Coming full circle (almost): Low dose oral minoxidil for alopecia

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Every dermatologist has probably recommended topical minoxidil for patients with androgenetic alopecia (AGA) and other alopecias. I recall the excitement in 1988 when the US Food and Drug Administration approved topical minoxidil for AGA in men and in 1991 for women.

The thought of using oral minoxidil for alopecia had never crossed my mind. Minoxidil is indicated for refractory hypertension carrying a black box warning for the risk of pericardial effusion that may progress to cardiac tamponade and angina pectoris exacerbation.[1] As an antihypertensive, oral minoxidil is usually dosed between 5 and 40 mg daily. Common adverse reactions are generalized hypertrichosis, tachycardia, and pedal edema. Interestingly, the drug has a minimal hypotensive effect in normotensive patients.[2] Recently, there have been multiple studies exploring the use of low-dose oral minoxidil (LDOM, <5 mg daily) for various forms of alopecia.

We still do not completely understand how minoxidil improves alopecia. Vasodilatory effects are propagated by upregulation of vascular endothelial growth factor, increasing cutaneous blood flow with resultant increase in oxygen and growth factor delivery to the hair follicle. Additionally, minoxidil leads to hair follicle potassium channel activation, prolonging anagen and shortening the telogen phase. Minoxidil may also have T-cell immunomodulatory effects, causing suppression of T-cells that may partially explain its use in autoimmune alopecias.[3]

In this issue of the *Journal of the American Academy of Dermatology* there are 2 articles devoted to LDOM for alopecia.

Abbreviations used:

AGA: androgenetic alopecia
LDOM: low-dose oral minoxidil

Randolph and Tosti[4] evaluated 16 studies with 622 patients utilizing LDOM as the primary treatment modality for hair loss. AGA was the most studied condition, but other disorders included telogen effluvium, lichen planopilaris, loose anagen hair syndrome, monilethrix, alopecia areata, and permanent chemotherapy-induced alopecia. They found that LDOM was an effective and well-tolerated treatment alternative for healthy patients having difficulty with topical formulations (notably scalp pruritus, scaling, hypertrichosis, and contact dermatitis). In this review, no severe cardiopulmonary adverse reactions were noted. Regardless, the authors advise providers to remain cautious when using LDOM, monitoring patients' blood pressure, heart rate, and observing for signs of fluid retention.[4]

Beach et al[5] retrospectively reported their experience in prescribing LDOM for patients with nonscarring and scarring alopecias (1.25 mg daily for at least 3 months) that was confirmed in 51 of 74 patients given the prescription. Increased scalp hair growth was noted in 65% (33/51) and decreased hair shedding in 27% (14/51). Facial hypertrichosis was appreciated in 43% (22/51); 4 patients (8%) reported hypotensive symptoms (lightheadedness) Patients with nonscarring alopecia were most likely to exhibit and acknowledge clinical improvement.[5]

Although inadequately studied, there may be circumstances where LDOM is indicated in children,

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such as severe androgenetic alopecia or alopecia areata.[2]

Beach et al list 6 practical advantages to LDOM for alopecia: convenience, cosmesis, cost, cotherapy feasibility, compliance (adherence), and crown efficacy.[5] As a dermatologist who was eagerly awaiting a proprietary formulation of topical minoxidil decades ago, I am bemused by the fact that LDOM may be a reasonable alternative for many alopecia patients—I look forward to prescribing it!

Conflicts of interest

None to report.

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