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Conflicts of interest

Dr Yeung has been a speaker, consultant, and investigator for AbbVie, Allergan, Amgen, Astellas, Bausch Health, Boehringer Ingelheim, Celgene, Centocor, Coherus, Dermira, Eli Lilly, Forward, Galderma, GSK, Janssen, Leo, Medimmune, Merck, Novartis, Pfizer, Regeneron, Roche, Sanofi Genzyme, Takeda, UCB, Valeant, and Xenon. Dr Vender has received grants/research support from Abbvie, Amgen, Centocor, Dermira, Dermavant, Galderma, GSK, Leo, Lilly, Takeda, Novartis, Merck, Pfizer, Regeneron, and UCB. Dr Vender has also received honoraria and consulting fees from Abbvie, Amgen, Janssen, Galderma, GSK, Leo, Lilly, Novartis, Pfizer, Bausch-Health, Actelion, Celgene, Cipher, and UCB. Dr Turchin has received honoraria and consulting fees from Abbvie, Bausch Health, Celgene, Amgen, Eli Lilly, Janssen, LeoPharma, Novartis, and UCB. Dr Turchin has also been involved in clinical trials sponsored by Abbvie, Amgen, Arcutis, Boehringer Ingelheim, Celgene, Eli Lilly, Janssen, LeoPharma, and Novartis. Dr Shukla has received honoraria and consulting fees from Abbvie, Amgen, Bausch, Galderma, Janssen, Leo, Lily, Novartis, Pfizer, Sanofi, and UCB. Dr Hong is a researcher/consultant/advisor for AbbVie, Amgen, Arcutis, Bausch Health, Boehringer Ingleheim, Bristol-Meyer Squibb, Celgene, Dermira, Dermavant, DS Biopharma, Galderma, GlaxoSmithKline, Janssen, LEO Pharma, Lilly, MedImmune, Novartis, Pfizer, Regeneron, Roche, Sanofi Genzyme, and UCB. Dr Maari is an investigator, Advisory Board Member, Speaker, Consultant for, and received honoraria or grants from Abbvie, UCB, Boehringer Ingelheim, Celgene, Eli Lilly, Galderma, Leo Pharma, GSK-Stiefel, Janssen, Novartis, Bausch, and Pfizer. Dr Lansang has received honoraria and consulting fees from AbbVie, Amgen, Bausch, Celgene, Galderma, Janssen, Lilly, Novartis, Pfizer, Sanofi, UCB, and Valeant.

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Long-term efficacy and safety outcomes of lenalidomide for cutaneous lupus erythematosus: A multicenter retrospective observational study of 40 patients

To the Editor: Small case series have suggested that lenalidomide may be a promising therapeutic option for severe cutaneous lupus erythematosus (CLE).[1-3] The aims of this study were to report the long-term efficacy and safety profile of lenalidomide in patients with CLE with a focus on patients with associated systemic lupus erythematosus (SLE) and potential factors associated with complete response (CR).

This multicenter retrospective observational case series enrolled patients with CLE who received lenalidomide after failure of hydroxychloroquine and ≥1 second-line systemic treatment.

Clinical efficacy was assessed with the CLE Disease and Severity Index Activity[4] (CLASI-A) score at baseline, at first evaluation scheduled after 1 or 3 months, and every 6 months thereafter. Cutaneous response was defined as follows: minimal response was defined by a 4-point or 20% decrease in CLASI-A score, partial response (PR) by an improvement of ≥50%, and CR by a CLASI-A score of 0. Occurrence of relapse, doses at which they occurred, and SLE flares were recorded.

Forty patients with CLE (65% had associated SLE) were included (Table I). The median follow-up was 40 months (range, 6-101 months). Thirty-five patients (88%) previously received thalidomide and stopped because of inefficacy (49%) or poor tolerance (51%). The starting dose of lenalidomide was 5 mg per day in 37 cases. In all, 98% patients had a ≥4-point or 20% decrease in CLASI-A score. The PR rate was 88% after a median treatment duration of 3 months (range, 1-20 months); 17 of 35 (43%) patients achieved CR. The PR rate was similar between patients with mild (10/12, 83%), moderate (19/21, 90%), and severe (6/7, 85%) disease activity. However, CR was significantly more frequent in patients with mild and moderate compared with severe activity (17/33, 51% vs 0/7, 0%; $P = .01$). Among 39 patients with any response, 21 (54%) showed relapse or worsening of CLE, including 13 after a dose reduction. A sustained dose reduction was possible in 22 (55%) patients, with a median minimum effective dose of 2.5 mg per day (range, 0.7-10 mg/day). Three (8%) patients were able to discontinue lenalidomide because of CR without relapse. The CR rate was significantly decreased in active smokers (hazard ratio 3.17 [95% confidence interval 1.04-9.67]; $P = .04$, log-rank test) compared with former and never smokers.

During a total of 93 patient-years of follow-up, grade III or IV adverse events were observed in 5 patients (3 arterial thrombosis; Table II), with 4 (10%) requiring permanent discontinuation of treatment. Therefore, as for thalidomide, the prescription of lenalidomide should be carefully discussed in patients

Table I. Characteristics of patients with cutaneous lupus erythematosus at lenalidomide initiation (n = 40)

Demographic data of patients	
Female sex, n (%)	35 (88)
Age, y, median (range)	43 (22-71)
Active smoking status, n (%)	25 (63)
Body mass index, kg/m^2, median (range)	21 (17-37)
Fitzpatrick skin phototypes V or VI, n (%)	7 (18)
CLE subtypes, n (%)	
Discoid	25 (63)
Discoid and subacute	8 (20)
Discoid and tumidus	4 (10)
Subacute	2 (5)
Discoid and lupus panniculitis	1 (2.5)
Characteristics of SLE patients among total	
SLE, n (%)	26 (65)
SELENA-SLEDAI at baseline, median (range)	4 (2-10)
Antiphospholipid syndrome, n (%)	3 (7.5)
CLASI-A features	
CLASI-A score at initiation of lenalidomide, median (range)	12 (3-41)
Mild CLE (CLASI-A 0-9), n (%)	12 (30)
Moderate CLE (CLASI-A 10-20), n (%)	21 (53)
Severe CLE (CLASI-A 21-70), n (%)	7 (17)
Previous systemic treatments	
Previous lines of systemic treatment, median (range)	4 (1-9)
Patients who previously received thalidomide, n (%)	35 (88)
Thalidomide treatment duration, months, median (range)	10 (0.7-147)
Thalidomide treatment dose, mg, median (range)	100 (25-100)
Treatments associated with lenalidomide, n (%)	
Hydroxychloroquine	35 (88)
Low-dose aspirin*	35 (88)
Oral glucocorticoids	13 (30)
Immunosuppressant agents†	8 (20)
Topical calcineurin inhibitor	14 (35)

CLASI-A scores assessed as in Albrecht et al.[4]

CLASI-A, Cutaneous Lupus Erythematosus Disease Area and Severity Index activity; *CLE*, cutaneous lupus erythematosus; *SELENA-SLEDAI*, Safety of Estrogens in Systemic Lupus Erythematosus National Assessment—Systemic Lupus Erythematosus Disease Activity Index.

*Low-dose aspirin was added to prevent thromboembolic risk.

†Including methotrexate (n = 2), mycophenolate mofetil (n = 3), azathioprine (n = 2), low-dose interleukin-2 (n = 1).

Table II. Adverse events and systemic lupus erythematosus flares during lenalidomide treatment

Adverse events	n (%)
Grade III or IV adverse event leading to temporary or permanent discontinuation	5 (12.5)
Cardiovascular event*	3 (8)
Cancer†	2 (5)
Other adverse events	
Neutropenia (grade I-II)	3 (8)
Asthenia (grade I-II)	9 (23)
Onset of neuropathy or worsening of thalidomide-induced neuropathy (n = 7)	0
Data regarding systemic flares	
Patients with SLE flare‡ (among 26 with SLE)	8 (31)
Severe SLE flare‡	4 (15)
SLE flare leading to lenalidomide discontinuation (among all patients)	1 (2.5)
Development of SLE among patients with isolated CLE (n = 14)	1 (7)

One patient had antiphospholipid syndrome and 1 had severe cardiovascular risk factors. Arterial events did not occur in the context of malignancy.

SELENA-SLEDAI, Safety of Estrogens in Systemic Lupus Erythematosus National Assessment—Systemic Lupus Erythematosus Disease Activity Index; *SLE*, systemic lupus erythematosus.

*Arterial thrombosis (n = 1), transient ischemic attack (n = 1), and acute coronary syndrome (n = 1).

†Ductal breast carcinoma in situ (n = 1) and gastric cancer (n = 1).

‡According to the SELENA-SLEDAI flare index.

with cardiovascular risk factors or antiphospholipid syndrome.[5] No onset or worsening of thalidomide-induced neuropathy (n = 7) was observed. SLE with articular involvement developed in 1 patient with isolated CLE but no renal flare as previously reported.[3] Eight (31%) of the 26 patients with SLE experienced flares and high Safety of Estrogens in Systemic Lupus Erythematosus National Assessment—Systemic Lupus Erythematosus Disease Activity Index score at baseline was significantly higher for patients with SLE with than without flares ($P = .005$) suggesting that lenalidomide has little or no effect on global SLE activity. This study provides long-term efficacy and follow-up data and confirms the benefit of lenalidomide in patients with refractory CLE.

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Conflict of interest

None disclosed.

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2020 Update on sunscreen compliance with American Academy of Dermatology recommendations

To the Editor: In 2014 and 2017, Yazdani Abyaneh et al[1] and Eber et al[2] published studies that detailed the proportion of sunscreens distributed by the largest United States retailer (Walmart, Bentonville, AR) and pharmacy (Walgreens, Deerfield, IL) that met American Academy of Dermatology (AAD) recommendations: sun protection factor (SPF) 30, broad-spectrum coverage, and water resistant for 40 to 80 minutes.[3] In 2017, Eber et al[2] reported that 65.3% of sunscreens sold at Walmart and 72.9% of sunscreens sold at Walgreens met all AAD recommendations, a significant improvement from when AAD recommendations were first released in 2011. Yet sunscreens labeled as tanning and bronzing products fell far behind with only 19% and 20% compliance. In 2019, the US Food and Drug Administration (FDA) advanced new proposed regulations to the labeling of sunscreens to further ensure the safety and efficacy of over the counter sunscreen products.[4] Our study is a follow-up study to assess if these recent changes lead to significant improvement on sunscreen compliance with AAD recommendations.

We collected data from both the Walmart and Walgreens websites on June 27, 2020, and the study methods detailed by Yazdani Abyaneh et al[1] were followed for consistency: Walmart > "pharmacy, health & beauty" > "skin care" > "sun care"; Walgreens > "beauty" > "sun care" > "shop all sun care." Items with no SPF value labeled, or no image of primary display panel (main packaging label) were excluded along with products that are labeled as "lip balm," "lotion," or "moisturizer." The primary display panel of all remaining products were reviewed for SPF of ≥30, water resistance of 40 to 80 minutes, broad-spectrum labeling compliance with requirements by the FDA, and advertising for bronzing or tanning.

A total of 545 results from Walmart and 307 results from Walgreens were reviewed. Of these, 285 and 152 unique, evaluable sunscreen products were included in the study (Table I). Most sunscreens available on the Walmart and Walgreens websites have an SPF ≥30 (93.7% and 90.7%, respectively), and nearly all have broad-spectrum coverage (97.9% and 100%) and water resistance (96.8% and 99.3%). Of the total sunscreens examined, 91.2% of those distributed by Walmart and 92.1% of those distributed by Walgreens met all 3 AAD recommendations. Of the products advertised for bronzing and tanning, 20% and 57.1% met all 3 AAD recommendations.

Our study shows significant improvement in adherence to AAD recommendations for sunscreen distributed by major distributors in 2020 after FDA labeling regulations updates ($P < .01$ and $P = .025$). This improvement is reflective of increased AAD recommendation adherence in sunscreens that are not labeled for bronzing/tanning ($P < .01$ and $P = .033$), but there remains a significant gap in

Table I. Proportion of sunscreen products meeting AAD recommendations in 2020

Products	Walmart, n (%)	Walgreens, n (%)	*P* value Walmart (2020 vs 2017)	*P* value Walgreens (2020 vs 2017)
Total search hits	545	307		
Products evaluated	284	151		
Products with SPF ≥30	266 (93.6)	137 (90.7)	0.18	.64
Products with broad-spectrum coverage	278 (97.9)	151 (100.0)	0.63	.68
Products with water resistance (40-80 min)	275 (96.8)	150 (0.99)	0.01*	.06
Products meeting all 3 AAD recommendations	259 (91.1)	139 (92.1)	<0.01*	.02*

AAD, American Academy of Dermatology; *SPF*, sun protection factor.
*Signifies statistically significant increase in sunscreens available in 2020 compared with 2017. Statistical significance determined as $P < .05$ with the χ^2 test.