

Table II. Odds ratios (and 95% confidence intervals) for the association between family history of cancer in a first-degree relative and personal history of (1) keratinocyte carcinoma (KC) (dichotomous yes/no), (2) another type of cancer (yes/no), (3) KC coupled with another type of cancer versus KC only, (4) KC only, and (5) KC coupled with another type of cancer

Family history of cancer in a first-degree relative	Personal history				
	Dichotomous			Study groups compared with cancer-free controls	
	KC vs No-KC (Yes/No)	Another type of cancer vs No other type of cancer (Yes/No)	KC + another type of cancer vs KC only (Yes/No)	KC only vs cancer-free controls	KC coupled with another type of cancer vs cancer-free controls
Keratinocyte carcinoma (KC)				*	*
No	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)
Yes	9.0 (2.7-30.2)	2.2 (1.03-4.6)	1.0 (0.5-2.3)	9.6 (2.2-41.3)	9.1 (2.1-39.2)
Noncutaneous Malignancy					
No	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)
Yes	0.9 (0.4-2.0)	0.9 (0.4-1.9)	1.0 (0.4-2.4)	0.9 (0.3-2.4)	0.9 (0.4-2.3)
P _{interaction}	0.44	0.61	0.41	0.27	0.61
Combined family history of skin cancer coupled with another type of cancer					
None	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)
KC only	5.7 (1.1-30.5)	2.7 (0.8-9.5)	1.5 (0.4-5.9)	4.3 (0.6-29.9)	6.9 (0.9-55.4)
Other cancer only	0.9 (0.4-2.1)	1.1 (0.4-2.9)	1.3 (0.4-4.3)	0.6 (0.2-2.1)	0.9 (0.3-2.7)
KC coupled with another type of cancer	9.7 (2.1-44.3)	2.1 (0.8-5.4)	1.1 (0.4-3.4)	9.9 (1.7-59.7)	9.8 (1.7-57.0)

All results presented are from conditional logistic regression models.

*The cancer-free group is the referent category.

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Successful use of a modified Goeckerman regimen in the treatment of chronic severe atopic dermatitis: A prospective pilot study



To the Editor: Atopic dermatitis (AD) is a chronic inflammatory dermatosis that affects up to 25% of children and 2-3% of adults.¹ A significant proportion of patients with AD remain undertreated, especially patients with severe AD.

In this prospective pilot study, 5 patients with chronic severe AD were treated with an outpatient modified Goeckerman regimen at the University of

Table I. Characteristics and courses of therapy for five patients with chronic, severe AD who were treated with an outpatient modified Goeckerman regimen 5 days per week at the University of California, San Francisco

Patient	Age; ethnicity	Location	Duration of eczema	Previous therapy	Number of Goeckerman treatments	Maximum daily broadband UVB dose	Topical regimen	SCORAD prior to Goeckerman therapy	SCORAD at conclusion of Goeckerman therapy	Outcome	Length of remission
1	30 years; Caucasian/White	Scalp, face, trunk, arms, legs	30 years	Narrowband UVB, broadband UVB, methotrexate 10 mg weekly, mometasone 0.1% ointment, desoximetasone 0.25% cream, tacrolimus 0.1% ointment	20	115 mJ to the trunk, 30 mJ to the face	2% coal tar, triamcinolone 0.1% ointment, or clobetasol 0.05% ointment to the trunk and extremities, triamcinolone 0.1% solution to the scalp, desonide 0.05% ointment to the face	59.4	18.6	Significant decrease in pruritus, oozing/crusting, and excoriation. Improvement in body surface area involved and increased sleep.	8 months
2	42 years; Black/African American	All areas, except partial facial and genital sparing	30+ years	Narrowband UVB, methotrexate, azathioprine, desoximetasone 0.25% cream, calciportiene/betamethasone ointment	20	330 mJ to the trunk, 300 mJ to the extremities	2% coal tar, triamcinolone 0.1% ointment or clobetasol 0.05% ointment to the trunk and extremities, desonide 0.05% ointment to the face, triamcinolone 0.1% solution or liquor carbonis detergens 20% in Aquaphor to the scalp	68	11.5	Resolution of pruritus and erythema. Significant decrease in body surface area involved. Great improvement in sleep.	6 months
3	61 years; Asian	Scalp, face, trunk, arms, and legs	60+ years	Narrowband UVB, broadband UVB, mometasone 0.1% ointment, desoximetasone 0.25% cream, Pru-myx cream	35	30 mJ to the trunk, 80 mJ to the extremities, 80 mJ to the face	2% coal tar, triamcinolone 0.1% ointment or clobetasol 0.05% ointment to the trunk and extremities, desonide 0.05% ointment to the face, liquor carbonis detergens 20% in Aquaphor to the scalp	48	15	Resolution of pruritus and edema/papulations. No longer suffering from sleep loss due to AD	5 months
4	62 years; Asian	Scalp, face, trunk, groin, arms, and legs	30+ years	Narrowband UVB, azathioprine, prednisone, cyclosporine, mycophenolate mofetil, triamcinolone 0.1% cream, desoximetasone 0.25% cream, clobetasol	30	80 mJ to the extremities, 50 mJ to the face	2% coal tar, triamcinolone 0.1% ointment to the trunk and extremities, desonide 0.05% ointment to the face, triamcinolone 0.1% ointment, liquor carbonis detergens 20% in Aquaphor to the scalp	48	15.4	Resolution of edema/papulations and oozing/crusting. Significant reduction in pruritus. No long suffering from sleep loss due to AD	7 months

Continued

Table 1. Cont'd

Patient	Age; ethnicity	Location	Duration of eczema	Previous therapy	Number of Goeckerman treatments	Maximum daily broadband UVB dose	Topical regimen	SCORAD prior to Goeckerman therapy	SCORAD at conclusion of Goeckerman therapy	Outcome	Length of remission
5	19 years; Pacific Islander	All areas, except chest and genital sparing	4 years	Modified Goeckerman, narrowband UVB, oral prednisone, cyclosporine, Zyrtec, desoximetasone 0.25% cream, clobetasol 0.05%	30	260 mJ to the trunk, 60 mJ to the face	2% coal tar, triamcinolone 0.1% ointment, clobetasol 0.05% ointment, to the trunk and extremities, desonide 0.05% ointment to the face, triamcinolone 0.1% ointment to the scalp. Liquor carbonis detergens 20% in aquaphor for home treatment.	80.9	19.2	Resolution of edema/papulations and oozing/crusting. Significant reduction in body surface area involved. No more sleep loss.	12 months

California, San Francisco, between September 2014 and April 2015 (Table 1). All patients had previously failed ultraviolet B (UVB) therapy. The Goeckerman regimen consisted of daily broadband UVB therapy followed by application of crude coal tar (CCT) and topical corticosteroids under occlusion for at least 4 hours each day. Patients were instructed to apply liquor carbonis detergens and topical corticosteroids following each session. No additional treatments were used. Treatment was discontinued when satisfactory clinical response was achieved. Disease activity was measured at baseline and weekly thereafter using the Scoring Atopic Dermatitis (SCORAD) instrument, investigator global assessment (IGA), and a modified 5-D itch scale (measures duration, degree, direction over time, and disability caused by the itch).

Patients underwent a mean of 27 sessions of treatment with an average baseline SCORAD of 60.86 and IGA of 4.2. All 5 patients completed the program and were discontinued from treatment based on clinical response. The average SCORAD at final assessment was 15.9 with a 73.8% mean reduction in SCORAD ($P = .0015$) (Fig 1). All patients achieved an IGA of 1 at final assessment. A statistically significant mean percent reduction was seen in all measured categories of the 5-D itch scale ($P < .05$). The only adverse events were mild phototoxic reactions easily managed by reduction of broadband UVB dose.

Following completion of the modified Goeckerman regimen, patients were instructed to continue broadband UVB phototherapy and apply topical steroids to recalcitrant areas as needed. The mean remission period, as reported by patients, was 7.6 months.

Phototherapy has been shown to be effective in improving AD and its associated itch.² UV has a direct effect on skin inflammatory cells, resulting in immune suppression by modifying cytokine production, prompting T-cell apoptosis, and hindering ability of Langerhans cells to present antigen.² Additionally, phototherapy decreases itching sensation by reducing the number of cutaneous sensory nerve fibers.³

Application of CCT can increase the efficacy of UVB radiation. The anti-inflammatory and antipruritic characteristics of CCT are well established. CCT also enhances epidermal differentiation by restoring epidermal barrier proteins and hindering the effects of Th2 cytokines.⁴ Additionally, the occlusive nature of Goeckerman therapy intensifies the anti-inflammatory and antipruritic effects of topical corticosteroids, and the wrap itself provides a temporary physical barrier to itching.

A modified Goeckerman regimen may be an effective treatment for AD by targeting neurologic,

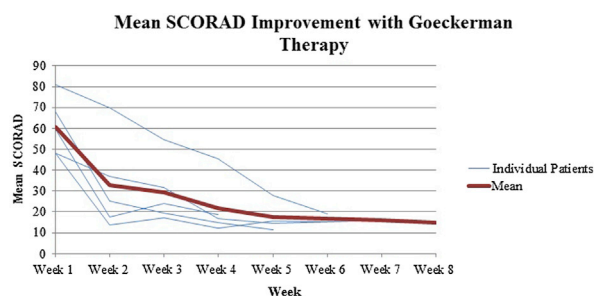


Fig 1. Chronic severe atopic dermatitis. Mean SCORAD improvement of 5 patients with chronic severe AD who were treated with an outpatient modified Goeckerman regimen 5 days per week at the University of California, San Francisco.

inflammatory, and epidermal barrier components involved in the pathogenesis of the disease. Financially, each session costs \$1500, but 70-100% of costs are covered by most insurance companies. Based on the efficacy in our patients, dermatologists should consider Goeckerman therapy for patients with chronic severe AD, even if they have failed standard phototherapy.

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