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REVIEW ARTICLE

Treatment of frontal fibrosing alopecia and lichen planopilaris: a systematic review

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Abstract

Frontal fibrosing alopecia (FFA) is a primary lymphocytic cicatricial alopecia with characteristic clinical pattern of progressive frontotemporal hairline recession, perifollicular erythema and hyperkeratosis and symptoms of itch and burning, occurring mainly in post-menopausal women. FFA is considered a subtype of lichen planopilaris (LPP), based on their identical histopathology. Currently, no evidence-based treatment is available for FFA. Our aim was to determine the effectiveness of available treatment options for FFA, and to identify promising treatment options for future studies. For this, literature search was conducted to find all primary studies on the treatment of FFA and LPP. From the primary studies, data were subtracted and analysed. No randomized controlled trials were found, and one controlled trial. Treatment of 114 patients is described in the literature. They received 10 different regimes, of which oral 5-alpha-reductase inhibitors were provided most often, resulting in good clinical response in 45% of them. Hydroxychloroquine resulted in good clinical response in 30% of the 29 treated patients. Topical corticosteroid preparations are ineffective in FFA. The remaining treatments were all reported in less than 10 patients. For the treatment of LPP, topical corticosteroid preparations are the first line of treatment, followed by oral cyclosporine and systemic corticosteroids, although they are characterized by a high relapse rate. Summarizing, there is currently no effective treatment of FFA, the most effective being oral 5-alpha-reductase inhibitors that possibly affect the accompanying androgenetic alopecia. We argue that oral cyclosporine A might be a good candidate for future studies on the treatment of FFA.

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Conflicts of interest

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Introduction

Frontal fibrosing alopecia (FFA) is a primary lymphocytic cicatricial alopecia with a characteristic clinical pattern of progressive frontotemporal hairline recession, perifollicular erythema and hyperkeratosis accompanied by subjective symptoms of itch, burning or pain. Progressive loss of the eyebrows is often associated with the disease, as well as loss of body hair.[1] It occurs predominantly in post-menopausal women,[2] although multiple cases are also described in pre-menopausal women and men.[3–6] Untreated, the disease is slowly progressive over many years, although spontaneous stabilization is also described.

Histologically, a dense lymphocytic infiltrate and fibrosis are seen around the infundibulum and isthmus of the hair follicle, often with lichenoid interface dermatitis involving the upper follicle, and loss of sebaceous glands. The histological presentation of FFA cannot be distinguished from that of lichen planopilaris (LPP), which is regarded as a follicular variant of lichen planus, presenting with multifocal patches of alopecia, pruritus, burning and tenderness in the affected hair bearing skin. FFA is considered a clinical variant of LPP.[3]

The pathogenesis of FFA is not fully understood. A key element seems to be destruction of the epithelial hair follicle stem cells that are located in the so called bulge region of the hair follicle. This is the region where the inflammatory cell infiltrate is primarily located in FFA.[7] Destruction of the stem cells leads to permanent hair loss. Contributing factors to this stem cell destruction might be an ongoing inflammatory response triggered by proinflammatory cytokines such as interferons, increased apoptotic response, collapse of the relative immune privilege of the hair follicle.[7] Recent gene expression studies identified deficiency in peroxisome proliferator-activated receptor (PPAR)-γ-mediated signalling in LPP, indicating a defective

lipid metabolism (a crucial part of sebaceous gland function) in this disease.[8]

When assessing the burden of the disease one must consider the impact of hair loss on one's quality of life. Studies indicate that patients with hair loss may have significantly decreased quality of life. Specific psychosocial findings in women with alopecia include loss of self-confidence and low self-esteem.[9]

We reviewed the literature to determine which therapies have been successfully tried for the treatment of FFA. As FFA is considered a subtype of lichen planopilaris, we also performed a literature search on lichen planopilaris. Our aim is to determine the effectiveness of the available options for the treatment of FFA, and to identify promising treatment options for future studies.

Methods

Criteria for considering studies for this review

On March 22nd 2012, we searched for English publications in PubMed, EMBASE and the Web of Science using the search terms 'frontal fibrosing alopecia' or 'lichen planopilaris'.

All types of studies including case reports that were written in English were considered.

By assessing titles and abstracts we excluded publications when

- no treatment effects were described,
- the diagnosis of FFA or LPP was not histopathologically confirmed.

Finally, we checked the reference lists of all review articles in search for further primary studies, and when found, these were included in our investigation.

Data collection and analysis

From all the publications, the total number of patients treated with a certain type of therapy was collected. Where patients were treated first with one treatment option and later with a second one, these patients were included in the analysis of the effect of both of these treatments. There is currently no standardized treatment outcome measure for FFA or LPP. The articles we reviewed also used very different outcome measures, ranging from the assessment of standardized photographs and hair counting, through measurement of the distance between the glabella and the anterior hairline, to the calculation of a complex score comprised of measures for subjective and objective disease characteristics. To collectively analyse the results of different studies, response to treatment in this review was assessed as good, partial or no response, as defined by the authors of the primary articles.

Results

Our search yielded 201 references on FFA of which 15 met our additional criteria. 26 of 298 references on LPP were included in our study. Included publications are shown in Table 1. No prospective randomized controlled trials were identified. On the treatment of FFA, 1 prospective controlled study,[10] 1 prospective uncontrolled study,[11] 7 retrospective case series and 7 case reports were found. On the treatment of LPP, 1 prospective controlled (right–left) trial,[12] 3 small prospective uncontrolled trials,[13–15] 7 retrospective case series and 15 case reports were found. As can be seen in Table 1, treatment regimens and outcome measures differed greatly among the publications.

Therapeutic options for FFA

Effectiveness of the treatment modalities reported for FFA is summarized in Table 2. In total, 114 patients were described. They received 10 different regimes, of which oral finasteride (2, 5 mg daily for 12–18 months) or dutasteride (0.5 mg daily for 12 months) (sometimes in combination with other drugs; most often with topical minoxidil[16] or with intralesional corticosteroids[17]) was provided most often (38 patients). In those cases, about 45% of the treated patients showed a good response after 12–18 months of treatment and 45% a partial response (evidence level 4).

In this study, 33 of the 114 patients were treated with oral anti-malarials (hydroxychlorine or chloroquine) (16 of these patients might also have used topical corticosteroid preparations, topical immune modulators or topical minoxidil[18]). This treatment resulted in a good clinical response in 30% and in a partial response in 39% (evidence level 4). Treatment effect was evident after 6 months of therapy.

High or moderate potency topical corticosteroid preparations in FFA led to no response in 93% of the cases (evidence level 3b), while intralesional corticosteroids resulted in a partial clinical response in almost 60% of the treated patients (evidence level 4). When intralesional triamcinolonacetonide were used as an adjuvant for the treatment of eyebrow loss, 80% of patients experienced partial or full eyebrow regrowth.[19]

The remaining treatments were all reported in less than 10 patients. Of these, topical calcineurin inhibitor as an adjuvant had a good effect in more than the half of the treated patients, while all others (hormone replacement, mycophenolate mofetil, doxycycline, systemic prednisone, topical calcineurin inhibitors and topical minoxidil) were clearly ineffective in most treated patients.

Therapeutic options for LPP

Effectiveness of the treatment modalities reported for LPP is summarized in Table 3. Of the in total 228 patients, 150 (65.8%) received either topical corticosteroid preparations (79 patients) or oral hydroxychloroquine (71 patients, in 22 cases in combination with topical corticosteroid preparations[20]). These treatments resulted in a good clinical response in 53% and 23% respectively (level of evidence 4).

Table 1 Methodological evaluation of all included publications

Study	Type of study	Patients		Histology	Treatment			Outcome measure
		Diagnosis	Nr		Agent	Dose	How long	
Donovan *et al.*[19]	Retrospective chart analysis	FFA	11	yes	Intralesional triamcinolone as adjuvant by systemic treatment	10 mg/mL, 0.125 mL per eyebrow	1–17 treatment session	Eyebrow regrowth
Samrao *et al.*[18]	Retrospective case series	FFA	36	yes	Hydroxychloroquine doxycycline mycophenolate mofetil (all combined with topical treatments)		6–12 months	Lichen planopilaris activity index (LPPAI)[21]
Rallis *et al.*[10]	Prospective controlled study	FFA	12	n.i.	Clobetasol	0.05% solution once daily	6 months	Disease stabilization
Georgala *et al.*[11]	Prospective uncontrolled study	FFA	13	yes	Dutasteride	0.5 mg/d	12 months	Measuring the distance between the glabella and the anterior hairline
Tan *et al.*[5]	Retrospective case series	FFA	18	7	Intralesional corticosteroids, hydroxychloroquine	10 mg/mL – n.i.	n.i.	Distance between the glabella and frontotemporal hairline
Moreno-Ramirez *et al.*[23]	Retrospective case series	FFA	16	yes	Intralesional corticosteroid + finasteride + minoxidil			
Tosti *et al.*[16]	Retrospective case series	FFA	11	yes	Finasteride + topical minoxidil or intramuscular triamcinolone	2.5 mg/d – 40 mg every 3 weeks	12–18 months	Global photography and measurement of the height of the alopecic band
Kossard *et al.*[3]	Retrospective case series	FFA	16 1	yes	Oral prednisone chloroquine topical corticosteroids topical retinoic acid minoxidil isotretinoide griseofulvin hormone replacement	50 mg/d	2 months	Disease progression
Bergfeld *et al.*[27]	Case report/ abstract	FFA	1	n.i.	Intralesional steroids and topical tacrolimus	n.i.	n.i.	Symptom relief, hair density
Nusbaum *et al.*[28]	Case report	FFA	1	yes	Follicular unit test grafting	2.5 x 1 cm area		Hair count
Katoulis *et al.*[29]	Case report	FFA	1	yes	Oral dutasteride and topical pimecrolimus 1% cream	0.5 mg/d–1% cream twice daily	6 months	Eyebrow regrowth
Clark-Loeser *et al.*[30]	Case report	FFA	1	yes	Intralesional corticosteroids and topical tacrolimus	n.i.	n.i.	n.i.
Dawn [31]	Case report	FFA	2	yes	Fluocinolone acetonide, mometason furoate	0.025–0.1%	6 months	Erythema reduction, disease progression

Table 1 *Continued*

Study	Type of study	Patients		Histology	Treatment			Outcome measure
		Diagnosis	Nr		Agent	Dose	How long	
Naz [32]	Case report	FFA	4	yes	Topical corticosteroid, oral corticosteroid, minoxidil	indicated	1 year–3 months–6 months	Disease progression
Faulkner [4]	Case report	FFA	1	yes	Fluocinolone acetonide	0.025% cream twice daily	1 year	Disease stabilization
Chiang *et al.*[21]	retrospective case series	LPP, FFA	29, 7	yes	hydroxychloroquine	n.i.	6–12 months	LPPAI
Cevasco *et al.*[33]	Retrospective case series	LPP+FFA	20, 1	yes	Topical corticosteroids intralesional corticosteroids systemic corticosteroids tetracycline anti-malarials topical retinoids minoxidil nizoral schampoo biotin forte hair transplant scalp reduction			Assessed as decrease in associated symptoms and stabilization of the disease, possibly hair regrowth in the active perimeter
Donati *et al.*[14]	Prospective open trial	LPP	6	yes	Hydroxychloroquine	400 mg/d	6 months	Global photographs, hair counting
Cho *et al.*[13]	Retrospective chart analysis of an open label trial	LPP	16	yes	MMF	0.5 g twice daily for 4 weeks and 1 g twice daily for 20 weeks	up to 1 year	LPPAI
Assouly [34]	Retrospective case series	LPP	24	yes	Oral cyclosporine/oral MMF/oral retinoids	4–5 mg.kg/d – 2 g/d – 25 mg/d	4 months – 2–8 months – n.i.	Clinical and hair count assessment
Spencer [20]	Retrospective chart analysis	LPP	29	yes	Doxycycline (15), hydroxychloroquine (22), MMF (10), acitretin (3), mtx (1), all combined with topical treatments	200 mg/d – 6.5 mg/kg/d – 1–3 g/d – 25 mg/d – 10 mg/w	3–6 months – 6–12 months – 3–6 months – 3–6 months – 6 months	Improvement
Vavricka *et al.*[12]	Prospective controlled study	LPP	13	yes	308-nm excimer laser	Mean dose of 4538.5 mJ/cm^2 after 10 treatments	Two treatments per week, 8–24 treatments total	Symptom relief and hair growth
Jouanique *et al.*[15]	Prospective open trial	LPP	4		Thalidomide	100 mg/d, after 1 month increased up to 200 mg/d	6 months	Standardized global photographs, hair counts by macrophotographs of hair growth in a shaved area marked by a central tattoo, investigator global assessment

Table 1 *Continued*

Study	Type of study	Patients		Histology	Treatment			Outcome measure
		Diagnosis	Nr		Agent	Dose	How long	
Chieregato *et al.*[35]	Retrospective case series	LPP	30	yes	Topical corticosteroid oral cyclosporine topical cyclosporine	Twice daily, gradually tapered 5 mg/kg/d, gradually tapered 2dd, gradually tapered	82 days 45 days 60 days	Relief of symptoms, arrest in hair loss
Mirmirani *et al.*[36]	Retrospective case series	LPP	3	yes	Hydroxychloroquine cyclosporine	400 mg/d 300 mg/d	3–5 months	Arrest of disease progression
Mehregan *et al.*[37]	Retrospective case series	LPP	45		Oral corticosteroids topical corticosteroids griseofulvin antimalarial intralesional corticosteroids cyclosporine			Relief of symptoms, arrest in hair loss
De Mozzi[38]	Case report	LPP	1	yes	Topical clobetasol	n.i.	1 year	Stabilization of alopecia
Abbasi[39]	Case report	LPP	1	yes	Topical corticosteroid and tacrolimus		2 years	Change in symptoms
Almaani[40]	Case report	LPP	1	yes	Topical tacrolimus	0.03% once daily	6 months	Relief of symptoms, hair growth
Mirmirani *et al.*[24]	Case report	LPP	1	yes	Various (oral prednisone, hydroxychloroquine, doxycycline, MMF)/pioglitazone hydrochloride	15 mg/d	8 months	Inflammatory infiltrate on histology, stop hair loss, relief of symptoms
Lane *et al.*[41]	Case report	LPP	1		Cyclosporine betamethasone valerate	3 mg/kg/d, 0.12% foam twice daily	n.i.	Symptom relief
Garcovich[42]	Case report	LPP	1	yes	Oral cyclosporine + topical betamethasone	3 mg/kg/d	7 months	Symptom relief and disease progression
Tursen *et al.*[43]	Case report	LPP	1	yes	MMF	500 mg twice daily	6 months	Improvement of symptoms
Rosina *et al.*[44]	Case report	LPP	1	yes	Topical corticosteroids	n.i.	40 days	Symptom relief
George *et al.*[45]	Case report	LPP	1	yes	Intralesional corticosteroids + prednisone/thalidomide	40 mg/d – 400 mg/d – 150 mg/d tapered to 50 mg/d	4 weeks/ 16 days/ 1 month each dose	Hair regrowth
Metin *et al.*[46]	Case report	LPP	1	yes	Griseofulvin	12.5 mg/kg/d	3 months	Symptom relief
Sehgal *et al.*[47]	Case report	LPP			Griseofulvin with prednisolone	375 mg/d, 20 mg/d	6 months	n.i.
Yanaru *et al.*[48]	Case report	LPP	1	yes	Cyclosporine	3 mg/kg/d, gradually tapered	5 months	Improvement of symptoms
Gerritsen *et al.*[49]	Case report	LPP	1	yes	tretinoin cream, topical corticosteroids	n.i.	n.i.	n.i.

Table 1 *Continued*

Study	Type of study	Patients		Histology	Treatment			Outcome measure
		Diagnosis	Nr		Agent	Dose	How long	
Isaac *et al.*[50]	Case report	LPP	1	yes	Intralesional corticosteroids systemic corticosteroids griseofulvine clobetasol propionate	10 mg/mL n.i. 500 mg twice daily n.i.	n.i. 4–6 weeks n.i. n.i.	Disease stabilization, symptom relief
Ferrara[51]	Case report	LPP	1	yes	Intralesional corticosteroids, systemic corticosteroids, tetracycline	n.i.	n.i.	Stabilization of alopecia

Of the 38 patients receiving either oral cyclosporine or systemic corticosteroids, about 60% showed good clinical responses, however, some of the authors describe a relapse rate of 40% with these treatments (level of evidence 4).

About one third of the treated patients showed a good clinical response to oral tetracycline or doxycycline, to oral mycophenolate mofetil (MMF) and to intralesional corticosteroid preparations (level of evidence 4).

Discussion

Currently, no treatment protocols exist for the treatment of FFA or LPP. We therefore sought in the literature for described treatment and their effects. Unfortunately, we found no randomized controlled trials. Given the low prevalence of the conditions this may not be so surprising. However, since FFA and LPP may also stabilize spontaneously, randomized controlled trials (RCTs) would have provided the strongest evidence on treatment effectiveness. Thus, our conclusions from systematic review may not be based on the strongest evidence, but they constitute the only available evidence so far.

There is currently no standardized outcome measure for the evaluation of treatment efficacy in FFA and LPP. Recently, the Lichen Planopilaris Activity Index was introduced, consisting of scores for the subjective symptoms (itch, burning) and objective signs (redness, scaling and hair loss) of the two diseases. {LPPAI (0–10) = [pruritus (0–3) + burning (0–3) + pain (0–3) + erythema (0–3) + perifollicular scale (0–3)] / 3 + 2, 5(pull test) + 1, 5(spread/2).}[18,21] We found that treatment efficacy of certain drugs for FFA was reported remarkably different in the studies that used LPPAI from those that used other outcome measures. This difference can be attributed to the weight of subjective symptoms within LPPAI. Studies not using LPPAI focus mainly on the progression of hair loss using outcome measures such as hair counting, photographical assessment, or the measurement of the distance between the glabella and the frontotemporal hair line. As both diseases progressively lead to permanent hair loss, which not completely seem to correlate with the visible signs and symptoms of inflammation,[14] we conclude that progression of hair loss should have the most weight in an outcome measure for FFA.

Although FFA is generally considered a variant of LPP, our findings suggest that the preferred treatment differs for the two diseases. For LPP, systemic corticosteroid preparations and oral cyclosporin seem to be the most effective, although a high relapse rate is described. For FFA, improvement was most often seen when treated with oral finasteride or dutasteride. However, as treatment duration was very long in the published studies spontaneous stabilization of the disease may also have played a role.

Remarkably, high or moderate potency topical corticosteroid preparations are effective and are considered the first line therapy for LPP, whereas they are not effective in FFA. Systemic

Table 2 Primary studies on the treatment of FFA

Treatment	Study	Number of patients	Effect		
			good	partial	no
Hydroxychloroquine/chloroquine	Samrao[18]	16	4	7	4
	Chiang[21]	11	5	3	3
	Tan[5]	3	1		1
	Kossard[3]	3		3	
	Total	33	10 (30%)	13 (39%)	8 (24%)
Finasteride/dutasteride	Georgala[11]	13	13		
	Moreno-Ramirez[23]	16		16	
	Tosti[16]	8	4		4
	Katoulis[29]	1		1	
	Total	38	17 (45%)	17 (45%)	4 (11%)
Hormone replacement	Kossard[3]	8			8 (100%)
Mycophenolate mofetil	Samrao[18]	5	1 (20%)	1 (20%)	3 (60%)
Topical corticosteroid preparations – high potency	Rallis[10]	6			6
	Faulkner[4]	1		1	
Topical corticosteroid preparations – moderate potency	Kossard[3]	9			9
	Dawn[31]	2			2
	Naz[32]	2			2
Topical corticosteroid preparations – total	Total	14		1 (7%)	13 (93%)
Doxycycline	Samrao[18]	4	1 (25%)	1 (25%)	2 (50%)
Systemic prednisone	Kossard[3]	4		2	2
	Naz[32]	1		1	
	Tosti[16]	3			3
	Total	8	0	3 (38%)	5 (62%)
Intralesional triamcinolonacetonide	Tan[5]	12		8	1
	Bergfeld[27]	1			1
	Clark-Loeser[30]	1			1
	Total	14		8 (57%)	3 (21%)
Intralesional triamcinolonacetonide as adjuvant	Donovan[19]	11	7 (63%)	2 (18%)	2 (18%)
Topical calcineurin inhibitor as adjuvant	Clark-Loeser[30]	1			1
	Katoulis[29]	1	1		
	Bergfeld[27]	1	1		
	Total	3	2 (67%)		1 (33%)
Topical minoxidil	Kossard[3]	2			2
	Tan[5]	2		2	
	Naz[32]	1			1
	Total	5		2 (40%)	3 (60%)

corticosteroids seem to have a greater effectiveness in LPP than in FFA, although they were used only in a small number of patients with either disease. While oral cyclosporine was often studied and successful as therapy for patients with LPP, cyclosporine was only tried in one patient with FFA.[18] Unfortunately, treatment had to be stopped in this case because of adverse effects (perioral numbness and tingling).

On the basis of this discrepancy in treatment efficacy in the two diseases, one could argue that they should be considered two separate diagnoses, where factors other than inflammation are more important in the pathogenesis of FFA. This was previously suggested by a clinicopathological study based on subtle differences in the histopathology of the two diseases.[22] Possibly, there is an important role of accompanying androgenetic alopecia in FFA, as was also pointed out by some authors,[23] explaining the effectivity of the anti-androgenic drugs dutasteride and finasteride. However, as the histopathology of both diseases shows lymphocytic infiltrate around the hair follicle isthmus and infundibulum, we believe that T-cell targeting therapies are a rational treatment option in both diseases; and that based on its good effectivity in LPP, oral cyclosporin may be an appropriate drug to test when other treatments for FFA fail.

Table 3 Primary studies on the treatment of LPP

Treatment	Study	Number of patients	Effect		
			good	partial	no
Topical corticosteroid preparations – high potency	Cevasco[33]	24	7	13	1
	Abbasi[39]	1			1
	De Mozzi[38]	1		1	
	Isaac[50]	1		1	
Topical corticosteroid preparations – high or medium potency	Mehregan[37]	20	14		6
	Rosina[44]	1	1		
Topical corticosteroid preparations – potency not stated	Chieregato[35]	30	20	6	4
	Gerritsen[49]	1			1
Topical corticosteroid preparations	Total	79	42 (53%)	21 (27%)	12 (15%)
Anti-malarials	Chiang	29	4	21	4
	Cevasco[33]	1	1		
	Donati[14]	6			6
	Spencer[20]	22	9		13
	Mehregan[37]	9	2		7
	Mirmirani[36]	3			3
	Mirmirani[24]	1			1
	Total	71	16 (23%)	21 (30%)	34 (48%)
Oral cyclosporine	Assouly/Reygagne	12	8	2	2
	Chieregato[35]	2		2	
	Mehregan[37]	2			2
	Mirmirani[36]	3	3		
	Lane[41]	1	1		
	Yanaru[48]	1	1		
	Total	21	13 (62%)	4 (19%)	4 (19%)
MMF	Cho[13]	16	5	5	2
	Assouly[34]	5	2		3
	Spencer[20]	10	3		7
	Mirmirani[24]	1			1
	Tursen[43]	1		1	
	Total	33	10 (30%)	6 (18%)	13 (39%)
Intralesional corticosteroid preparations	Cevasco[33]	20	8	10	2
	Mehregan[37]	7	0		7
	Ferrara[51]	1		1	
	Isaac	1			1
	Total	29	8 (28%)	11 (38%)	10 (34%)
Tetracyclin/Doxycycline	Cevasco[33]	11	6	4	0
	Spencer[20]	15	4		11
	Ferrara[51]	1		1	
	Mirmirani[24]	1			1
	Total	28	10 (36%)	5 (18%)	12 (43%)
Systemic steroids	Cevasco[33]	1		1	
	Mehregan[37]	11	9		2
	Ferrara[51]	1		1	
	Isaac[50]	1		1	
	Mirmirani[24]	1			1
	Sehgal[47]	1	1		
	George[45]	1			1
	Total	17	10 (59%)	3 (18%)	4 (24%)

Table 3 *Continued*

Treatment	Study	Number of patients	Effect		
			good	partial	no
308 nm excimer laser	Vavricka[12]	13	3 (23%)		10 (77%)
Minoxidil	Cevasco[33]	12	1 (8%)	5 (42%)	3 (25%)
Griseofulvin	Mehregan[37]	10	5		5
	Isaac[50]	1			1
	Metin[46]	1			1
	Total	12	5 (42%)		7 (58%)
Oral retinoids	Assouly[34]	6			6
	Spencer[20]	3	2		1
	Total	9	2 (22%)		7 (78%)
Thalidomide	Jouanique[15]	4			4
	George[45]	1	1		
	Total	5	1 (20%)		4 (80%)
Hair transplantation	Cevasco[33]	3	1 (33%)	1 (33%)	1 (33%)

Two novel drugs, rituximab, a monoclonal anti-CD20 antibody, and pioglitazon, a PPAR-γ-agonist, described in two recent case reports [24,25] for the treatment of LPP also showed promising results, possibly explained by their selective targeting of pro-inflammatory molecules in the lymphocytic infiltrate. Recently, pioglitazon was tested in 24 patients with recalcitrant LPP, resulting in remission of the disease in 5 (20%) patients and partial improvement in 12 (50%) other patients.[26] The effect of pioglitazon was dose dependent.

Summarizing, FFA is a subtype of LPP with a distinct clinical pattern, presenting almost exclusively in postmenopausal women (only about 15% of affected patients are premenopausal). There is currently no effective treatment of FFA, the most effective being oral finasteride or oral dutasteride, drugs that possibly affect the accompanying androgenetic alopecia. Next to an inflammatory process caused by the infiltrating lymphocytes, hormonal processes might play a role in the pathogenesis of FFA, resulting in its presentation of postmenopausal women. For the treatment of LPP, oral cyclosporine is the most effective drug, followed by systemic corticosteroids, although they are characterized by a high relapse rate. We argue that oral cyclosporine A might be a good candidate for future studies on the treatment of FFA.

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