Efficacy and safety of bicalutamide in female hair loss: A review of the literature

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Antiandrogen therapy is central to the management of androgenetic alopecia and is commonly achieved using 5-alpha-reductase inhibitors (finasteride, dutasteride) or steroidal antiandrogens (spironolactone). Bicalutamide, a peripherally selective antiandrogen, is FDA-approved for the treatment of metastatic prostate cancer and has recently demonstrated potential in treating female androgenetic alopecia pattern hair loss (FPHL). In this study, we systematically reviewed articles reporting the use of bicalutamide in patients with hair loss. Nine articles were identified that described bicalutamide as combination or monotherapy in 494 female patients; 476 diagnosed with FPHL (96%), 10 with persistent chemotherapy-induced alopecia (2%), 7 with fibrosing alopecia in a pattern distribution (1.4%), and 1 with central centrifugal cicatricial alopecia (0.2%). Reduction in hair loss severity was 17% to 28.9% in FPHL patients. Persistent chemotherapy-induced alopecia patients similarly demonstrated a statistically significant decrease in hair loss severity; however, fibrosing alopecia in a pattern distribution and central centrifugal cicatricial alopecia patients did not improve significantly. Adverse events were reported in 59 of 494 patients (11.9%). While this reported efficacy of bicalutamide in persistent chemotherapy-induced alopecia, fibrosing alopecia in a pattern distribution, and central centrifugal cicatricial alopecia is notably limited by small sample sizes and concomitant therapy, our study overall demonstrates the promising efficacy of bicalutamide in FPHL management, particularly when co-existing hyperandrogenic conditions (eg, polycystic ovarian syndrome) may complicate the effectiveness of other antiandrogen therapies. (JAAD Reviews 2025;4:61-8.)

Key words: androgenetic alopecia; antiandrogen; bicalutamide; casodex; central centrifugal cicatricial alopecia; chemotherapy-induced alopecia; female pattern hair loss; fibrosing alopecia in a pattern distribution; hair loss.

INTRODUCTION

Androgens and the hair follicle

Hormones play an influential role in hair follicle growth and function.[1] Androgens, like testosterone and its potent derivative dihydrotestosterone (DHT), promote hair follicle miniaturization and shortening of the anagen phase.[2] Therefore, any physiologic or pathologic increase in systemic androgen levels may manifest clinically as gradual hair thinning and shedding in the androgen-sensitive regions of the scalp (ie, frontal hairline and scalp vertex), referred to as androgenetic alopecia (AGA) or male/female pattern hair loss (MPHL, FPHL). Hormonal therapies (ie, aromatase inhibitors, testosterone supplements) or underlying medical pathologies that promote androgen production including polycystic ovarian syndrome, diabetes, and adrenal hyperplasia often exacerbate or trigger the onset of AGA.[3]

Antiandrogens in hair loss management

Blocking the effects of DHT on androgen-sensitive hair follicles is fundamental in the management of both MPHL and FPHL.[2] Antiandrogen drugs

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commonly used for this purpose are outlined in Table I. 5-alpha-reductase inhibitors (eg, finasteride, dutasteride) act at the level of DHT production by inhibiting the 5-alpha-reductase enzyme responsible for the transformation of testosterone into DHT. Steroidal antiandrogens (eg, spironolactone) act at the level of DHT/testosterone signaling by inhibiting their binding to the androgen receptors on hair follicles.[2] The side effects and efficacy of each drug may vary between patients and can be influenced by coexisting conditions. Therefore, antiandrogen therapy should be tailored appropriately to individual patients based on co-morbidities and aggravating factors that may be present.[4]

CAPSULE SUMMARY

- Antiandrogen therapy is often effective in managing hair loss and can be achieved using various drugs including finasteride, dutasteride, and spironolactone.
- Bicalutamide is an antiandrogen demonstrating promising efficacy in female hair loss with minimal side effects, making it a valuable addition to the antiandrogen therapies available.

Antiandrogen therapy limitations

While antiandrogen drugs are typically used at low doses in hair loss management, side effects from peripheral androgen inhibition/downregulation or hyperestrogenism can still occur, including decreased libido, depression, sexual dysfunction, gynecomastia, and menstrual irregularities.[2] Spironolactone is rarely used in the treatment of MPHL, as spironolactone has been shown to cause gynecomastia in male patients.[12]

The clinical value of antiandrogens are also limited by their reduced efficacy in certain patient populations. Compared to MPHL, 5-alpha-reductase inhibitors are not as effective in the management of FPHL.[13] Additionally, patients with hyperandrogenic conditions or features (eg, polycystic ovarian syndrome, hirsutism) often demonstrate less of a response to standard antiandrogen regimens and typically require higher doses or combinations of antiandrogen drugs to improve hair outcomes.[6] Despite these limitations, the addition of antiandrogenic therapies to the hair loss treatment armamentarium can help optimize management of AGA.

Bicalutamide in hair loss management

Bicalutamide, a nonsteroidal, peripherally selective androgen receptor antagonist, has been approved by the U.S. Food and Drug Administration to treat metastatic prostate cancer and, at lower doses, has recently demonstrated efficacy in treating FPHL.[14,15] Bicalutamide can be beneficial for patients with underlying hyperandrogenic conditions who have inadequate responses to maximal doses of spironolactone or finasteride/dutasteride.[2,6]

This study aims to provide a thorough review of the efficacy and safety profile of bicalutamide in treating hair loss disorders, its practical applications, and important considerations for use in clinical practice.

METHODS

We conducted a literature search across PubMed/MEDLINE, Scopus, and CENTRAL in September 2024 using the query: ("alopecia" OR "hair loss" OR Alopecia[Mesh]) AND ("bicalutamide" OR "casodex") (Supplementary Fig 1, available via Mendeley at https://doi.org/10.7632/5633dxcybz.1). Studies of all type (eg, case report, clinical trial, cohort study) were included in our search/screening process, and only studies reporting the efficacy of bicalutamide in human patients with hair loss disorders were included. Studies were excluded if they did not report bicalutamide efficacy in terms of hair loss outcomes.

RESULTS

Study details

Of the 236 articles identified, 9 studies were included (6 retrospective chart reviews, 2 case series, and 1 case report) which described the use of 10-50 mg oral bicalutamide or bicalutamide mesotherapy in a total of 494 female patients; 476 diagnosed with FPHL (96%), 10 with persistent chemotherapy-induced alopecia (pCIA) (2%), 7 with fibrosing alopecia in a pattern distribution (FAPD) (1.4%), and 1 with central centrifugal cicatricial alopecia (CCCA) (0.2%) (Table II). Bicalutamide was used as adjuvant therapy in 480/494 patients (97%) and monotherapy in 14 of 494 patients (2.8%). Among FPHL patients, 52.5% had coexisting hyperandrogenic conditions/symptoms, including polycystic ovarian syndrome or hirsutism.

Bicalutamide efficacy

FPHL patients using oral bicalutamide for 24 or more weeks demonstrated a mean reduction in hair loss severity (measured by Sinclair severity score) ranging from 17% to 28.9% (average: 23.5%). In one direct comparison study of 120 FPHL patients, 50 mg bicalutamide was significantly more effective than 100 mg spironolactone in reducing average Sinclair

Abbreviations used:

AE: adverse event
AGA: androgenetic alopecia
CCCA: central centrifugal cicatricial alopecia
DHT: dihydrotestosterone
FAPD: fibrosing alopecia in a pattern distribution
FPHL: female pattern hair loss
GI: gastrointenstinal
LFT: liver function tests
MPHL: male pattern hair loss
pCIA: persistant chemotherapy-induced alopecia
PCOS: polycystic ovarian syndrome
SAHA: seborrhea, acne, hirsutism, alopecia

severity score (bicalutamide: 28.2%, spironolactone: 19.5%, $P < .001$).[16]

PCIA patients using bicalutamide in addition to oral minoxidil for an average of 33 months demonstrated a statistically significant decrease in average Sinclair severity score ($P = .03$). However, pCIA patients using only oral minoxidil similarly demonstrated a statistically significant decrease in Sinclair severity score ($P = .002$), and conclusions about the efficacy of bicalutamide alone cannot be determined.[20]

FAPD patients using 10-20 mg bicalutamide adjuvant therapy for 1.2-6 years demonstrated a slight decrease in average Sinclair severity score; however, this difference was not statistically significant.[7]

One CCCA patient using 10-20 mg bicalutamide adjuvant therapy for 4 months demonstrated a clinical improvement in hair loss severity, including signs of hair regrowth.[18]

Bicalutamide safety

Adverse events occurred in 59 of 494 patients (11.9%) and included transaminitis in 24 patients (4.9%), peripheral or periorbital edema in 10 patients (2.0%), gastrointestinal complaints in 6 patients (1.2%), and menstrual irregularities in 4 patients (0.8%) (Table III). Transaminitis resolved without a dosage change in 11 patients and after dose reduction in 2 patients. Comparatively, adverse events occurred in 14 of 73 patients (19.2%) using spironolactone as adjuvant or monotherapy in the included studies.[7,16]

DISCUSSION

In this review, we identified literature reporting the use of bicalutamide in the treatment of FPHL, pCIA, FAPD, and CCCA in female patients. FPHL had the most robust data supporting the clinical efficacy of bicalutamide as monotherapy or in combination with topical minoxidil, oral minoxidil,

Table I. Clinical characteristics of antiandrogen drugs in the management of hair disorders

Drug name	Mechanism of action	Clinical indications	Side effects	Routine monitoring
Bicalutamide	Androgen receptor antagonist	Metastatic prostate cancer Hair disorders: FPHL, FAPD, pCIA, CCCA, hirsutism	Transaminitis Peripheral edema GI complaints	Baseline LFTs and monitoring every 3-6 mo[5]
Flutamide	Androgen receptor antagonist	Prostate cancer Hair disorders: FPHL,[6] FAPD,[7] hirsutism[8]	Hepatic injury	Baseline LFTs and monitoring every 3-6 mo[9]
Spironolactone	Aldosterone receptor antagonist Androgen receptor antagonist	Primary hyperaldosteronism Acne Hair disorders: FPHL,[6] FAPD,[7] hirsutism[8]	Hyperkalemia Dizziness Hypotension Menstrual irregularities Gynecomastia (males)	Potassium monitoring[10]
Finasteride	5-alpha-reductase (type II) inhibitor	Benign prostatic hyperplasia Hair disorders: AGA,[11] FAPD[7]	Depression Sexual dysfunction Decreased libido	Depression screening[6]
Dutasteride	5-alpha-reductase (type I and II) inhibitor	Benign prostatic hyperplasia Hair disorders: AGA,[11] FAPD[7]	Depression Sexual dysfunction Decreased libido	Depression screening[6]

AGA, Androgenetic alopecia; *CCCA*, central centrifugal cicatricial alopecia; *FAPD*, fibrosing alopecia in a pattern distribution; *FPHL*, female pattern hair loss; *GI*, gastrointestinal; *LFTs*, liver function tests; *pCIA*, persistent chemotherapy-induced alopecia.

Table II. Included studies assessing the efficacy and safety of bicalutamide in hair loss disorders

Title, author, y	Study design, subjects	Type of hair loss, co-morbidities	Bicalutamide dosage, concurrent treatment	Outcomes	Safety
Efficacy and safety of spironolactone versus bicalutamide in female pattern hair loss: A retrospective comparative study Jha et al 2024[16]	Retrospective study 120 subjects with AGA treated with 100 mg spironolactone (n = 54) or 50 mg bicalutamide (n = 58) for 24 wk, (mean age 34.06 y in spironolactone group; mean age 33.32 y in bicalutamide group; 120/120 female)	AGA (n = 120) PCOS (n = 13/120, n = 4/58 in bicalutamide group) Hirsutism (n = 7/120, n = 4/58 in bicalutamide group)	50 mg oral bicalutamide (n = 58) Topical minoxidil 2% (n = 58/58)	Mean reduction in hair loss severity on the Sinclair scale: Spironolactone group: 19.51% Bicalutamide group: 28.20% ($P < .001$) Mean reduction in hair shedding severity on the Sinclair scale: Spironolactone group: 51.02% Bicalutamide group: 69.56% ($P < .001$)	AEs reported Spironolactone group: Dizziness (n = 5/54) Menstrual irregularity/ breast tenderness (n = 5/54) Rash (n = 1/54) Peripheral edema (n = 2/54) Treatment termination due to AEs (n = 8/54) Bicalutamide group: Transaminitis (n = 6/58) Menstrual irregularity/ breast tenderness (n = 1/58) Rash (n = 1/58) Peripheral edema (n = 1/58) Treatment termination due to AEs (n = 2/58)
Mesotherapy with bicalutamide: A new treatment for androgenetic alopecia Gomez-Zubiaur et al 2023[17]	Case series 6 subjects with AGA treated with 1 ml bicalutamide 0.5% mesotherapy for 3 monthly sessions (mean age 35.7 y; 6/6 female)	AGA (n = 6) PCOS (n = 2/6) Hirsutism (n = 3/6) Menstrual irregularities (n = 5/6) Abdominal obesity (n = 4/6)	1 ml 0.5% bicalutamide mixed with 1 ml 2% lidocaine injected at 4 cm-apart points across the vertex hairline (n = 6) Bicalutamide monotherapy (n = 6)	Subjective improvement based on trichoscopic images assessed by 2 independent dermatologists: After 3 sessions: ''Subtle improvement, but no change in Sinclair scale severity score'' (n = 6/6) At 6 mo follow up: ''Prior subtle improvement did not persist'' (n = 6/6) Mean patient satisfaction on a 1-10 scale (1 = not satisfied, 10 = very satisfied) after 3 sessions: 6.3/10	AEs reported: none Injection-associated pain reported: 3.3/10 (1 = not painful, 10 = extremely painful)

Significant hair regrowth in a Middle Eastern woman with central centrifugal cicatricial alopecia Lobon et al 2022[18]	Case report 1 subject with CCCA treated with oral bicalutamide for 4 mo (age 30 y, female)	CCCA (n = 1) Possible co-existing AGA* (n = 1)	10 mg oral bicalutamide increased to 20 mg/d after 2 mo 0.45 mg oral minoxidil increased to 1 mg/d Clobetasol dipropionate lotion 0.05%	Subjective improvement based on gross and trichoscopic images assessed by a dermatologist: After 4 mo: "Significant hair regrowth"	AEs reported: none
Bicalutamide improves minoxidil-induced hypertrichosis in female pattern hair loss: A retrospective review of 35 patients Moussa et al 2022[19]	Retrospective study 35 subjects with AGA and minoxidil-induced hypertrichosis treated with 10-25 mg oral bicalutamide (mean age 53.5 y, 35/35 female)	AGA (n = 35) Hirsutism, minoxidil-induced or primary (n = 35)	10-25 mg (mean: 14.4 mg) oral bicalutamide for average of 28.9 mo (n = 35) 0.25-10 mg oral or sublingual minoxidil (n = 35)	Mean reduction in hair loss severity on the Sinclair scale: After 6 mo: 19.1% After 12 mo: 23.4% Improvement of minoxidil-induced hypertrichosis: 35/35 (100%) Areas of improvement: Face: 35/35 (100%) Limbs: 4/35 (11%) Body: 4/35 (11%)	AEs reported: Scalp dysesthesia (n = 1/35) Headaches (n = 1/35) Peri-orbital edema (n = 1/35) Transaminitis (n = 2/35) Dose reduction due to AEs (n = 3/35) Treatment termination due to AEs (n = 2/35)
Clinicopathologic characteristics and response to treatment of persistent chemotherapy-induced alopecia in breast cancer survivors Bhoyrul et al 2021[20]	Case series 100 subjects with pCIA after chemotherapy for breast cancer (mean age 54 y, 99/100 female)	pCIA (n = 100) Pre-existing AGA (n = 5/100) Scalp psoriasis (n = 1/100) Possible co-existing AGA* (n = 14/18 subjects with biopsy evaluation)	Oral antiandrogen including bicalutamide, spironolactone, or flutamide for average of 33 mo (n = 10) Low dose oral minoxidil (n = 10)	Mean (IQR) hair loss severity on the Sinclair scale: Oral antiandrogen + minoxidil group: Before treatment: 5 (2-5) After treatment: 3 (2-5) P = .03 Oral minoxidil monotherapy group: Before treatment: 4 (2-5) After treatment: 2.5 (2-5) P = .002	AEs reported Spironolactone: Lethargy (n = 1) Transaminitis (n = 1) Flutamide: Nausea/abdominal pain (n = 1) Bicalutamide: No AEs reported
Clinicopathological characteristics and treatment outcomes of fibrosing alopecia in a pattern distribution: A retrospective cohort study Jerjen et al 2021[7]	Retrospective study 24 subjects with FAPD (mean age 60.7 y, 24/24 female)	FAPD (n = 24) Alopecia areata, in remission (n = 3/24) FFA (n = 2/24) Psoriasis (n = 1/24) Traction alopecia (n = 1/24) Family history of AGA (n = 14)	10-20 mg oral bicalutamide for 6 y (n = 7) Low dose oral minoxidil, finasteride, dutasteride, spironolactone, or topical corticosteroids (n = 7/7)	Mean (range) hair loss severity on the Sinclair scale: Bicalutamide group: Before treatment: 3.6 (3-5) After treatment: 3.1 (2-5)	AEs reported Spironolactone: Hyponatremia (n = 1/19) Breast tenderness (n = 1/19) Bicalutamide: none

Continued

Table II. Cont'd

Title, author, y	Study design, subjects	Type of hair loss, co-morbidities	Bicalutamide dosage, concurrent treatment	Outcomes	Safety
Safety of oral bicalutamide in female pattern hair loss: A retrospective review of 316 patients Ismail et al 2020[14]	Retrospective study 316 subjects with AGA (mean age 48.96 y, 316/316 female)	AGA (*n* = 316)	10-50 mg oral bicalutamide for average 6.21 mo (*n* = 316) Low dose oral minoxidil (*n* = 308/316) Spironolactone (*n* = 172/316) Bicalutamide monotherapy (*n* = 6)	Mean reduction in hair loss severity on the Sinclair scale: After 3 mo: 6.5% After 6 mo: 17% After 9 mo: 20.2% After 24 mo: 28.9%	AEs reported: Transaminitis (*n* = 9/316) Menstrual irregularity (*n* = 1/316) Peripheral edema (*n* = 8/316) GI complaints (*n* = 6/316) Breast tenderness (*n* = 3/316) Acneiform eruption (*n* = 2/316) Dizziness (*n* = 2/316) Myalgias (*n* = 2/316) Reduced libido (*n* = 1/316) Low mood (*n* = 1/316) Palpitations and dyspnea (*n* = 1/316) Photosensitivity (*n* = 1/316)
Bicalutamide: A potential new oral antiandrogenic drug for female pattern hair loss Fernandez-Nieto et al 2020[15]	Retrospective study 44 subjects with AGA (mean age 34.8 y, 44/44 female)	AGA (*n* = 44) PCOS (*n* = 14/44) SAHA syndrome (*n* = 6/44) Hirsutism (*n* = 8/44)	25-50 mg oral bicalutamide for average 10.5 mo (*n* = 44) Low dose oral minoxidil (*n* = 33/44) Topical minoxidil (*n* = 5/44) Finasteride 2.5 mg (*n* = 1/44) Dutasteride 0.5-1 mg or mesotherapy (*n* = 13/44)	Mean reduction in hair loss severity on the Sinclair scale: After 6 mo: 27.5%	AEs reported: Transaminitis (*n* = 5/44) Transient amenorrhea (*n* = 2/44) Endometrial hyperplasia (*n* = 1) Headache (*n* = 1)
Oral bicalutamide for female pattern hair loss: A pilot study Fernandez-Nieto et al 2020[15]	Retrospective study 17 subjects with AGA (mean age 35.2 y, 17/17 female)	AGA (*n* = 17) Seborrhea (*n* = 12/17) PCOS (*n* = 6/17) SAHA syndrome (*n* = 3/17) Hirsutism (*n* = 2/17)	50 mg oral bicalutamide for 6-18 mo (*n* = 17) Topical minoxidil (*n* = 3/17) Oral minoxidil 0.5-1 mg (*n* = 9/17) Dutasteride 0.5 or mesotherapy (*n* = 8/17) Finasteride 2.5 mg (*n* = 1/17) Bicalutamide monotherapy (*n* = 2)	Subjective improvement based on gross images assessed by a dermatologist: Worsened: 0/17 (0%) No change: 5/17 (29.4%) Slightly improved: 3/17 (17.6%) Greatly improved: 9/17 (53%)	AEs reported: Transaminitis (*n* = 2/44)

*AE*s, Adverse events; *AGA*, androgenetic alopecia; *CCCA*, central centrifugal cicatricial alopecia; *FAPD*, fibrosing alopecia in a pattern distribution; *GI*, gastrointestinal; *pCIA*, persistent chemotherapy-induced alopecia; *PCOS*, polycystic ovary syndrome; *SAHA*, seborrhea, acne, hirsutism, alopecia.

*Based on histopathologic analysis of scalp biopsy demonstrating characteristic AGA features including hair follicle miniaturization, reduced terminal hairs, and an increased telogen hair count.

Table III. Bicalutamide reported adverse events

Adverse event	Number of patients	Percentage
Mild transaminitis*	17	28.8%
Moderate transaminitis†	7	11.9%
Peripheral or periorbital edema	10	16.9%
GI complaints	6	10.2%
Menstrual irregularities	4	6.8%
Dizziness/headaches	4	6.8%
Acneiform eruption or rash	3	5.1%
Myalgias	2	3.4%
Other‡	6	10.2%
Total	59	100%

GI, Gastrointestinal.
*Defined as an elevation in liver transaminase to less than twice the upper limit of normal.
†Defined as an elevation in liver transaminase to less than 3 times the upper limit of normal.
‡Includes scalp dysesthesia, reduced libido, low mood, palpitations, photosensitivity, and endometrial hyperplasia.

spironolactone, finasteride, or dutasteride. With respect to other antiandrogens commonly used in FPHL (ie, spironolactone), bicalutamide demonstrated equal or superior efficacy[16] with a similar risk of side effects. Notably, only one of the included studies on FPHL mentioned the exclusion of patients on contraceptive therapy.[16] The use of combined estrogen-progestin or progestin-only contraception may be a confounding factor in this patient population, as certain types of progestins exhibit androgenic properties and may worsen the severity of FPHL.[3]

Patients with pCIA seemed to improve significantly on oral minoxidil with or without bicalutamide, suggesting that bicalutamide may not provide additional synergistic therapeutic benefit in this hair loss type. Evidence of bicalutamide in FAPD and CCCA was strictly limited by small sample size and use of concurrent therapy in both conditions. However, the continual study of bicalutamide in FAPD and CCCA may prove to be therapeutically valuable and help to advance our understanding of the etiopathogenesis and potential pharmacologic interventions in these scarring hair loss disorders.

Bicalutamide in the FPHL treatment algorithm

Managing FPHL in hyperandrogenic patients often requires a unique approach and a delicate balance of effectively inhibiting hair follicle androgenic activity without causing side effects associated with systemic androgen inhibition. In the progressive treatment algorithm of FPHL, the addition of bicalutamide should be considered when patients have reached maximum recommended doses of spironolactone or finasteride/dutasteride with suboptimal clinical results. Additionally, bicalutamide may be an ideal drug choice in patients previously unable to tolerate finasteride/dutasteride or spironolactone due to their side effects. An overview of the clinical considerations and properties of bicalutamide compared to other antiandrogens in the treatment algorithm of FPHL is presented in Table I.

Despite bicalutamide's favorable side effect profile (Table III), the rare occurrence of transaminitis with bicalutamide therapy necessitates careful monitoring of liver function tests. Baseline labs with a liver function test or a comprehensive metabolic panel should be performed before starting bicalutamide therapy. Initial starting dose of 10-12.5 mg/day is recommended, followed by routine labs after 4 weeks. If needed, dosage can be increased in 10-12.5 mg increments and labs should be monitored 4-12 weeks after each increase. Once the desired dosage has been achieved, labs should be monitored every 3-6 months throughout the duration of bicalutamide therapy.[5,21] While both mild and moderate transaminitis (elevation to less than twice or three times the upper limit of normal, respectively) commonly resolve spontaneously, symptoms of jaundice, right upper quadrant pain, or anorexia warrants dose reduction or discontinuation of the medication.[14,15] No cases of irreversible hepatotoxicity have been reported in patients using bicalutamide for hair loss therapy.[19]

CONCLUSION

Oral bicalutamide 10-50 mg is an effective therapy in patients with FPHL and may significantly improve hair loss severity when used as monotherapy or in combination with other topical or antiandrogen treatments. Its peripheral androgen selectivity and minimal side effects makes bicalutamide an ideal option for FPHL patients who do not tolerate 5-alpha-reductase inhibitors or in patients with hyperandrogenic conditions requiring combination antiandrogen therapy. While case reports describing bicalutamide's use in pCIA, FAPD, and CCCA are also promising, larger studies are needed to further evaluate its efficacy in these hair loss types.

Conflicts of interest

None disclosed.

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