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[Translated article] RF – Bicalutamide: An Emergent Treatment Option in Trichology

FR – Bicalutamida, una realidad emergente en tricología

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PALABRAS CLAVE

Alopecia androgénica;
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Bicalutamide is a nonsteroidal androgen receptor antagonist approved for treatment of prostate cancer. It is now considered an alternative option in trichology and is used off-label in patients with female pattern hair loss.¹

Bicalutamide exerts selective peripheral action in hair follicle dermal papilla cells. At the doses used in trichology, the drug has no mineralocorticoid or glucocorticoid activ-

ity, nor does it exert effects on testosterone, estrogen, or progesterone levels.²

There is no agreement on the appropriate dose of bicalutamide for female pattern hair loss, although it is always lower than that administered in prostate cancer. In the largest series to date, Ismail et al.² found that 10 mg/d was the most commonly used dose, whereas Fernandez-Nieto et al.¹ found it to be between 25 and 50 mg/d. In both studies, bicalutamide was generally administered in combination with other drugs, mainly oral minoxidil at 0.5–1 mg/d and, albeit to a lesser extent, with spironolactone.^{1,2} The time to improvement varied between 6 months and 2 years, with an improvement of 20.2–27.5% on the Sinclair scale at 6 months^{1,2} (Table 1).

Given the antiandrogenic activity of bicalutamide, some studies suggest that treatment at a mean dose of 14.4 mg/d combined with oral minoxidil at a mean dose of 1.5 mg/d for more than 3 months could reduce minoxidil-induced hypertrichosis, thus enabling better tolerance to higher doses of the drug and optimizing treatment of female pattern hair loss.³

Given its role in miniaturization of the follicle and the above-mentioned effect, the drug was used successfully in a patient with central centrifugal alopecia at 10 mg/d in combination with 0.45 mg/d of oral minoxidil and a topical corticosteroid.⁴

Published studies have shown bicalutamide to have a good safety and tolerability profile.^{1–3} The most common

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Table 1 Summary of the current literature on the use of bicalutamide in trichology.

Authors	Study type	Disease treated	No. of patients treated	Dose, mg/d (% of patients treated)	Concomitant drugs (% of patients treated)	Duration of treatment, mo	Initial time of improvement measured, mo	Results at 6 mo, % reduction in Sinclair score	Adverse effects (% patients affected)	No. (%) of patients discontinuing treatment owing to adverse effects
Ismail et al. ²	Case series	FPHL	316	-10 (69.6%) -12.5 (2.5%) -20 (25%) -25 (1%) -30 (1.6%) -50 (0.3%)	-Oral minoxidil ^a (97.4%) -Spironolactone ^b (54.4%) -Monotherapy (1.8%)	2–69 (mean, 6.21)	3	20.2	-Elevated transaminases (2.9%) -Swollen limbs (2.5%) -Gastrointestinal disorders (1.9%) -In <1% of cases, respectively, breast pain, acneiform eruption, asthenia, myalgia, decreased libido, menstrual disorders, mood changes, palpitations, dyspnea, photosensitivity	13 (4.1%)

Table 1 (Continued)

Authors	Study type	Disease treated	No. of patients treated	Dose, mg/d (% of patients treated)	Concomitant drugs (% of patients treated)	Duration of treatment, mo	Initial time of improvement measured, mo	Results at 6 mo, % reduction in Sinclair score	Adverse effects (% patients affected)	No. (%) of patients discontinuing treatment owing to adverse effects
Fernandez-Nieto et al. ¹	Case series	FPHL	44	-25 (34.1%) -50 (65.9%)	-Oral minoxidil 0.5–1 mg/d (75.0%) -Oral dutasteride 0.5 mg/d (15.9%) -Mesotherapy with dutasteride (13.6%) -Topical minoxidil 5% (11.4%) -Monotherapy (6.8%) -Oral finasteride 2.5 mg/d (2.3%)	2–24 (mean, 10.5)	6	27.5	-Elevated transaminases (11.4%) -Effluvium (6.8%) -Menstrual disorders (4.5%) -Migraine (2.2%) -Endometrial hyperplasia (2.2%)	0
Moussa et al. ³	Case series	Minoxidil-induced hypertrichosis in FPHL	35	-10 (57%) -20 (40%) -25 (3%)	-Oral minoxidil 0.25–10 mg/d [mean dose 1.5 mg/d] (100%)	28.9 (mean, 25.92)	3.4	19.1	-Elevated transaminases (6%) -Scalp dysesthesia (3%) -Migraine (3%) -Periorbital edema (3%)	2 (5.7%)
Lobon et al. ⁴	Case study	Centrifugal central alopecia	1	10, with increase to 20 (100%)	-Oral minoxidil 0.45 mg/d and topical clobetasol dipropionate 0.05% (100%)	-	4	-	-	0

Abbreviation: FPHL, female pattern hair loss.

^a Dose of oral minoxidil not specified.

^b Dose of spironolactone not specified.

adverse effect was hepatotoxicity, with elevated transaminases in 2.9–12.5% of cases and values lower than three times the upper limit of normal in all cases.⁵ This effect is dose-dependent, with most cases improving spontaneously or after reducing the dose of bicalutamide, without the need for discontinuation. Other less common undesirable effects included gastrointestinal disorders, swollen limbs, breast pain, and migraine (Table 1).^{1–3}

Bicalutamide is contraindicated in pregnant women and should be administered with caution in women with a personal or family history of hormone-dependent tumors.⁵

Current evidence points to the need for a blood analysis before initiating therapy with bicalutamide (complete blood count, creatinine, liver enzymes, lipid profile, and prothrombin time). The analysis should be repeated every 3–6 months.^{2,5}

Advances in our knowledge of bicalutamide in recent years have enabled us to evaluate it as an important alternative in the treatment of female pattern hair loss, especially in premenopausal patients with other features of hyperandrogenism such as acne, hirsutism, and seborrhea.¹ More evidence is necessary to confirm the safety and efficacy profile of bicalutamide and to standardize dosing. However, a dose of 10–50 mg/d seems to be both safe and effective in monotherapy or in combination with other drugs.

References

1. Fernandez-Nieto D, Saceda-Corralo D, Jimenez-Cauhe J, Moreno-Arrones OM, Rodrigues-Barata R, Hermosa-Gelbard A, et al. Bicalutamide: a potential new oral antiandrogenic drug for female pattern hair loss. *J Am Acad Dermatol* [Internet]. 2020;83:e355–6, <http://dx.doi.org/10.1016/j.jaad.2020.04.0544>.
2. Ismail FF, Meah N, Trindade de Carvalho L, Bhojru B, Wall D, Sinclair R. Safety of oral bicalutamide in female pattern hair loss: a retrospective review of 316 patients. *J Am Acad Dermatol* [Internet]. 2020;83:1478–9, <http://dx.doi.org/10.1016/j.jaad.2020.03.034>.
3. Moussa A, Kazmi A, Bokhari L, Sinclair RD. Bicalutamide improves minoxidil-induced hypertrichosis in female pattern hair loss: a retrospective review of 35 patients. *J Am Acad Dermatol*. 2022;87:488–90, <http://dx.doi.org/10.1016/j.jaad.2021.10.048>.
4. Lobon K, Pinczewski J, Bhojru B. Significant hair regrowth in a Middle Eastern woman with central centrifugal cicatricial alopecia. *Clin Exp Dermatol* [Internet]. 2022;47:136–8, <http://dx.doi.org/10.1111/ced.14822>.
5. Carvalho RM, Santos LDN, Ramos PM, Machado CJ, Acioly P, Frattini SC, et al. Bicalutamide and the new perspectives for female pattern hair loss treatment: what dermatologists should know. *J Cosmet Dermatol*. 2022;21:4171–5, <http://dx.doi.org/10.1111/jocd.14773>. Epub 2022 Feb 10. PMID: 35032336.