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Efficacy and tolerability of oral bicalutamide in forty postmenopausal women with female pattern hair loss: a retrospective study

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To the Editor,

Treatment of female pattern hair loss (FPHL) is challenging and conventional therapies are sometimes unsuccessful. Bicalutamide is a selective androgen receptor antagonist with higher affinity and a better safety profile than flutamide, often used in the management of prostate cancer.^{1,2} Recently, its use in the treatment of FPHL has grown, showing efficacy specially in premenopausal women with doses between 10-50 mg daily.³⁻⁶ However, there is no scientific evidence regarding its therapeutic response and tolerability in postmenopausal women, a patient group with limited treatment options supported by high-quality scientific evidence.

We conducted a retrospective observational study to evaluate the therapeutic response and tolerance of oral bicalutamide in postmenopausal women. Forty postmenopausal women older than 50 years with FPHL on a 6-month regimen of bicalutamide 30 mg daily were included. The study was approved by the hospital Drug Research Ethics Committee (Sa-18579/19 - EC: 526). Trichoscan® was performed at baseline and after 6 months of treatment. Clinical standardized macroscopic images and 3 trichoscopic images at 8 cm, 12 cm and 18 cm from the glabellar midpoint were obtained. Clinical response was evaluated by 2 independent dermatologists, using the Global Aesthetic Improvement Scale (GAIS: -2= greatly worsened, -1 = worsened, 0 = no change, +1 = improved, +2 = greatly improved). A survey on subjective response in hair density, hair loss and seborrhea and adverse effects was submitted to the patients.

The Q-Q plot and Shapiro Wilk test were used to evaluate the distribution of the variables. Hair diameter and proportion of terminal and vellus hair had a normal

distribution, therefore were assessed by Student's t. Olsen, Ludwig and Sinclair stages did not have normal distribution, therefore were assessed by Wilcoxon test.

The patients' median age was 57 years old (range, 50-73). All patients were on oral antiandrogen therapy previously, all of them with dutasteride and 5% finasteride. All patients received concomitant treatment with oral minoxidil (mean dose, 2.1 mg daily) and 95% mesotherapy with dutasteride or bicalutamide and/or platelet-rich plasma injections once a month. They had been receiving concomitant therapies for at least 1 year prior, and the antiandrogen was switched to bicalutamide due to lack of efficacy. no other changes were made to their treatment regimen.

Patient demographics, clinical and trichoscopic response and adverse events are shown in table 1. Mean result of GAIS in macroscopic response was +1.1 points. A total of 30% of the patients showed significant improvement, 50% improved, 15% showed no change, and 5% worsened. the mean olsen stage at baseline and after 6 months of treatment was 2.1 and 1.5, respectively. the mean ludwig stage at baseline and after 6 months was 1.82 and 1.35, respectively. the mean sinclair stage at baseline and after 6 months was 3.4 and 2.6, respectively. the improvements in olsen, ludwig, and sinclair stages correspond to 28.6%, 25.8%, and 23.5% increases in hair density, respectively (figure 1).

Regarding trichoscopic parameters, there was an increase of 12.1% in the mean hair diameter, from 0.048 mm at baseline to 0.054 mm after 6 months. There was a greater improvement in the front region of scalp (18.2% increase; from 0.045 mm to 0.053 mm) compared to posterior region (6.8% increase; from 0.052 mm to 0.055 mm). Proportion of terminal hair increased from 54.7% at baseline to 60.5%, parallel with the decrease of vellus hair, from 45.3% at baseline to 39.5%.

Global satisfaction of the patients, in a scale of 1 to 10, was 7.1. Satisfaction in seborrhea improvement, hair density and hair loss was 7, 6.5 and 6.4 respectively. Mean number of hair washes per week reduced from 3.9 to 2.6, proving the usefulness of bicalutamide treating seborrhea.

The rate of adverse effects was 12.5%, all of them mild without the need for dose reduction or interruption of treatment. Reported adverse effects were abdominal discomfort or swelling (5%), headache (2.5%), breast tenderness (2.5%), decreased libido (2.5%) and nail fragility (2.5%).

Results of our study are consistent with those of former studies,⁴⁻⁶ although some differences were found. Comparison of current evidence in the literature is shown in table 2. One of the key points is the mean age of the patients. We hypothesize that the 30 mg dose has a favorable balance between good therapeutic response and good tolerance. Bicalutamide was discontinued in three patients (7.5%) due to lack of response in our study.

Although bicalutamide has been used in other conditions such as polycystic ovary syndrome and severe hirsutism, showing mild and well-tolerated adverse effects at the 18-month follow-up², it is necessary to maintain a close monitoring to detect potential long-term adverse effects.

Limitations of our analysis are its sample size, retrospective design and use of concomitant therapies.

In conclusion, oral bicalutamide might be a promising therapeutic option with a good tolerance for postmenopausal women with FPHL. No studies have ever been found regarding the therapeutic response and tolerance of oral bicalutamide in postmenopausal women. Therefore, further research in this field is needed.

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References

- 1- Ricci F, Buzzatti G, Rubagotti A, Boccardo F. Safety of antiandrogen therapy for treating prostate cancer. *Expert Opin Drug Saf.* 2014;13(11):1483-99.
- 2- Moretti C, Guccione L, Di Giacinto P, Simonelli I, Exacoustos C, Toscano V *et al.* Combined Oral Contraception and Bicalutamide in Polycystic Ovary Syndrome and Severe Hirsutism: A Double-Blind Randomized Controlled Trial. *J Clin Endocrinol Metab.* 2018;103(3):824-38.
- 3- Carvalho RM, Santos LDN, Ramos PM, Machado CJ, Acioly P, Frat-tini SC *et al.* Bicalutamide and the new perspectives for female pattern hair loss treatment: what dermatologists should know. *J Cosmet Dermatol.* 2022 Oct;21(10):4171-75.
- 4- Fernandez-Nieto D, Saceda-Corrado D, Rodrigues-Barata R, Hermosa-Gelbard A, Moreno-Arrones O, Jimenez-Cauhe J *et al.* Oral bicalutamide for female pattern hair loss: A pilot study. *Dermatol Ther.* 2019;32(6):e13096.
- 5- Fernandez-Nieto D, Saceda-Corrado D, Jimenez-Cauhe J, Muñoz Moreno-Arrones O, Rodrigues-Barata R, Hermosa-Gelbard A *et al.* Bicalutamide: A potential new oral antiandrogenic drug for female pattern hair loss. *J Am Acad Dermatol.* 2020 Nov;83(5):e355-6.
- 6- Ferial Ismail F, Meah N, de Carvalho LT, Bhoyrul B, Wall D, Sinclair R. Safety of oral bicalutamide in female pattern hair loss: a retrospective review of 316 patients. *J Am Acad Dermatol.* March 2020. Nov;83(5):1478-79

Table 1. Patient demographics, clinical and trichoscopic response and adverse events.

Current study (n = 40)		
Median age (range) years	57 (50-73)	
Mean dose daily (mg)	30	
Clinical response		
GAIS (-2= greatly worsened, -1 = worsened, 0 = no change, +1 = improved, +2 = greatly improved).	-2: 0% -1: 5% 0: 15% +1: 50% +2: 30%	
Sinclair stage	Baseline: 3.4	After 6 months: 2.6 (-23.5% improvement) (p < 0.001)
Olsen stage	Baseline: 2.1	After 6 months: 1.5 (-28.6% improvement) (p < 0.001)
Ludwig stage	Baseline: 1.82	After 6 months: 1.35 (-25.8% improvement) (p < 0.001)
Trichoscopic parameters		
Mean hair diameter (mm)	Baseline: 0.048	After 6 months: 0.054 (+12.1% improvement) (p < 0.001)
Mean hair diameter in front region (mm)	Baseline: 0.045	After 6 months: 0.053 (+18.2% improvement) (p < 0.001)
Mean hair diameter in posterior region (mm)	Baseline: 0.052	After 6 months: 0.055 (+6.8% improvement) (p=0.057)
Proportion of terminal hair (%)	Baseline: 54.7%	After 6 months: 60.5% (p < 0.001)
Proportion of vellous hair (%)	Baseline: 45.3%	After 6 months: 39.5% (p < 0.001)
Adverse events		
GI complaints	5%	
Headache	2.5%	
Breast tenderness	2.5%	
Reduced libido	2.5%	

Nail fragility	2.5%
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Table 2. Patient demographics, doses of bicalutamide, Sinclair improvement and adverse events in Ferial Ismail *et al.*⁶, Fernández-Nieto *et al.*⁴⁻⁵ and our study.

	Current study (n=40)	Ferial Ismail <i>et al.</i> ⁶ (n= 316)	Fernández-Nieto <i>et al.</i> ⁴⁻⁵ (n= 44)
Mean age (range) years	58 (50-73)	49(15-85)	34 (20-59)
Mean dose daily (mg)	30	13.2	41.5
Sinclair baseline	3.4	2.77	2.95
Sinclair at 6 months	2.6 (-23.5%)	2.3 (-17%)	2.15 (-27.5%)
Adverse events			
Increase of liver enzymes	0	2.4%	11.4%
Shedding	0	0	6.8%
GI complaints	5%	1.9%	0
Peripheral edema	0	2.5%	0
Headache	2.5%	0	2.3%
Dizzines	0	0.6%	0
Mialgias	0	0.6%	0
Menstrual irregularity	0	0.3%	4.5%
Breast tenderness	2.5%	0.9%	0
Reduced libido	2.5%	0.3%	0
Nail fragility	2.5%	0	0
Discontinuation due to adverse events	0	4.1%	0

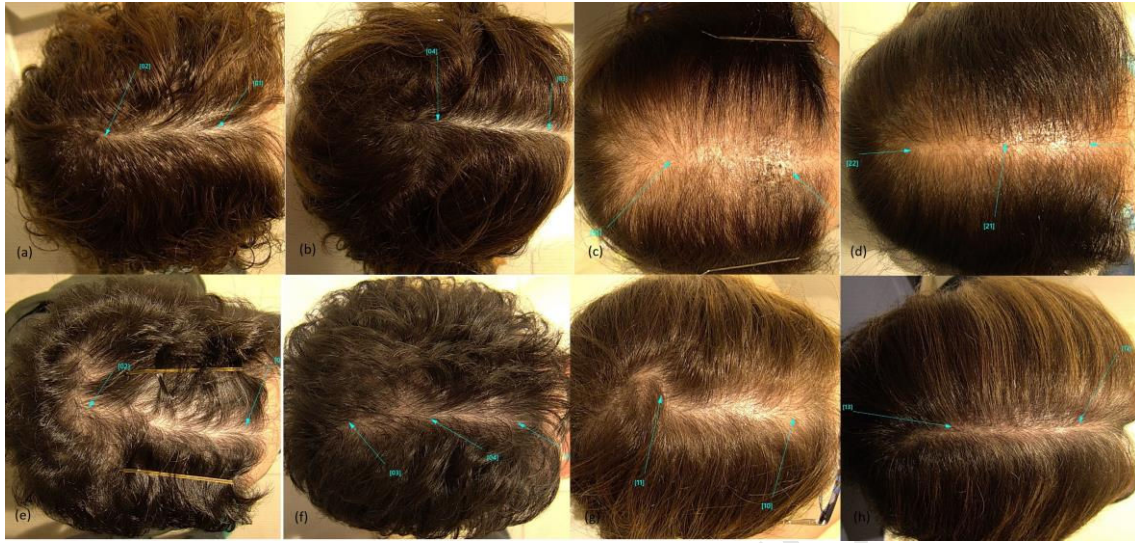


Figure 1. Case #1: (a) FPHL in postmenopausal woman at baseline. (b) Clinical improvement 6 months into bicalutamide. Case #2: (c) FPHL in postmenopausal woman at baseline. (d) Clinical improvement 6 months into bicalutamide. Case #3: (e) FPHL in postmenopausal woman at baseline. (f) Clinical improvement 6 months into bicalutamide. Case #4: (g) FPHL in postmenopausal woman at baseline. (h) Clinical improvement 6 months into bicalutamide.