Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.6 No. 12 (2025): December 2025 Issue
https://doi.org/10.51168/sjhrafrica.v6i12.2230
Original Article

platelet-rich plasma versus topical 5% minoxidil in the treatment of androgenetic alopecia: A comparative observational study.

Dr. Gopinath Mogilicherla[1]*, Dr. Swapna Narayana[2], Dr. R. Meenakshi[3]
[1]Associate Professor, Department of Dermatology, Venereology and Leprosy, Gandhi Medical College, Secunderabad, Telangana, India.
[2]Civil Surgeon Specialist, Department of Dermatology, Venereology and Leprosy, Government General Hospital, Nalgonda, Telangana, India
[3]Assistant Professor, Department of Dermatology, Venereology and Leprosy, Government Medical College and General Hospital, Nalgonda, Telangana, India.

Abstract

Background:
Androgenetic alopecia is the most common cause of patterned hair loss in both men and women and has a significant psychosocial impact. Platelet-rich plasma (PRP) therapy has gained attention as a regenerative treatment, while topical 5% Minoxidil remains the conventional first-line therapy.

Objectives:
To compare the efficacy and safety of PRP therapy versus topical 5% Minoxidil in patients with androgenetic alopecia over 12 weeks.

Methods:
This comparative observational study included 50 patients with androgenetic alopecia, allocated into two groups: PRP (n = 25) and topical 5% Minoxidil (n = 25). PRP was administered through four intradermal sessions at three-week intervals, while Minoxidil was applied twice daily for 12 weeks. Outcomes assessed were change in hair density (hairs/cm²), patient satisfaction using a 5-point Likert scale, dermatologist global assessment, and adverse effects. Statistical analysis was performed, with $p < 0.05$ considered significant.

Results:
Baseline demographic and clinical parameters were comparable between groups. At 12 weeks, the PRP group demonstrated a significantly greater increase in mean hair density (18.4 ± 4.6 hairs/cm²) compared with the Minoxidil group (10.2 ± 3.9 hairs/cm²; $p < 0.01$). Patient satisfaction scores were higher in the PRP group (4.1 ± 0.7) than in the Minoxidil group (3.2 ± 0.8; $p < 0.01$). Moderate to marked clinical improvement was observed in 68% of PRP-treated patients compared with 36% in the Minoxidil group. Adverse effects were mild and transient in both groups.

Conclusion:
PRP therapy showed superior improvement in hair density and patient satisfaction compared with topical 5% Minoxidil over 12 weeks, with good tolerability.

Recommendations:
PRP may be considered an effective therapeutic option for early to moderate androgenetic alopecia, either as monotherapy or as an adjunct to topical Minoxidil. Larger studies with longer follow-up are recommended to assess the durability of response and optimize treatment protocols.

Keywords: *Androgenetic alopecia; Platelet-Rich Plasma; Minoxidil; Hair density*
Submitted: *September 15, 2025* ***Accepted:*** *November 14, 2025* ***Published:*** *December 2, 2025*

Corresponding Author: *Dr. Gopinath Mogilicherla*
Email: ***mogilicherla.gopinath@gmail.com***
Associate Professor, Department of Dermatology, Venereology and Leprosy, Gandhi Medical College, Secunderabad, Telangana, India.

Introduction
Androgenetic alopecia (AGA) is recognized as the leading cause of patterned hair loss in both sexes and is driven primarily by the progressive miniaturization of hair follicles influenced by dihydrotestosterone. This gradual decline in hair density often results in visible thinning that can negatively impact self-esteem, emotional balance, and

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.6 No. 12 (2025): December 2025 Issue
https://doi.org/10.51168/sjhrafrica.v6i12.2230
Original Article

social confidence, highlighting the need for timely and effective intervention. Topical 5% Minoxidil is commonly prescribed as an initial therapeutic option because it prolongs the anagen phase and supports follicular recovery. However, noticeable improvement may be slow, daily use is required, and some individuals experience irritation or poor adherence, contributing to variable outcomes [1,2].

In recent years, Platelet-Rich Plasma (PRP) has emerged as a biologically active therapeutic approach. PRP is prepared from the patient's own blood, yielding a concentrated suspension of platelets enriched with growth factors such as platelet-derived growth factor and vascular endothelial growth factor. These biomolecules are believed to stimulate follicular stem cells, enhance regional blood supply, and encourage transition of dormant follicles into active growth [3,4]. The technique is minimally invasive, well-tolerated, and has shown promising clinical outcomes, which have increased its adoption in dermatologic practice [5]. Evidence indicates that PRP, either alone or used alongside Minoxidil, may produce greater improvement in hair density and patient satisfaction compared with Minoxidil monotherapy [1,2,5,6].

Although both treatments are widely utilized, comparative data assessing their relative effectiveness over a structured period are still limited. This study, therefore, aims to evaluate and compare the clinical outcomes of PRP therapy and topical 5% Minoxidil in patients with AGA over 12 weeks, to inform individualized therapeutic selection and potential combination strategies.

Methodology

Study Design and Duration:

This was a prospective, comparative observational (parallel-group) study conducted over a six-month study period (January 2024 to June 2024), with a 12-week follow-up for outcome assessment in each participant.

Study Setting:

The study was conducted in the Department of Dermatology, Venereology and Leprosy (DVL), Government Medical College and Government General Hospital, Nalgonda, Telangana, India, a teaching hospital-based dermatology service. Participants were recruited from the Dermatology Outpatient Department (OPD), and all clinical procedures (PRP sessions, counselling for Minoxidil use, and follow-up assessments) were performed within the same hospital setting.

Sample Size Determination:

Sample size was calculated for comparison of two independent means (change in hair density between groups) using:

Where for 95% confidence, for 80% power, is the pooled standard deviation, and is the expected mean difference between groups. Assuming hairs/cm² and an expected difference in hairs/cm²,

After adding ~20% for potential attrition/non-compliance, the final sample size was 25 participants per group (total n = 50).

Study Population:

A total of **50 patients** clinically diagnosed with androgenetic alopecia (Norwood–Hamilton Grades II–IV) were included. All participants attended the dermatology outpatient services at the study center during the specified period.

Inclusion Criteria:

Patients aged **18–45 years**.
Clinical diagnosis of androgenetic alopecia.
Willingness to undergo treatment and regular follow-up.
Provided written informed consent.

Exclusion Criteria:

Patients with scarring alopecia or alopecia areata.
Recent hair transplantation.
Current systemic steroid or immunosuppressive therapy.
Active scalp infection or dermatologic disease interfering with assessment.
Pregnant or lactating women.

Grouping and Treatment Protocol:

The participants were divided into **two groups of 25 each**.

PRP Group (n = 25):

Autologous platelet-rich plasma was prepared using a standard **double-spin centrifugation** technique.

PRP was injected intradermally into affected scalp areas at **3-week intervals**, totaling **four sessions**.

Minoxidil Group (n = 25):

Patients applied **topical 5% Minoxidil** solution **twice daily** over the affected scalp for **12 weeks**.

Application method and adherence were explained and reinforced during follow-up visits.

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.6 No. 12 (2025): December 2025 Issue
https://doi.org/10.51168/sjhrafrica.v6i12.2230
Original Article

Outcome Measures:

Hair density (hairs/cm²) was measured using a dermoscopic trichoscopy system at baseline and at 12 weeks.

Patient satisfaction was recorded using a **5-point Likert scale**.

Dermatologist's global assessment classified the response as marked, moderate, mild, or no improvement.

Adverse effects were documented throughout the study.

Bias and Bias Mitigation:

Potential sources of bias were considered. Selection bias was minimized by recruiting eligible patients consecutively from the Dermatology OPD during the study period using predefined inclusion/exclusion criteria. Measurement bias was reduced by using a standardized trichoscopy-based method for hair density assessment under uniform conditions at baseline and week 12, with assessments performed using the same protocol. Adherence-related bias in the Minoxidil group (self-reported application) was mitigated by standardized counselling at each visit and reinforcement of correct application technique. Any deviations (missed PRP session/irregular Minoxidil use) were documented during follow-up and considered during interpretation of outcomes.

Statistical Analysis:

All data were compiled and analyzed using appropriate statistical tests. Continuous variables were expressed as mean ± standard deviation. A **p-value < 0.05** was considered statistically significant.

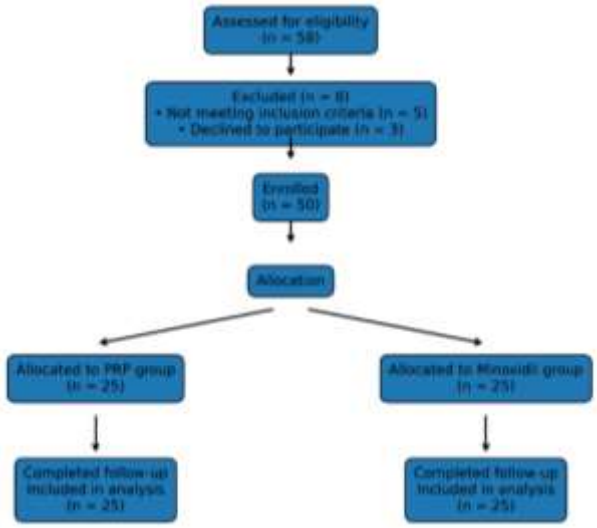
Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Committee of Government Medical College and Government General Hospital, Nalgonda, Telangana, before initiation of the study. The research was conducted in accordance with the principles of the Declaration of Helsinki, and written informed consent was obtained from all participants.

Results

Participant Flow

During the study period, 58 patients presenting with clinical features of androgenetic alopecia were assessed for eligibility in the Dermatology Outpatient Department. Eight patients were excluded: five did not meet the inclusion criteria (advanced grade alopecia or concurrent scalp disorders), and three declined to participate. The remaining 50 eligible patients were enrolled and allocated equally into the PRP group (n = 25) and the topical 5% Minoxidil group (n = 25). All enrolled participants completed the 12-week follow-up period. No patients were lost to follow-up, and no withdrawals occurred due to adverse events or non-compliance. Therefore, data from all 50 participants were included in the final analysis (Figure 1).



Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.6 No. 12 (2025): December 2025 Issue
https://doi.org/10.51168/sjhrafrica.v6i12.2230
Original Article

A total of 50 patients with androgenetic alopecia completed the 12-week study, with 25 participants in each group. The two groups were comparable at baseline with respect to age, gender distribution, duration of hair loss, and initial hair density, indicating an even starting profile for both interventions (**Table 1**). The pattern of hair loss based on the Norwood–Hamilton classification was also similar across groups.

Table 1. Baseline Characteristics of Study Participants (n = 50)

Parameter	PRP Group (n = 25)	Minoxidil Group (n = 25)	p-value
Mean Age (years)	26.8 ± 4.9	27.3 ± 5.2	0.72
Gender (M:F)	21:4	20:5	0.71
Duration of Hair Loss (months)	14.6 ± 5.4	15.1 ± 6.1	0.80
Baseline Hair Density (hairs/cm²)	104.3 ± 9.6	103.7 ± 10.1	0.84
Norwood–Hamilton Grade (II–IV)	II: 8, III: 11, IV: 6	II: 7, III: 12, IV: 6	0.93

At the end of the 12-week follow-up, a clear difference was observed in hair density between the two treatment arms. The PRP group demonstrated a greater rise in mean hair density compared with the Minoxidil group. The PRP group achieved an increase of 18.4 ± 4.6 hairs/cm², whereas the Minoxidil group showed an increase of 10.2 ± 3.9 hairs/cm², a difference that reached statistical significance ($p < 0.01$). Hair density values at baseline and at 12 weeks, along with mean changes, are detailed in **Table 2**. Participants receiving PRP also reported earlier reduction in hair shedding, generally noted by the fourth week.

Table 2. Change in Hair Density Over 12 Weeks

Parameter	PRP Group (n = 25)	Minoxidil Group (n = 25)	p-value
Baseline Hair Density (hairs/cm²)	104.3 ± 9.6	103.7 ± 10.1	0.84
Hair Density at 12 Weeks (hairs/cm²)	122.7 ± 8.9	113.9 ± 9.3	< 0.01
Mean Increase (hairs/cm²)	**18.4 ± 4.6**	**10.2 ± 3.9**	**< 0.01**

Patient-reported satisfaction and dermatologist-assessed clinical improvement supported these findings. The average satisfaction score was higher in the PRP group (4.1 ± 0.7) than in the Minoxidil group (3.2 ± 0.8), as shown in **Table 3**. Moreover, moderate to marked clinical improvement was observed in 68% of patients treated with PRP compared with 36% of those treated with Minoxidil.

Table 3. Patient Satisfaction Score and Clinical Response

Outcome Measures	PRP Group (n = 25)	Minoxidil Group (n = 25)	p-value
Patient Satisfaction Score (1–5 scale)	4.1 ± 0.7	3.2 ± 0.8	< 0.01
Dermatologist Global Assessment			
Marked to Moderate Improvement	17 (68%)	9 (36%)	0.02
Mild/No Improvement	8 (32%)	16 (64%)	0.02

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.6 No. 12 (2025): December 2025 Issue
https://doi.org/10.51168/sjhrafrica.v6i12.2230
Original Article

Both treatments were well tolerated, with no severe adverse events recorded. The PRP group experienced only temporary local discomfort, such as scalp tenderness and mild swelling. In contrast, the Minoxidil group showed a higher incidence of scalp irritation and dryness. The distribution of adverse effects is presented in **Table 4**.

Table 4. Adverse Effects

Adverse Effect	PRP Group (n = 25)	Minoxidil Group (n = 25)
Scalp Pain/Tenderness	6 (24%)	0
Swelling/Erythema (Transient)	2 (8%)	0
Itching / Irritation	0	6 (24%)
Scalp Dryness / Flaking	0	4 (16%)
Serious Adverse Events	None	None

Discussion

In this study, both Platelet-Rich Plasma and topical 5% Minoxidil produced measurable improvement in hair density among patients with androgenetic alopecia; however, PRP demonstrated a comparatively greater and earlier response. The enhanced outcome in the PRP group is likely related to the action of platelet-derived growth factors, which stimulate follicular stem cells, promote angiogenesis, and encourage transition of follicles into the anagen phase. These mechanisms directly counter the follicular miniaturization seen in androgenetic alopecia. Similar benefits of PRP in improving hair density and growth kinetics have been documented in earlier clinical reports and controlled comparisons [7,8].

Patient satisfaction was noticeably higher in the PRP group, supported by earlier reduction in hair shedding and better hair texture. By contrast, Minoxidil, although widely recognized as a first-line agent, is associated with slower visible improvement and occasional irritation, which may influence adherence and perceived effectiveness [11]. The dermatologist's global assessment in this study also favored PRP, with a greater proportion of patients achieving moderate to marked improvement. These findings are aligned with studies demonstrating that the addition of PRP to Minoxidil regimens yields better cosmetic and clinical outcomes than monotherapy [7,9].

Both treatments were well tolerated. Transient scalp tenderness was the most common effect in the PRP group, while patients using Minoxidil experienced itching and dryness, consistent with known tolerability patterns [11,12]. Importantly, no serious adverse events occurred in either group, supporting the overall safety of both interventions.

The short 12-week follow-up period limits conclusions regarding long-term maintenance of hair regrowth. A longer observation period and larger cohort would allow better evaluation of sustained results and relapse patterns. Evidence suggests that combination therapy may enhance overall response and maintenance of hair density, indicating potential clinical value in integrating PRP with topical Minoxidil in selected patients [7,8,10].

Generalizability

The findings of this study can be generalized to individuals with mild to moderate androgenetic alopecia presenting in similar clinical settings. However, results may vary in cases with advanced hair loss, different age groups, or coexisting scalp conditions. Larger multi-center studies are recommended to enhance broader applicability.

Conclusion

This comparative study demonstrated that Platelet-Rich Plasma therapy provides superior improvement in hair density, scalp coverage, and overall patient satisfaction when compared with topical 5% Minoxidil over 12 weeks. PRP promoted an earlier and more noticeable reduction in hair shedding, along with better follicular strengthening, likely due to its growth factor–mediated stimulation of follicular regeneration. While Minoxidil remains a useful and accessible first-line treatment, its effects were slower and associated with more local irritation. Both treatments were generally well tolerated and did not produce serious adverse events. PRP may therefore be considered an effective therapeutic option either alone or as an adjunct to enhance clinical outcomes in androgenetic alopecia.

Limitations

The study was limited by its relatively small sample size and short follow-up duration of 12 weeks, which restricts the ability to evaluate the long-term sustainability of treatment outcomes. Hair density measurement was confined to selected scalp regions and may not reflect uniform improvement across all affected areas. Additionally,

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.6 No. 12 (2025): December 2025 Issue
https://doi.org/10.51168/sjhrafrica.v6i12.2230
Original Article

treatment adherence in the Minoxidil group was based on patient reporting, which may introduce bias. Larger, multi-center studies with extended follow-up are required to strengthen and validate these findings.

Recommendations

PRP may be considered as a valuable therapeutic option for patients presenting with early to moderate androgenetic alopecia, either as a primary therapy or in combination with topical Minoxidil to enhance and sustain outcomes. Clinicians should explain expected timelines, reinforce adherence, and schedule regular follow-up visits for monitoring. Further research with larger cohorts, standardized PRP preparation protocols, and extended observation periods is recommended to establish consistency in clinical responses. Comparative studies that assess combination regimens, dosage intervals, and maintenance schedules will help refine individualized treatment plans. Patient education regarding scalp care and lifestyle factors should also be encouraged to support long-term treatment benefits.

Acknowledgements

The authors express their sincere gratitude to the Department of Dermatology, Government Medical College / Government General Hospital, Nalgonda, for providing the facilities and support required to conduct this study. We also thank all the patients who participated and cooperated throughout the follow-up period. Their involvement made this research possible.

Abbreviations

AGA – Androgenetic Alopecia
PRP – Platelet-Rich Plasma
VEGF – Vascular Endothelial Growth Factor
PDGF – Platelet-Derived Growth Factor
FGF – Fibroblast Growth Factor
EGF – Epidermal Growth Factor
SD – Standard Deviation
cm^2 – Square Centimeter
M: F – Male to Female Ratio
p-value – Probability Value

Source of funding

The study had no funding.

Conflict of interest

The authors declare no conflict of interest.

Author contributions

GM-Concept and design of the study, results interpretation, review of literature, and preparation of the first draft of the manuscript. Statistical analysis and interpretation, revision of manuscript. **SN-**Design of the study, results interpretation, review of literature, and preparing the first draft of the manuscript, revision of the manuscript. **RM -**Review of literature and preparing the first draft of the manuscript. Statistical analysis and interpretation.

Data availability

Data available on request

Author Biography

Dr. Gopinath Mogilicherla is an Associate Professor in the Department of Dermatology, Venereology, and Leprosy at Gandhi Medical College, Secunderabad. He completed his MBBS from Gandhi Medical College in 2005 and obtained his MD in Dermatology, Venereology, and Leprosy from Osmania Medical College in 2013. Over the years, he has been actively involved in clinical practice, teaching, and research, with a focus on improving patient care and mentoring postgraduate trainees. His academic interests include inflammatory dermatoses, infectious skin diseases, and dermato-surgical techniques. He has contributed to scientific publications and continues to participate in academic activities, conferences, and professional development initiatives.**ORCID iD:** https://orcid.org/0009-0003-5479-9380

Dr. Swapna Narayana completed her MBBS from Kakatiya Medical College, Warangal (2000–2006), and obtained her MD in Dermatology, Venereology, and Leprosy from SVS Medical College, Mahabubnagar (2012–2015). She is currently working as a Civil Surgeon Specialist (Dermatology) at District Hospital, Nalgonda. Her clinical work spans the diagnosis and management of a wide spectrum of dermatoses, with a strong emphasis on evidence-based care and patient counselling. She is also involved in teaching and guiding junior colleagues in dermatology practice.**ORCID iD:** https://orcid.org/0009-0002-2068-5919

Dr. R. Meenakshi, Assistant Professor, Department of Dermatology, Venereology and Leprosy (DVL), Government Medical College & General Hospital, Nalgonda, Telangana, India. She obtained her MBBS degree from Osmania Medical College and pursued an MD in Dermatology, Venereology, and Leprosy from Kakatiya Medical College, Warangal. She joined GMC/GGH Nalgonda as an Assistant Professor in October 2023. Her

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.6 No. 12 (2025): December 2025 Issue
https://doi.org/10.51168/sjhrafrica.v6i12.2230
Original Article

academic interests include clinical dermatology, dermatosurgery, and medical education.**ORCID ID:**https://orcid.org/0009-0001-2327-2004

References

1. Pachar S, Chouhan C, Rao P, Kachhawa D, Singh H, Yadav C. A Comparative Study of the Efficacy of 5% Minoxidil and 5% Minoxidil Plus Platelet-Rich Plasma in the Same Patient for Treatment of Androgenetic Alopecia. J Cutan Aesthet Surg. 2022 Jan-Mar;15(1):71-76. doi: 10.4103/JCAS.JCAS_232_20. PMID: 35655638; PMCID: PMC9153305. https://doi.org/10.4103/JCAS.JCAS_232_20
2. Ray R, Sharma A. Comparison of 5% minoxidil lotion monotherapy versus its combination with autologous platelet-rich plasma in androgenetic alopecia in a hundred males. Med J Armed Forces India. 2021 Jul;77(3):355-362. doi: 10.1016/j.mjafi.2020.11.010. Epub 2021 Feb 25. PMID: 34305291; PMCID: PMC8282514. https://doi.org/10.1016/j.mjafi.2020.11.010
3. Abid A, Fazal F, Mumtaz H, Raja HAA, Malik BH. Comparison of the efficacy of platelet-rich plasma with topical minoxidil in treating patients with androgenetic alopecia: a systematic review of clinical trials. Skin Health Dis. 2025 Jul 23;5(5):311-318. doi: 10.1093/skinhd/vzaf040. PMID: 41035833; PMCID: PMC12480729. https://doi.org/10.1093/skinhd/vzaf040
4. Afzal G, Ahmed N, Zahoor F, Malik T, Farooq O. Efficacy of Platelet-Rich Plasma versus 5% Topical Monixidil for the Treatment of Androgenetic Alopecia. J Coll Physicians Surg Pak. 2024 Jan;34(1):11-15. doi: 10.29271/jcpsp 2024.01.11. PMID: 38185953. https://doi.org/10.29271/jcpsp
5. Verma K, Tegta GR, Verma G, Gupta M, Negi A, Sharma R. A Study to Compare the Efficacy of Platelet-rich Plasma and Minoxidil Therapy for the Treatment of Androgenetic Alopecia. Int J Trichology. 2019 Mar-Apr;11(2):68-79. doi: 10.4103/ijt.ijt_64_18. PMID: 31007475; PMCID: PMC6463452. https://doi.org/10.4103/ijt.ijt_64_18
6. Muhammad A, Saleem S, Khan S, Virdi G, Arshad S, Muhammad S, et al. Comparison of Efficacy of Autologous Platelet Rich Plasma Therapy With 5% Topical Minoxidil Spray in Treating Alopecia Areata: A Head-to-Head Assessment of Novel Approaches. Cureus. 2024 Jun 7;16(6):e61878. Doi: 10.7759/cureus 61878. PMID: 38975521; PMCID: PMC11227731. https://doi.org/10.7759/cureus.61878
7. Elena EP, Irina OS. Combination therapy with platelet-rich plasma and minoxidil leads to better clinical results than monotherapy with these methods in men with androgenetic alopecia. Int J Trichology. 2022 Jan-Feb;14(1):1-7. doi: 10.4103/ijt.ijt_50_19. Epub 2022 Feb 1. PMID: 35300100; PMCID: PMC8923145. https://doi.org/10.4103/ijt.ijt_50_19
8. Ruthvik S, John RS, George M, Kumar SP, Krishnan M. Comparison of Efficacy of Platelet-Rich Plasma With and Without Topical Minoxidil for Hair Growth in Patients With Androgenetic Alopecia: A Prospective Study. Cureus. 2024 Feb 8;16(2):e53875. doi: 10.7759/cureus 53875. PMID: 38465061; PMCID: PMC10924654. https://doi.org/10.7759/cureus.53875
9. Shah KB, Shah AN, Solanki RB, Raval RC. A Comparative Study of Microneedling with Platelet-rich Plasma Plus Topical Minoxidil (5%) and Topical Minoxidil (5%) Alone in Androgenetic Alopecia. Int J Trichology. 2017 Jan-Mar;9(1):14-18. doi: 10.4103/ijt.ijt_75_16. PMID: 28761259; PMCID: PMC5514790. https://doi.org/10.4103/ijt.ijt_75_16
10. Gentile P, Garcovich S. Systematic review of platelet-rich plasma use in androgenetic alopecia compared with Minoxidil, Finasteride, and adult stem cell-based therapy. Int J Mol Sci. 2020;21(8):2702. doi:10.3390/ijms21082702 https://doi.org/10.3390/ijms21082702
11. Olsen EA, Dunlap FE, Funicella T, Koperski JA, Swinehart JM, Tschen EH, Trancik RJ. A randomized clinical trial of 5% topical minoxidil versus 2% topical minoxidil and placebo in the treatment of androgenetic alopecia in men. J Am Acad Dermatol. 2002 Sep;47(3):377-85. doi: 10.1067/mjd 2002.124088. PMID: 12196747. https://doi.org/10.1067/mjd.2002.124088
12. Ghafoor R, Saher N, Ali SM. The Role of 5% Minoxidil versus Platelet-Rich Plasma in Treatment of Alopecia Areata. J Coll Physicians Surg Pak. 2024 Jun;34(6):650-653. doi: 10.29271/jcpsp 2024.06.650. PMID: 38840345. https://doi.org/10.29271/jcpsp

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.6 No. 12 (2025): December 2025 Issue
https://doi.org/10.51168/sjhrafrica.v6i12.2230
Original Article

PUBLISHER DETAILS:

Student's Journal of Health Research (SJHR)
(ISSN 2709-9997) Online
(ISSN 3006-1059) Print
Category: Non-Governmental & Non-profit Organization
Email: studentsjournal2020@gmail.com
WhatsApp: +256 775 434 261
Location: Scholar's Summit Nakigalala, P. O. Box 701432, Entebbe Uganda, East Africa