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Letter to Editor

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Adherence to topical minoxidil in androgenetic alopecia: why do patients abandon a treatment that works?

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Letter to editor

Androgenetic alopecia (AGA) is the most common cause of hair loss worldwide, affecting up to 50% of men and a significant proportion of women over their lifetime.[1] Its consequences extend well beyond the scalp: reduced self-esteem, impaired quality of life, and measurable psychological distress are consistently reported among those affected. Despite this burden, effective treatment exists — and has existed for decades.

Topical minoxidil has held a first-line position in AGA management since the 1980s, backed by robust evidence of its ability to slow progression and stimulate regrowth in both men and women.[2] Its mechanisms include direct stimulation of follicular cells, prolongation of the anagen phase, and upregulation of vascular endothelial growth factor (VEGF), which enhances perifollicular vascularization and sustains follicular activity.[3] The pharmacological case is solid. The problem lies elsewhere.

Topical and oral minoxidil offer similar hair regrowth (mean increase ~10–13 hairs/cm² at 24 weeks), but oral minoxidil has higher rates of systemic side effects like hypertrichosis (up to 49% vs 25%).[4,5] Oral finasteride is more effective than minoxidil in men (response rate up to 86% vs 69% for minoxidil), and combination therapies (minoxidil + finasteride, PRP, or LLLT) yield the best results (hair density increase up to +81/cm² at 6 months).[6,7] For women, topical minoxidil remains the preferred first-line treatment due to its efficacy and safety profile.[8]

Observational studies have recorded minoxidil discontinuation rates as high as 86.3% among AGA patients prescribed topical minoxidil.[9] Fewer than half remain adherent after six months, with persistence rates around 44.7% at that mark.[10] The gap between what this treatment can achieve and what it delivers in practice is, in large part, a behavioral problem.

Several converging factors explain this pattern. The most commonly cited is the burden of twice-daily application. In fact, according to guidelines, minoxidil in male patients should be used twice daily, which is not convenient for long-term use. For women, it is used once a day; however, many women find this difficult, as it adds an extra step to their busy schedules. Maintaining that routine indefinitely is perceived by many patients as inconvenient and difficult to integrate into daily life. Over time, therapeutic fatigue takes hold, applications become sporadic, and treatment is abandoned.

Tolerability compounds the problem. Most topical minoxidil formulations rely on alcohol-based vehicles and propylene glycol, which frequently cause scalp irritation in susceptible individuals — pruritus, erythema, dryness, burning, and scaling among the most reported.[11] Adverse events have been documented in approximately 46.5% of patients using topical minoxidil, and their presence is significantly associated with discontinuation.[9] Although generally mild and reversible, these reactions erode the patient's experience in a way that matters greatly when the condition being treated is chronic and cosmetic rather than acute and life-threatening.

Cosmetic acceptability adds further friction. Alcohol-based solutions can leave hair stiff or greasy, interfering with styling and conflicting with the very aesthetic goal driving treatment in the first place. When the remedy visibly undermines the result, motivation collapses.

Expectation misalignment is equally damaging. Hair regrowth is slow by nature, and clinically visible improvements typically require several months of consistent use. Many patients begin treatment expecting rapid results and, seeing no change in the early weeks, conclude the product is ineffective. A substantial proportion of discontinuations occurs within the first three to four months — before the treatment has had any real opportunity to work.[12] In this window, managing expectations may be as therapeutically decisive as the drug itself. In fact, many people stop the treatment because they do not know that it should be used for at least six months before seeing results.

Additionally, patients may develop allergic contact dermatitis. In those cases, an alternative would be oral minoxidil. However, due to possible side effects such as hirsutism, patients may prefer to avoid it.[13]

Taken together, these barriers reveal a fundamental tension in AGA management: the gap between pharmacological efficacy and real-world effectiveness is not a drug problem — it is an adherence problem. Minoxidil has a demonstrated mechanism, an established safety profile, and documented clinical benefits, but its effectiveness in practice depends on patient behavior.[12] What separates trial outcomes from clinical reality is not the biology of the compound; it is the probability that the patient will actually use it, consistently, for years.

Closing this gap requires more than a pharmacologically active ingredient. It requires formulations that patients are willing to keep using — ones that are better tolerated, cosmetically acceptable, and compatible with daily routines. The best option and future treatments would ideally require less frequent use, such as every other day, while also being non-greasy and not causing the hair to become scaly and

itchy. It also requires a clinical conversation that sets realistic timelines, explains the consequences of stopping, and frames adherence not as a recommendation but as the actual mechanism through which the treatment works. Ultimately, the long-term management of androgenetic alopecia is as much a question of patient experience as it is of pharmacology.

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Conflict of interest

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