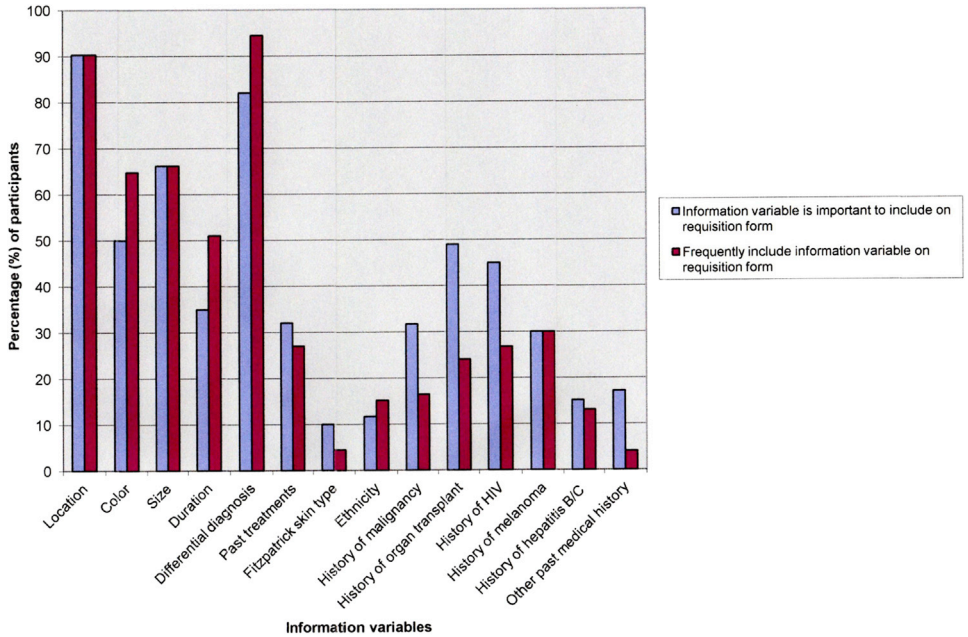

Fig 1. Comparing attitude (*blue*) and action (*red*) toward inclusion of information variables on the dermatopathology requisition form.

The use of oral pioglitazone in the treatment of lichen planopilaris

To the Editor: Current therapies for primary cicatricial alopecia remain empirical and often ineffective. Recent experimental evidence has suggested a potential role of aberrant peroxisome-proliferator-activated receptor (PPAR)-γ functioning in the pathogenesis of cicatricial alopecias.[1] On the basis of this finding, Mirmirani and Karnik[1] successfully treated a patient with therapy-resistant lichen planopilaris (LPP) with a PPAR-γ agonist.[2] The aim of this study was to evaluate the efficacy of pioglitazone, a synthetic PPAR-γ ligand, in the treatment of LPP.

We performed a retrospective case analysis of the 22 patients who were prescribed pioglitazone hydrochloride for LPP in a tertiary hair research center from 2010 through 2012. Inclusion required therapy with pioglitazone for at least 1 month, and clinical follow-up longer than 3 months.

Clinical grading, including subjective measures (pain, tenderness, pruritus), objective measures (perifollicular erythema, scale), and hair loss extent, were recorded at baseline and on subsequent visits. At each visit, a hair specialist physician assigned a score to each objective and subjective end-point grade, ranging from resolution (0), improvement (1), stable (2), to worsening (3) condition. Global response to treatment was graded by the investigators, based on clinical impression, supplemented with standardized photographic data. Clinical impression categories included: "complete remission," "marked improvement," "stable," and "progression." Patients who achieved complete remission or marked improvement were considered responders, whereas those who remained stable or had disease progression were considered nonresponders.

Table I demonstrates the descriptive statistics of the study cohort. All of the patients were female. Patients were treated for a median of 10.5 months (7.75-14 interquartile range). The follow-up period was 15.5 months (12-19.5). All patients were treated with pioglitazone dose of 15 mg per day. All patients were refractory to multiple prior therapies, including: topical corticosteroids (n = 22, 100%), intralesional corticosteroids (n = 19, 86%), tetracycline (n = 18, 82%), hydroxychloroquine (n = 7, 32%), mycophenolate mofetil (n = 2, 9%), and cyclosporine (n = 1, 5%).

As shown in Table II, pioglitazone was effective in controlling the symptoms, inflammation, and disease progression in 72.7% of the patients. Moreover, new hair regrowth was noted in 6 patients (27.3%). From the responders, only 2 patients (9%) experienced relapse after discontinuation of pioglitazone. Reported side effects were lower-extremity edema (n = 11, 50%), weight gain (n = 9, 41%), dizziness (n = 1, 5%), resistant hypertension (n = 1, 5%), and mild transaminitis (n = 1, 5%). Of the 22 patients included in this study, 8 continue to be on pioglitazone treatment. Reasons for cessation of treatment were: inability to tolerate side effects (n = 9, 40.9%), completion of treatment

Table I. Descriptive statistics of 22 study patients with lichen planopilaris treated with pioglitazone

Variable	Study cohort (N = 22)	Responders (N = 16)	Nonresponders (N = 6)	*P* value*
Age, y†	61.5 (50.5-64.3)	60.5 (49.0-63.0)	66 (57.5-68)	.06
Race‡				.53
Caucasian	19 (86.4%)	13 (81.3%)	6 (100%)	
Unknown	3 (13.6%)	3 (18.7%)	0 (0%)	
Most common comorbidities‡				
Thyroid disease	9 (40.9%)	6 (37.5%)	3 (50.0%)	.65
Hyperlipidemia	9 (40.9%)	6 (37.5%)	3 (50.0%)	.65
Vitamin-D deficiency	9 (40.9%)	7 (43.7%)	2 (33.3%)	.99
Hypertension	8 (36.4%)	6 (37.5%)	2 (33.3%)	.99
Diabetes mellitus	2 (9.0%)	1 (6.2%)	1 (16.7%)	.48
Diagnosis‡				.99
LPP	18 (81.8%)	13 (81.3%)	5 (83.3%)	
FFA	4 (18.2%)	3 (18.7%)	1 (16.7%)	
Age at diagnosis, y†	57.5 (47.8-60)	57.0 (46.3-60.0)	58.5 (54.5-65.3)	.28
Duration of disease, mo†	32.5 (18.0-42.5)	32.5 (15.0-41.3)	35 (17.5-54)	.68

FFA, Frontal fibrosing alopecia; *LPP*, lichen planopilaris.
*Determined on continuous variables by Wilcoxon rank sum test and on categorical variables by Fisher exact test. Statistical significance was set at .05.
†Result values are expressed as median (interquartile range in parentheses).
‡Result values are expressed as number of cases (percentage of column header population in parentheses).

Table II. Global response to pioglitazone treatment

Response	No. of patients (%) N = 22
Complete remission*	0 (0)
Marked improvement†	16 (72.7)
Stable‡	5 (22.7)
Progression§	1 (4.5)

*Complete remission of both subjective measures and objective measures, in the setting of stable or improved hair loss.
†Improvement or remission of subjective measures, plus improvement or remission of objective measures, in the setting of stable or improved hair loss.
‡Improvement or no change in subjective measures, plus improvement or no change in objective measures, in the setting of stable or improved hair loss.
§Clinical worsening in subjective measures, objective measures, or hair loss.

course (n = 4, 18.2%) and fear of side effects (n = 1, 4.5%).

Findings in this investigation are subject to limitations secondary to its retrospective nature, population with refractory disease, lack of controls, and use of a nonvalidated clinical scoring system. These findings substantiate the use of PPAR-γ agonists as a treatment option for LPP. Their action likely targets the inflammatory stages of LPP, where increased activation of PPAR-gamma results in down-regulation of proinflammatory nuclear transcription factors, interleukins, and proteolytic enzymes.[3] A prospective, double-blind, randomized research trial will be necessary to confirm the beneficial effect and safety of pioglitazone.

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