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Low-Dose Oral Minoxidil Initiation for Patients With Hair Loss

An International Modified Delphi Consensus Statement

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IMPORTANCE The results of small studies suggest that off-label use of low-dose oral minoxidil (LDOM) may be safe and effective for patients with hair loss, but larger trials and standardized guidelines are lacking.

OBJECTIVE To create an expert consensus statement for LDOM prescribing for patients with hair loss.

EVIDENCE REVIEW The current literature on the pharmacological properties, adverse effect profile, and use of LDOM for patients with hair loss was reviewed. Topics of interest were identified, and a modified Delphi consensus process was created. A total of 43 hair loss specialist dermatologists from 12 countries participated in a modified Delphi process. Consensus was reached if at least 70% agreed or strongly agreed on a 5-point Likert scale.

FINDINGS Over 4 survey rounds, 180 items in the first round, 121 items in the second round, 16 items in the third round, and 11 items in the fourth round were considered and revised. A total of 76 items achieved consensus including diagnoses for which LDOM may provide direct or supportive benefit, indications for LDOM compared to topical minoxidil, dosing for adults (18 years and older) and adolescents (aged 12 to 17 years), contraindications, precautions, baseline evaluation, monitoring, adjunctive therapy, and specialty consultation. Pediatric use and dosing items for children younger than 12 years, and LDOM titration protocols fell short of consensus.

CONCLUSIONS AND RELEVANCE This international expert consensus statement regarding the off-label prescribing of LDOM for patients with hair loss can help guide clinical practice until more data emerge. Hair loss experts with experience treating pediatric patients were underrepresented on this expert panel. Future research should investigate best practices for LDOM use in pediatric patients. Other critical topics for further investigation include the comparative efficacy of topical minoxidil vs oral minoxidil, the safety of oral minoxidil for patients with a history of allergic contact dermatitis to topical minoxidil, the long-term safety of LDOM, and the use of other off-label forms of minoxidil, such as compounded formulations of oral minoxidil and sublingual minoxidil. As additional evidence-based data emerge, these recommendations should be updated.

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Hair loss significantly impacts patients' quality of life, and it may be nonscarring or scarring. Etiologically, hair loss may be hereditary (androgenetic alopecia [AGA]); related to age; congenital (hair shaft disorders); traction induced; inflammatory (primary scarring alopecia); autoimmune (alopecia areata); or secondary to medical, surgical, or emotional stressors (telogen effluvium), infection (tinea capitis), and certain medications including cancer therapies.[1]

Topical minoxidil is approved by the US Food and Drug Administration (FDA) as an over-the-counter drug designed to treat male patients with AGA (minoxidil, 5% solution, or minoxidil, 5% foam, twice

achieved final consensus, including diagnoses for which LDOM may provide direct or supportive benefit, indications for LDOM compared to topical minoxidil, adult and adolescent dosing, contraindications, precautions, baseline evaluation, monitoring, adjunctive therapy, and specialty consultation. Consensus was not achieved on pediatric use and dosing or LDOM titration protocols (eTable in the Supplement).

LOMI experts reached consensus during rounds 1 and 2 that the following should be considered precautions for LDOM use: history of tachycardia or other arrhythmia (36 experts [81.8%] agreed); hypotension indicated by blood pressure level less than 90/60 mm Hg (34 experts [77.3%]) agreed); kidney function impairment (38 experts [88.4%] agreed); and patients undergoing dialysis (38 experts [88.4%] agreed; Table 2).

Of note, items for which contraindication consensus was achieved were excluded from precaution considerations. Items that failed to reach consensus as either contraindications or precautions are detailed in the eTable in the Supplement. Consensus was reached on 2 items regarding minoxidil hypersensitivity in round 1, including the following: (1) "LDOM may be considered over topical minoxidil when topical minoxidil application results in skin irritation or allergy" and (2) "The following should be considered a contraindication for the use of LDOM: hypersensitivity to minoxidil" (43 [97.7%] and 39 [88.6%] experts agreed, respectively; eAppendix in the Supplement). However, on subsequent review, these statements were deemed vague regarding the type of allergy or hypersensitivity and route of administration of minoxidil and therefore were not included as final consensus outcomes.

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LOMI experts concurred during round 2 that specialty consultation with primary care or cardiology clinicians may be sought before prescribing LDOM (41 experts [95.3%] agreed), especially when potential precautions or contraindications are identified (39 [90.7%] and 42 [97.7%] experts agreed, respectively), or coordination of care is needed (41 experts [95.3%] agreed, respectively; [illegible] 3).

[illegible]

Consensus was reached during round 2 that, in the absence of precautions, baseline laboratory and electrocardiogram evaluation results are not routinely indicated (39 [90.7%] and 40 [93.0%] experts agreed, respectively; Table 3). In the presence of relevant precautions, baseline laboratory and electrocardiogram evaluation may be considered in consultation with a specialist (32 [74.4%] and 37 [86.0%] experts agreed, respectively).

[illegible]

Consensus was achieved during round 2 that the following patient characteristics may inform the determination of starting dosing of LDOM: sex (33 experts [76.7%] concurred), age (for adults, 35 experts [81.4%] concurred; for adolescents, 36 experts concurred [83.7%]), hypertrichosis as either an undesirable or desirable effect (40 experts concurred [93.0%]), and the risk for systemic adverse effects (42 experts concurred [97.7%]; Table 3). Additionally, the severity of baseline hair loss was considered an important factor for determining the maximum dosages of LDOM during round 2 (32 experts [74.4%] concurred).

LOMI experts were asked about their typical dosing practices in round 1; these open-ended responses facilitated the creation of Likert scale items reintroduced in round 3 (Table 3). The most frequently prescribed LDOM starting doses and dosing ranges achieved consensus [9ve;33sprround

escalation (42 [97.7%], 40 [93.0%], and 41 [95.3%] experts agreed,

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