JAMA Dermatology Clinical Evidence Synopsis

Interventions for Female Pattern Hair Loss

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CLINICAL QUESTION Which interventions are effective and safe for treating female pattern hair loss (FPHL)?

BOTTOM LINE There was low- to moderate-quality evidence that topical minoxidil (2% and 5%) was associated with improvements in FPHL. There was low-quality evidence that finasteride was no more effective than placebo. There were inconsistent results from studies that laser devices were effective, but total hair count increased compared with baseline (moderate- to low-quality evidence). Most treatments were not associated with higher adverse event rates than placebo.

Introduction

Female pattern hair loss (FPHL) is the main type of hair loss in women, commencing with gradual thinning at the crown of the scalp followed by increasing diffuse hair loss.[1] Women rarely go bald, but FPHL can severely affect their quality of life.[1] This Clinical Evidence Synopsis summarizes a Cochrane review on interventions for FPHL.[1]

Summary of Findings

A greater proportion of participants, treated with minoxidil (157 of 593), reported moderate to marked improvement compared with placebo (77 of 555) (relative risk [RR], 1.93; 95% CI, 1.51 to 2.47; 6 trials; moderate-quality evidence). The mean difference [MD] in hair count was 13.18 hairs/cm^2 in favor of minoxidil (95% CI, 10.92 to 15.44; 8 trials [1242 participants]; low-quality evidence) (**Figure**). There was no difference between minoxidil 2% and minoxidil 5% in mean increase in hair count (MD, −2.12; 95% CI, −5.47 to 1.23; 3 trials [631 participants]; low-quality evidence) (Figure). Finasteride, 1 mg, was not more effective, according to participants (30 of 67), than placebo (33 of 70) (RR, 0.95; 95% CI, 0.66 to 1.37; 1 trial; low-quality evidence). Data on increased hair count were inconsistent. In 2 studies (219 participants), there was no meaningful difference in hair count between groups, but in 1 study (12 participants), there was a difference in favor of finasteride of 17 hairs/cm^2 (low-quality evidence). According to participant-assessments, low-level laser comb (62 of 95) was not more effective than sham device (22 of 63) (RR,1.36; 95% CI, 0.98 to 1.91; 2 trials; moderate-quality evidence). However, hair count was increased with low-level laser comb (MD, 17.60 hairs/cm^2; 95% CI, 12.99 to 23.23; low-quality evidence). After cessation of the various treatments such as minoxidil and finasteride, hair loss reoccurred within a few months.

For most treatments there were similar numbers of adverse events compared with placebo or sham device. Well known adverse effects of minoxidil are pruritus, dermatitis, and hypertrichosis at other areas, such as sideburns and forehead. Finasteride is not approved in women and can lead to depression, mastalgia, and reduction in libido, but most importantly can lead to genital abnormalities of male fetuses in pregnant women. Physicians also need to address the impact of hair loss on quality of life and consider recommending other approaches (eg, cosmetic aids).

Evidence Profile

No. of randomized trials: 47

Study years: 1990-2015

No of patients: 5290

Women: 100%

Age, mean (range): 40.5 years (18-89)

Race/ethnicity: Unavailable

Settings: Hospitals and medical centers

Countries: Europe (22 trials), US and Canada (18 trials), Latin America (2 trials), Asia (10 trials)

Comparisons: Treatments compared to placebo or alternative active treatment: minoxidil (17), finasteride (6), flutamide (2), cyproterone acetate (2), laser (5), bimatoprost (2), other oral or topical treatments (17), several trials compared a number of these treatments

Primary outcomes: Participant-reported improvement, health-related quality of life, adverse events

Secondary outcomes: Clinician-assessed improvement, hair count, hair shedding, cosmetic appearance or satisfaction, quality and pattern of hair regrowth

Discussion

Topical minoxidil was associated with improvement in FPHL without a difference between the 2% and 5% concentration. Finasteride 1 mg did not appear to be better than placebo based on low-quality evidence, but results were inconclusive. Low-level laser increased total hair count, but this improvement was not confirmed by participant assessments.

Limitations

Most studies were at unclear (26 of 47) or high risk (16 of 47) of bias, mainly owing to lack of blinding and attrition. In many instances trial details such as sequence generation, allocation concealment, and blinding were inadequately reported and outcomes in the studies were assessed with a wide variety of ill-defined scales. Quality of life was assessed in 1 study and participant-assessed improvement in 24 studies.

Comparison of Findings With Current Practice Guidelines

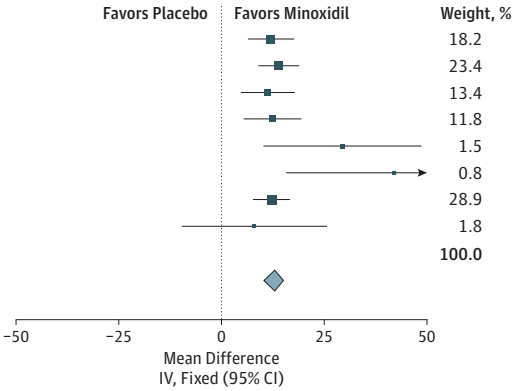
There were 2 recent guidelines.[2,3] The consensus guideline of Lee et al[3] focused on Asian patients but lacked details on

Figure. Mean Change From Baseline in Hair Count Per cm^2

Study or Subgroup	Minoxidil Mean	Minoxidil SD	Minoxidil Total	Placebo Mean	Placebo SD	Placebo Total	Mean Difference IV, Fixed, 95% CI
DeVillez, 1994	23.8	23.7	128	11.0	21.9	128	12.00 (6.41 to 17.59)
Jacobs, 1993	33.1	24.1	155	19.1	18.9	139	14.00 (9.07 to 18.93)
Lucky, 2004	20.7	17.6	108	9.4	14.6	26	11.30 (4.78 to 17.82)
NCT01325350	13.6	18.7	62	1.1	20.4	61	12.50 (5.57 to 19.43)
Olsen, 1991	50.1	29.8	14	20.6	21.3	14	29.50 (10.33 to 48.67)
Price, 1990	38.7	24.8	4	−3.2	10.2	4	42.00 (15.71 to 68.29)
Tsuboi, 2007	15.1	17.7	123	2.8	17.7	122	12.30 (7.87 to 16.73)
Whiting, 1992	28.0	29.0	15	20.0	18.0	13	8.00 (−9.64 to 25.64)
Total (95% CI)			**609**			**507**	**12.97 (10.58 to 15.35)**

Heterogeneity: $\chi^2 = 8.48$, $df = 7$ ($P = .29$); $I^2 = 17\%$

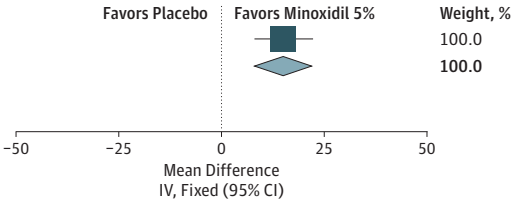
Test for overall effect: $Z = 10.66$, ($P < .001$)



Study or Subgroup	Minoxidil 5% Mean	Minoxidil 5% SD	Minoxidil 5% Total	Placebo Mean	Placebo SD	Placebo Total	Mean Difference IV, Fixed, 95% CI
Lucky, 2004	24.5	21.9	101	9.4	14.6	25	15.10 (7.96 to 22.24)
Total (95% CI)			**101**			**25**	**15.10 (7.96 to 22.24)**

Heterogeneity: Not applicable

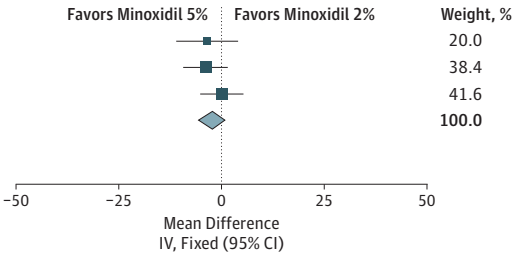
Test for overall effect: $Z = 4.14$, ($P < .001$)



Study or Subgroup	Minoxidil 2% Mean	Minoxidil 2% SD	Minoxidil 2% Total	Minoxidil 5% Mean	Minoxidil 5% SD	Minoxidil 5% Total	Mean Difference IV, Fixed, 95% CI
Blume-Peytavi, 2011	28.4	19.1	50	31.9	19.1	50	−3.50 (−11.00 to 4.00)
Lucky, 2004	20.7	17.6	108	24.5	21.9	101	−3.80 (−9.21 to 1.61)
NCT01145625	23.8	24.7	161	23.7	22.9	161	0.10 (−5.10 to 5.30)
Total (95% CI)			**319**			**312**	**−2.12 (−5.47 to 1.23)**

Heterogeneity: $\chi^2 = 1.20$, $df = 2.0$ ($P = .55$); $I^2 = 0\%$

Test for overall effect: $Z = 1.24$, ($P = .22$)



IV indicates inverse variance. The size of the data markers indicates the weight of the study. The point estimate is an overall estimate of effect, summarizing the effect size (mean difference) from each individual study, with the diamond representing the pooled point estimate of effect.

assessments of the quality of evidence or how recommendations were made. Although the conclusions of the European Dermatology Forum guideline[2] were generally consistent with our review they lacked assessments of both risk of bias and a transparent and reproducible evaluation of the quality of evidence.

Areas in Need of Future Study

Further methodologically more robust and adequately powered studies evaluating frequently used treatments, such as spironolactone, finasteride, dutasteride, cyproterone acetate, and laser-based treatments are required. Recognized and validated outcome measures should be used in order to minimize bias.

ARTICLE INFORMATION

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Published Online: January 18, 2017. doi:10.1001/jamadermatol.2016.5790

Author Contributions: Drs van Zuuren and Fedorowicz, had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Conflict of Interest Disclosures: None reported.

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