environmental influences [3]. In males AGA, the frontotemporal area and vertex are two areas preferentially affected. As the hair loss progresses further, terminal hair is continuously replaced by vellus hair in an orderly manner without any skip areas, resulting in alopecia in the mid frontal, temple, and vertex regions. In females, hair loss is said to be multifactorial, and the role of androgens is not well defined, so it is considered a different condition named female pattern hair loss (FPHL). Just as in males, hair miniaturization in females begins in teenage, which progresses further with increasing age. There is diffuse hair loss, especially involving frontal, central, and parietal areas of the scalp in females too [4]. FPHL women typically maintain a maintained frontal hairline despite significant hair loss [4].

Historically, topical minoxidil and oral finasteride have constituted the conventional treatment, with variable outcomes. Recent therapies, including low-level laser therapy (LLLT), microneedling, and platelet-rich plasma (PRP), have been thoroughly examined in the literature [5].

In the past ten years, adipose-derived stem cells (ADSCs) have garnered significant interest in regenerative medicine. Adipose-derived stem cells (ADSCs) considered the most beneficial cell type for regenerative therapies due to their accessibility, multipotency, and robust paracrine activity [6].

Oral finasteride efficacy in treating androgenetic alopecia is well-documented.[7]. Finasteride irreversibly binds 5α-reductase (5-AR) and prevents nicotinamide adenine dinucleotide phosphate (NADPH) -mediated conversion of testosterone to dihydrotestosterone (DHT).

DHT is thought to transform terminal hair into vellus-like miniaturized hair, leading to progressive hair loss. [8]. Micro-doses intralesional administration of dutasteride via mesotherapy into the scalp considers an emerging therapeutic approach. It enables targeted drug delivery directly to the follicular units with minimal systemic absorption [10].

Study objective was to assess dutasteride intradermal injection efficacy in the treatment of androgenic alopecia.

Patients and Methods

This study was conducted on 15 male patients, aged >18 years old, with AGA, who had not been under treatment with oral finasteride, laser or injectable treatment for hair regrowth in the previous six months and patients on minoxidil 2% or 5% were given a wash out period of 60 days. The study was done from November 2023 till January 2025 Subsequent to obtaining approval from the Ethical Committee of Tanta University Hospitals, Tanta, Egypt (approval code: 36264MS317/9/23). Informed written consent was acquired from the patients.

Exclusion criteria were patients with chronic diseases such as diabetes and hypertension, renal and hepatic disorders, immunological diseases such as systemic and discoid lupus erythematous, thyroid disorders, scleroderma and dermatomyositis, active inflammation of the scalp, scarring alopecia, bleeding disorders or anticoagulant medications and needle phobia.

All patients underwent full history taking, general examination to exclude any systemic disease, alopecia dermatological examination regarding site and severity according to Norwood-Hamilton classification [11]

Patients were subjected to six dutasteride intradermal injection sessions with a month gap in between. After 70% disinfection with alcohol, patients in this group were injected intradermally with 1cm interval at a depth 2-4 mm and at angle of 30-60 degree using 30-gauge syringe for six sessions with a month gap between each session. The used dutasteride was NJ dutasreide vials each vial contains 200mcg/ ml made in USA (dutasteride 0.005%).

Therapeutic procedure efficacy Assessment:

Clinical assessment*:*

Clinical grade change according to Norwood-Hamilton classification. Two blinded dermatologists were asked to evaluate the progress of the patients after completion of the treatment period, through comparing the before and after digital photographs, maximum improvement was graded according to the Global Aesthetic Improvement Scale [12]. No improvement: if improvement was 0%, mild improvement: 0-25% improvement, moderate improvement: 26-50% improvement, marked improvement: 51-75% improvement and excellent improvement: 76-100% improvement.

Statistical analysis

- Statistical analysis conducted utilizing SPSS version 26 (IBM Inc., Chicago, IL, USA). The Shapiro-Wilk test and histograms were used to assess data distribution normality. Quantitative parametric data expressed as mean and standard deviation (SD). Quantitative non-parametric data were expressed as median and interquartile range (IQR). Qualitative factors expressed as frequency and percentage (%).

Results

Demographic data as well as clinical grades of the studied groups before treatment according to Norwood-Hamilton classification before treatment of the studied patients were shown in Table 1

Table 1: Demographic data and clinical grades of the studied groups before treatment according to Norwood-Hamilton classification

		N= 15
Age (years)		26.5±4.4
Duration (years)		3.53±1.3
Family history	Negative	0(0%)
	Positive	15(100%)
Clinical grades		
I		0(0.0%)
II		0(0.0%)
III		0(0.0%)
IIIA		1(6.7%)
III vertex		1(6.7%)
IV		3(20.0%)
V		5(33.3%)
VI		3(20.0%)
VII		2(13.3%)

Data are presented as mean ± SD or frequency (%).

Clinical grades of the patients studied before and after one and three months of treatment according to Norwood-Hamilton classification were shown in Table 2

Table 2: Clinical grades of the patients studied before and after one and three months of treatment according to Norwood-Hamilton classification

		Baseline	**After one month**	**After three months**
N= 15	I	0(0.0%)	2(13.3%)	2(13.3%)
	II	0(0.0%)	1(6.7%)	1(6.7%)
	III	0(0.0%)	3(20.0%)	3(20.0%)
	IIIA	1(6.7%)	0(0.0%)	0(0.0%)
	III vertex	1(6.7%)	2(13.3%)	2(13.3%)
	IV	3(20.0%)	5(33.3%)	5(33.3%)
	V	5(33.3%)	0(0.0%)	0(0.0%)
	VI	3(20.0%)	1(6.7%)	1(6.7%)
	VII	2(13.3%)	1(6.7%)	1(6.7%)

Data are presented as mean ± SD or frequency (%).

Clinical improvement using Global Aesthetic Improvement Scale, patients' satisfaction and side effects in the studied patients were enumerated at Table 3

Table 3: Clinical improvement using Global Aesthetic Improvement Scale, patients' satisfaction and side effects in the studied patients

		N= 15
Improvement		60.40±21.74
Mild		2(13.3%)
Moderate		2(13.3%)
Marked		7(46.7%)
Excellent		4(26.7%)
Satisfaction	Grade zero	1(6.7%)
	Grade one	4(26.7%)
	Garde two	5(33.3%)
	Grade three	5(33.3%)
Side effects	Pain	5(33.3%)
	Ecchymosis	1(6.7%)
	Headache	3(20.0%)

Data is presented as mean ± SD or frequency (%).

There was no significant correlation between maximum clinical improvement and age, while there was significant negative correlation between maximum improvement and disease duration in the studied patients (P=0.005). Table 4

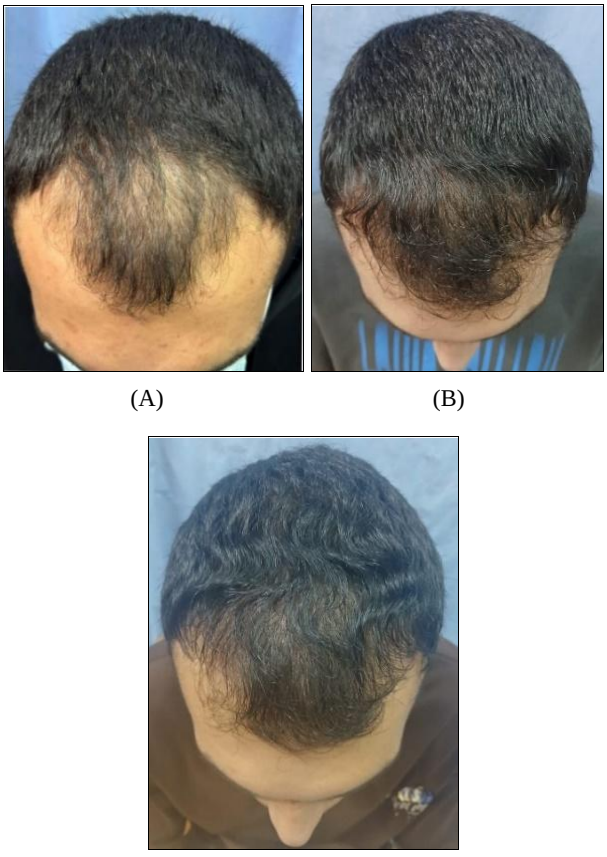
Table 4: Correlation between the maximum improvement and age and duration in both studied groups

	Improvement	
	r_s	p
Age (Years)	0.152	0.588
Duration (Years)	-0.687*	0.005*

r_s: Spearman coefficient.

The median (IQR) of clinical grade before in IIIA was (88.0), III vertex (78.0), IV (70.0 (57.0 - 85.

Case 1: A 25-year-old male patient with AGA. Figure 1



(A) (B)

(C)

Fig 1: (A) At baseline, Norwood- Hamilton grade IIIA, (B) The same patient one month after treatment, Norwood -Hamilton grade I (C) The same patient three months after treatment, Norwood-Hamilton grade II

Discussion

Androgenetic alopecia considers a prevalent hair loss kind that affects both men and females. driven by genetic predisposition and hormonal imbalances. Emerging molecular and genetic studies highlighted the roles of androgens, gene expression, inflammation, and signaling pathways in their pathogenesis [13]. Notably, all patients had AGA positive family history, reflecting the well-established genetic predisposition underlying this condition [14, 15].

In the current study, patients who received intralesional dutasteride injection showed significant improvement in hair density. The clinical improvement was mainly marked to be excellent. This was consistent with Saceda-Corralo *et al.* [16] who used intradermal injection of 0.01% dutasteride every quarter for a total of three sessions over six months, with evaluation at nine months. Clinical improvement was noted in all patients, with increased hair density and diameter [17].

Our findings suggested that repeated monthly injections of dutasteride offer a more robust and durable clinical response in male AGA patients, supporting its role as a potent treatment modality when applied in a structured protocol.

Oral dutasteride was also used in treatment of male AGA. Jung *et al.* [18] suggested that the intradermal route may offer a safer alternative treatment while maintaining clinical efficacy.

Age was not significantly correlated with improvement, suggesting that dutasteride treatment is effective across a wide adult age range. This was consistent with Olsen et al. [19] who demonstrated that dutasteride (0.5 mg /day) significantly improved hair count as well as thickness in men aged 20-50 without age related differences[19].

However, a significant negative correlation was observed between disease duration and improvement, indicating that longer-standing AGA may limit the full potential of hormonal reversal, likely due to prolonged miniaturization, follicular atrophy, and perifollicular fibrosis that become progressively irreversible over time [20]. This was consistent with by Abdallah *et al.* [21] who reported that patients who best respond to dutasteride, were those in whom the balding process was at an early stage, this may reinforce the importance of early initiation of dutasteride therapy to maximize its efficacy before extensive miniaturization becomes permanent.

Side effects reported herein were minimal. These included pain, ecchymosis or mild headache with no reported sexual side effects in dutasteride group as previously reported with oral form. This was consistent with Abdallah *et al.* [21] who also reported minimal side effects and confirmed the safety of intralesional dutasteride

In this study patients reached satisfaction scores two (satisfied) and three (very satisfied).

These findings were highly consistent with prior literature. Ding *et al.* [15] demonstrated that dutasteride therapy produces higher levels of patient satisfaction than other non-hormonal or regenerative treatments due to its faster and more visible effects. The high satisfaction levels achieved with intradermal dutasteride may also reflect the reduced systemic side effects compared to oral administration, as described by Alhanshali *et al.* [22] enhancing patients' overall experience with the therapy.

A decline in improvement over time was observed in our study, which was consistent with the progressive genetic nature of AGA. Similar trends have been documented in long-term use of alopecia treatments such as finasteride. For instance, a 10-year follow-up study by Rossi *et al.* [23] reported that although most patients maintained or improved hair growth,

a modest decline occurred between five and ten years, albeit hair density remained better than the baseline.

Conclusion

Intradermal dutasteride demonstrated clinical efficacy in AGA treatment, possibly through different action mechanisms. Dutasteride provided significant, clinical grade, patient satisfaction, and subjective global assessment. It appeared to be more efficacious in those with a reduced disease duration and more extensive grades. The early initiation of dutasteride therapy is recommended to maximize clinical outcomes before extensive follicular miniaturization and fibrosis develop.

Financial support and sponsorship: Nil

Interest Conflict: Nil

References

1. Ntshingila S, Oputu O, Arowolo AT, Khumalo NP. Androgenetic alopecia: an update. JAAD International. 2023;13:150-158.
2. Huang CH, Fu Y, Chi CC. Health-related quality of life, depression, and self-esteem in patients with androgenetic alopecia: a systematic review and meta-analysis. JAMA Dermatology. 2021;157:963-970.
3. Bansod S, Sharma A, Mhatre M. Androgenetic alopecia: clinical features and trichoscopy. Clinical Dermatology Review. 2022;6:63-68.
4. Fabbrocini G, Cantelli M, Masarà A, Annunziata MC, Marasca C, Cacciapuoti S. Female pattern hair loss: a clinical, pathophysiologic, and therapeutic review. International Journal of Women's Dermatology. 2018;4:203-211.
5. Kaiser M, Abdin R, Gaumond SI, Issa NT, Jimenez JJ. Treatment of androgenetic alopecia: current guidance and unmet needs. Clinical, Cosmetic and Investigational Dermatology. 2023;16:1387-1406.
6. Qin Y, Ge G, Yang P, Wang L, Qiao Y, Pan G, *et al*. An update on adipose-derived stem cells for regenerative medicine: where challenge meets opportunity. Advanced Science. 2023;10:2207334.
7. Piraccini BM, Blume-Peytavi U, Scarci F, Jansat JM, Falqués M, Otero R, *et al*. Efficacy and safety of topical finasteride spray solution for male androgenetic alopecia: a phase III randomized controlled clinical trial. Journal of the European Academy of Dermatology and Venereology. 2022;36:286-294.
8. Gupta AK, Venkataraman M, Talukder M, Bamimore MA. Finasteride for hair loss: a review. Journal of Dermatological Treatment. 2022;33:1938-1946.
9. Busanello EB, Turcatel E. Androgenic alopecia and dutasteride in hair mesotherapy: a short review. Our Dermatology Online. 2017;9:75-79.
10. Reguero Del Cura L, De Quintana Sancho A, Rubio Lombraña M, López Sundh AE, González López MA. Two cases of paradoxical nonscarring alopecia after mesotherapy with dutasteride. Skin Appendage Disorders. 2022;8:46-48.
11. Norwood OT. Male pattern baldness: classification and incidence. Southern Medical Journal. 1975;68:1359-1365.
12. In Jae J, Dong Ju H, Dong Hyun K, Yoon MS, Lee HJ. Comparative study of buffered 50% glycolic acid (pH 3.0) plus 0.5% salicylic acid solution versus Jessner's solution in patients with acne vulgaris. Journal of Cosmetic Dermatology. 2018;17:797-801.
13. Anany RAL, Awad Ibrahim YZ, Nasr MA, Mohamed El-Anwar MI. Role of nanofat injection before hair transplant in cicatricial alopecia. Zagazig University Medical Journal. 2025;31:1758-1767.
14. Festa E, Fretz J, Berry R, Schmidt B, Rodeheffer M, Horowitz M, *et al*. Adipocyte lineage cells contribute to the skin stem cell niche to drive hair cycling. Cell. 2011;146:761-771.
15. Ding Y, Wang C, Bi L, Du Y, Lu C, Zhao M, *et al*. Dutasteride for the treatment of androgenetic alopecia: an updated review. Journal of Dermatology. 2024;240:833-843.
16. Saceda-Corralo D, Rodrigues-Barata AR, Vañó-Galván S, Jaén-Olasolo P. Mesotherapy with dutasteride in the treatment of androgenetic alopecia. International Journal of Trichology. 2017;9:143-145.
17. Morgun EI, Vorotelyak EA. Epidermal stem cells in hair follicle cycling and skin regeneration: a view from the perspective of inflammation. Frontiers in Cell and Developmental Biology. 2020;8:581.
18. Jung JY, Yeon JH, Choi JW, Kwon SH, Kim BJ, Youn SW, *et al*. Effect of dutasteride 0.5 mg/day in men with androgenetic alopecia recalcitrant to finasteride. International Journal of Dermatology. 2014;53:1351-1357.
19. Olsen EA, Hordinsky M, Whiting D, Stough D, Hobbs S, Ellis ML, *et al*. The importance of dual 5-alpha-reductase inhibition in the treatment of male pattern hair loss: results of a randomized placebo-controlled study of dutasteride versus finasteride. Journal of the American Academy of Dermatology. 2006;55:1014-1023.
20. Hori H, Moretti G, Rebora A, Crovato F. The thickness of human scalp: normal and bald. Journal of Investigative Dermatology. 1972;58:396-399.
21. Abdallah M, El-Zawahry K, Besar H. Mesotherapy using dutasteride-containing solution in male pattern hair loss: a controlled pilot study. Journal of the Pan Arab League of Dermatologists. 2009;20:137-145.
22. Alhanshali L, Buontempo M, Majerson D, Shapiro J, Lo Sicco K. Intradermal delivery of alopecia therapeutics: current state and future prospects. Dermatologic Surgery. 2023;49:851-854.
23. Rossi A, Cantisani C, Scarnò M, Trucchia A, Fortuna MC, Calvieri S. Finasteride 1 mg daily administration in male androgenetic alopecia in different age groups: 10-year follow-up. Dermatologic Therapy. 2011;24:455-461.

How to Cite This Article
Elsheikh NAM, El-Samongy MA, Khedr MM, Shaaban DM. Efficacy of dutasteride intradermal injection in the treatment of androgenetic alopecia. International Journal of Dermatology, Venereology and Leprosy Sciences. 2026; 9(1): 29-32.