Brief report

Oral minoxidil treatment of alopecia areata

Alopecia areata (AA) is an immune-mediated hair loss disorder. Although Janus kinase (JAK) inhibitors have revolutionized the treatment of AA,[1,2] there remains an unmet need for treatment. In 1987, an open-label trial of oral minoxidil (OM) 5 mg twice daily in 65 patients with AA showed a "cosmetic response" in 38% (8/21) of patients with <75% scalp hair loss and in 9% (4/44) of patients with 75% to 100% loss.[3] We have used OM extensively for AA, as monotherapy and in combination with other therapies (such as JAK inhibitors[4,5] or intralesional triamcinolone [ILT]). The results of AA treatment with OM, not in combination with JAK inhibitors, are reported here.

We reviewed the records of 41 consecutive patients with mild-but-persistent to very severe AA treated with OM (1.25-10 mg daily, median 5 mg daily) for ≥6 months. OM monotherapy was used in 41% (17/41) of patients. Concomitant treatment included spironolactone in 36.6% (15/41) of patients, ILT in 31.7% (13/41) of patients (in patients who received ILT, it was administered ≤4 times annually), and pulsed prednisone (300 mg once monthly for 3 doses) in 7.3% (3/41) of patients. Table I describes patient characteristics, and Table II describes treatment outcomes. Patients were divided into 4 groups based on baseline Severity of Alopecia Tool (SALT) score 10-20, 21-49, 50-94, and 95-100. Responders were defined as achieving SALT score ≤20 for patients with baseline SALT score 50-100, SALT score ≤10 for patients with baseline SALT score 21-49, or SALT score ≤3 for patients with baseline SALT score 10-20.

For patients with baseline SALT score 10-20 ($n = 7$), 71% (5/7) achieved SALT score ≤3. For patients with baseline SALT score 21-49 ($n = 12$), 42% (5/12) achieved SALT score ≤10. For patients with baseline SALT score 50-94 ($n = 10$), 30.0% (3/10) achieved SALT score ≤20. For patients with baseline SALT score 95-100 ($n = 12$), 25% (3/12) achieved SALT score ≤20; in 1 of these patients, hair loss recurred upon decreasing the OM dose, and, with resuming the higher OM dose, hair regrew again. The median time to response was 32 weeks (range: 8-60 weeks).

Adverse events included hypertrichosis ($n = 12$), peripheral edema ($n = 4$, resolved with decreased dose in 4/4 cases), lightheadedness ($n = 1$), and pericardial effusion ($n = 1$; female, 73 years, history of multiple sclerosis and hypertension, received OM 5 mg twice daily for 10 months). OM was discontinued only in the patient who experienced pericardial effusion, and the pericardial effusion resolved. Pericardial effusion is a rare adverse reaction to OM that dermatologists and their patients taking OM need to be aware of.

Table I. Demographics and baseline clinical characteristics

Age (y)	**44.0 ± 21.6 (range: 11-85)**
Sex, no. (%)	
Female	25 (61.0)
Male	16 (39.0)
Race, no. (%)	
White	31 (75.6)
Asian	3 (7.3)
Black	2 (4.9)
Unknown	5 (12.2)
SALT score	58.2 ± 33.7
SALT score 10-20, no. (%)*	7 (17.1)
SALT score 21-49, no. (%)	12 (29.3)
SALT score 50-94, no. (%)	10 (24.4)
SALT score 95-100, no. (%)	12 (29.3)
Duration of current episode of severe AA in patients with baseline SALT score 50-100 (y)	3.3 ± 6.8
<4 y	20 (90.9)
≥4 y	2 (9.1)

±Standard deviation.
AA, Alopecia areata; *SALT*, Severity of Alopecia Tool.
*Although the baseline SALT scores were low in these patients, 6/7 had persistent, unremitting AA.

Limitations of this study include the retrospective study design, concomitant medication use, and small sample size. Although patients with AA can experience spontaneous remission, especially those with lower baseline SALT scores, nearly all of the patients (6/7) with baseline SALT scores 10-20 had persistent, unremitting AA and we used stringent SALT score endpoints to mitigate against chance improvement.

OM monotherapy was shown to be effective for AA in 1987,[3] but it was not subsequently used. The results of our work again highlight the efficacy of OM across the spectrum of AA, from mild-but-persistent to very severe AA. OM belongs in the treatment algorithm for AA.

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Table II. Patients treated with oral minoxidil achieving SALT score ≤20, ≤10, and ≤3, stratified by baseline SALT score

Baseline SALT score	No. patients	SALT score ≤ 20 No./ total no. (%)	SALT score ≤ 10 No./ total no. (%)	SALT score ≤ 3 No./total no. (%)	Concomitant ILT No./total no.	Minoxidil monotherapy No./total no.	Concomitant spironolactone No./total no.	Concomitant pulsed prednisone No./total no.	Acute AA* No./total no.
10-20	7	-	-	5/7 (71.0)	5/7 (3 R and 2 NR)	1/7 (1 R and 0 NR)	4/7 (2 R and 2 NR)	0/7	1/7 (1 R and 0 NR)
21-49	12	7/12 (58.3)	5/12 (41.7)	4/12 (33.3)	5/12 (4 R and 1 NR)	3/12 (1 R and 2 NR)	3/12 (2 R and 1 NR)	2/12 (1 R and 1 NR)	0/12
50-94	10	3/10 (30.0)	1/10 (10.0)	1/10 (10)	2/10 (1 R and 1 NR)	4/10 (2 R and 2 NR)	5/10 (1 R and 4 NR)	1/10 (0 R and 1 NR)	1/10 (0 R and 1 NR)
95-100	12	3/12 (25.0)	3/12 (25.0)	3/12 (25.0)	1/12 (1 R and 0 NR)	9/12 (1 R and 8 NR)	3/12 (2 R and 1 NR)	0/12	2/12 (0 R and 2 NR)

AA, Alopecia areata; *ILT*, intralesional triamcinolone; *NR*, Non-responder; *R*, Responder (achievement of SALT score ≤20 for patients with baseline SALT score 50-100, SALT score ≤10 for patients with baseline SALT score 21-49, or SALT score ≤3 for patients with baseline SALT score 10-20); *SALT*, Severity of Alopecia Tool.
*Acute AA defined as duration of current episode of AA <6 months.

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Conflicts of interest

BK has served on advisory boards and/or is a consultant and/or is a clinical trial investigator and/or is on a Data Monitoring Committee for Abbvie, Altrubio Inc, Almirall, Amgen, Anaptysbio, Apogee Therapeutics, Arena Pharmaceuticals, Aslan Pharmaceuticals, Bristol Meyers Squibb, Concert Pharmaceuticals Inc, Equillium, GSK, Horizon Therapeutics, Eli Lilly and Company, Incyte Corp, Janssen Pharmaceuticals, LEO Pharma, Merck, Otsuka/Visterra Inc, Pfizer Inc, Q32 Bio Inc, Regeneron, Sanofi Genzyme, Sun Pharmaceutical, Takeda, TWi Biotechnology Inc, and Ventyx Biosciences Inc. He has served on speaker bureaus for Abbvie, Incyte, Eli Lilly, Pfizer, Regeneron, and Sanofi Genzyme. He is a scientific advisor for Biologics MD. LK, KV, and DP do not have relevant disclosures.

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