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Efficacy of Low-Dose Spironolactone for Hair Loss in Women

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INTRODUCTION

Female pattern hair loss (FPHL) results from a combination of hormones, aging, and genetics, and is the most common type of alopecia in women. Topical minoxidil remains the only United States Food and Drug Administration (FDA)-approved treatment for this condition, although numerous other therapies have demonstrated efficacy in recent years.[1] Spironolactone, an androgen receptor inhibitor, and potassium-sparing diuretic has largely been thought to be effective for FPHL only at higher doses of >100-200 mg daily.[2] The efficacy of low-dose spironolactone of <50 mg daily is particularly underexplored and may be beneficial in patients who are unable to tolerate higher doses of spironolactone, or in older patients who are at higher risk of hyperkalemia.

A retrospective chart review was conducted on adult women at a specialty alopecia clinic with FPHL treated with low-dose spironolactone, defined as ≤50 mg daily, either as monotherapy or combination therapy with other therapeutic agents. Data on age, diagnosis, duration of hair loss, race, and concomitant medications were collected (Table 1). FPHL severity was measured using the Sinclair Scale (grade 1-5; Table 2).

We identified 62 patients with FPHL seen in the clinic from June to December 2022 treated with low-dose spironolactone. Among them, 30 (48.39%) patients were diagnosed with FPHL, and 32 (51.61%) patients were diagnosed with FPHL and concomitant scarring alopecia, namely frontal fibrosing alopecia (FFA) or lichen planopilaris (LPP). The average age was 62 years (range 30–84) and the average duration of hair loss was 4.84 years (range 1 to 34). Amongst all patients, 54 (87.1%) identified as Caucasian, 5 (8.1%) as Asian, 2 (3.2%) as Black, and 1 (1.6%) as Hispanic. Spironolactone's daily dose ranged from 12.5 mg to 50 mg, with an average dose of 35.28 mg. The average Sinclair scale before starting spironolactone and approximately 1 year after starting low-dose spironolactone decreased significantly from 2.47 to 1.81 (P=<0.001). The decrease in Sinclair scale remained significant when stratified by diagnosis.

Most patients were on concomitant medications and therapeutics, namely topical minoxidil 5% foam and/or low-level light laser treatment for at least 1 year before starting spironolactone. Twenty-eight (45.16%) patients were taking low-dose oral minoxidil (dose range 0.625–5 mg) for an average of four months (range 0 to 18 months). Fourteen (22.58%) patients were treated with platelet-rich plasma injections. Excluding these 42 patients from the analysis, a statistically significant difference in average Sinclair Score remained pre-and post-treatment, decreasing from 2.63 to 1.95 (P=0.004).

Reported adverse events included polyuria in 3 (4.8%) patients, lightheadedness in 3 (4.8%) patients, spotting in 2 (3.2%) patients, headaches in 1 (1.6%) patient, and hyponatremia (1.6%) in 1 patient. Mild hyperkalemia (K=5.0-5.1) was detected in 3 (4.8%) patients. All side effects resolved upon dose reduction except for polyuria in 1 patient. These side effects were mild and did not lead to discontinuation of the medication in any patients.

Low-dose spironolactone may be an effective treatment for FPHL, especially for patients who are unable to tolerate higher doses, or for patients at higher risk of side effects. Our study is limited by its retrospective nature and small sample size. Removal of those treated with multiple FPHL medications, including patients with concomitant scarring alopecia, however, still demonstrated a reduction in FPHL severity, which strengthens these findings. Further large-scale studies may be helpful to better understand the efficacy and tolerability of spironolactone in this population.

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TABLE 1.

Demographics and Characteristics of Patients Treated With Low-Dose Spironolactone		
Characteristics	**Patients with FPHL (n=62)**	
Age (years)	61.56 ± 13.40 (range 30-84)	
Length of Diagnosis (years)	4.84 ± 6.88 (range 1-34)	
Dose (mg)	35.28 ± 14.23 (range 12.5-50)	
Race		
Caucasian	54 (87.10%)	
Asian	5 (8.06%)	
Black	2 (3.22%)	
Hispanic	1 (1.60%)	
Diagnosis		
FPHL	30 (48.39%)	
FPHL + Scarring Alopecia	32 (51.61%)	
Recent Other FPHL Treatments		
Oral Low-Dose Minoxidil	28 (45.61%)	
Platelet-Rich Plasma Injections	14 (22.58%)	
Adverse Effects	**# (%) of Patients**	**# (%) Resolved with Dose Change**
Hyperkalemia (K=5.0-5.5)	3 (4.84%)	3/3 (100%)
Hyponatremia (Na=130-134)	1 (1.61%)	1/1 (100%)
Polyuria	3 (4.84%)	2/3 (66.7%)
Spotting	2 (3.22%)	2/2 (100%)
Breast Tenderness	0 (0%)	--
Dizziness/Lightheadedness	3 (4.84%)	3/3 (100%)
Headache	1 (1.61%)	1/1 (100%)

TABLE 2.

Changes in Sinclair Scale From Baseline to 1 Year			
Characteristics	**Sinclair Scale Baseline**	**Sinclair Scale 1-Year**	***P*-value**
All Patients (n=62)	2.47 ± 0.85	1.81 ± 0.72	0.000*
FPHL Only (n=30)	2.43 ± 0.85	1.82 ± 0.69	0.002*
FPHL + Scarring Alopecia (n=32)	2.52 ± 0.87	1.80 ± 0.77	0.000*
Spironolactone "Monotherapy" (n=20)	2.63 ± 0.89	1.95 ± 0.81	0.004*

DISCLOSURES

The authors have no conflicts of interest to declare.

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