

In conclusion, 308-nm excimer laser treatment was effective for treating hypopigmentation after LS, with good safety profiles. However, more controlled trials are needed to determine the efficacy and mechanism of this treatment.

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Correlates of skin-related quality of life (QoL) in those with multiple keratinocyte carcinomas (KCs): A cross-sectional study



To the Editor: Keratinocyte carcinoma (KC), which includes basal and squamous cell carcinoma of the skin, impacts millions of people but has low mortality.¹ Thus, it is important to study skin-related quality of life (QoL) in those affected. We examined how history of KC, current actinic keratosis (AK) multiplicity, demographics, comorbidities, and functional impairments relate to skin-related QoL in patients at high risk for KC.

Table 1. Summary of 930 participants

Demographic characteristics	
Age, y, mean (SD)	71.05 (9.32)
Male	914 (98%)
Caucasian	910 (98%)
Married	534 (57%)
Education level	
Grade school	29 (3%)
High school	251 (27%)
Some college/technical school	512 (55%)
Graduate school	138 (15%)
Current Medicare enrollee	620 (67%)
Skin cancer history (in 5 y prior to enrollment)	
Total no. of KC	
2	341 (37%)
3	210 (23%)
4	145 (16%)
≥5	234 (25%)
No. of KC on face and ears	
1	329 (35%)
2	327 (35%)
3	147 (16%)
≥4	127 (14%)
Sun damage history	
Sun sensitivity index* (0-1), mean (SD)	0.57 (0.25)
Previous 5-FU treatment on face/ears	165 (18%)
Baseline AK on face and ears	
0	124 (13%)
1-4	248 (27%)
5-9	210 (23%)
10-19	189 (20%)
≥20	159 (17%)
General health and functional ability	
Current/previous smoker	646 (69%)
Total functional impairment† (0-4), mean (SD)	0.52 (0.85)
Functional impairment category (0-1), mean (SD)	
Ability to bathe	0.02 (0.14)
Ability to manage money	0.02 (0.16)
Ability to walk	0.27 (0.45)
Ability to push/pull heavy objects	0.20 (0.40)

Data presented as no. (%) except where indicated.

AK, Actinic keratosis; FU, fluorouracil; KC, keratinocyte carcinoma.

*Calculated by averaging responses about natural hair color, ability to burn, and ability to tan at age 18 y, and current untanned skin color.

†Calculated as a sum of points for questions assessing ability to bathe, manage money, and do specific physical activities (walk or move a large object), each of which counted for 1 point; these impairments were also examined individually (0 = able to do activity, 1 = unable to do activity).

We used baseline data from the Department of Veterans Affairs (VA) KC Chemoprevention trial.² Demographics and health-related information were self-reported, prior KC data were gathered from

Table II. Univariable analysis of baseline characteristics and skin-related quality of life

	Skindex emotion	Skindex symptom	Skindex function	KC-specific	Skindex total*	SCI emotion	SCI social	SCI appearance	SCI total*
Demographic characteristics									
Age, per 10 y	-2.62 (<.001)	-1.53 (.011)	-1.85 (<.001)	-2.99 (<.001)	-2.00 (<.001)	3.08 (<.001)	1.31 (.067)	2.22 (.012)	2.20 (.003)
Higher education	0.85 (.249)	0.78 (.326)	1.11 (.053)	1.01 (.239)	0.91 (.148)	2.71 (.018)	1.49 (.110)	-0.26 (.818)	1.31 (.176)
Medicare status	-5.75 (<.001)	-3.39 (.004)	-3.35 (<.001)	-6.20 (<.001)	-4.16 (<.001)	6.48 (<.001)	4.00 (.005)	6.10 (<.001)	5.53 (<.001)
Skin cancer history									
Total no. of KC in prior 5 y	-0.56 (.196)	-0.24 (.603)	-0.43 (.200)	-0.28 (.577)	-0.41 (.267)	0.23 (.733)	-0.23 (.679)	-0.46 (.501)	-0.15 (.792)
No. of KC on upper body in prior 5 y	1.46 (.044)	1.93 (.013)	0.98 (.081)	0.93 (.271)	1.46 (.019)	-0.03 (.977)	0.27 (.770)	0.47 (.679)	0.23 (.806)
Sun damage history									
Sun sensitivity index	4.20 (.050)	6.29 (.006)	3.89 (.019)	4.70 (.060)	4.80 (.009)	-3.60 (.279)	-2.02 (.459)	-3.08 (.355)	-2.90 (.304)
Previous 5-FU use on face/ears	2.19 (.113)	3.81 (.010)	1.59 (.138)	2.51 (.119)	2.53 (.032)	1.36 (.525)	-0.49 (.779)	0.88 (.683)	0.58 (.749)
Baseline AK on face and ears	0.46 (.258)	0.83 (.055)	-0.07 (.833)	0.91 (.055)	0.41 (.238)	0.33 (.602)	0.02 (.974)	0.30 (.638)	0.21 (.689)
General health and functional ability									
Modified Charlson index [†]	0.33 (.125)	0.40 (.078)	0.04 (.807)	0.40 (.109)	0.26 (.159)	-0.65 (.053)	-0.33 (.232)	-0.27 (.415)	-0.42 (.142)
Functional impairment [‡]	2.05 (.001)	3.33 (<.001)	1.26 (.009)	2.20 (.002)	2.21 (<.001)	-2.29 (.018)	-1.23 (.119)	-1.24 (.201)	-1.59 (.053)
Ability to bathe	—	12.8 (.001)	—	—	8.2 (.01)	—	—	—	—
Ability to walk	3.0 (.012)	5.7 (<.001)	—	3.0 (.029)	3.3 (.001)	—	—	—	—
Ability to push/pull heavy objects	3.7 (.005)	5.6 (<.001)	2.6 (.009)	5.0 (.001)	4.0 (<.001)	-5.9 (.004)	-3.5 (.035)	—	-4.2 (.014)

Data presented as regression coefficient (*P* value).

The following variables were excluded from this table because they did not have significant associations with quality of life: sex, race, marital status, number of KC on face and ears in prior 5 y, total number of basal cell carcinoma in prior 5 y, total number of squamous cell carcinoma in prior 5 years, baseline hypertrophic AK count, smoking status, and ability to manage money.

Two statements contributed most to worse skin-related quality of life on the Skindex emotion subscale: "I worry that my skin condition may be serious" and "I worry that my skin condition may get worse." Within the Skindex symptom subscale, "My skin itches" contributed most to worse skin-related quality of life, followed by "My skin is irritated" and "My skin is sensitive." Within the KC-specific subscale, "I am bothered by the persistence/reoccurrence of my skin condition" and "I am worried that my skin condition will spread" contributed most to worse skin-related quality of life. Regarding SCI question means, "worried about new skin cancer occurring in the future" contributed most to the SCI emotion subscale and "felt concerned that your skin cancer may worry friends or family" contributed most to the SCI social subscale.

Higher baseline AK count on the face and ears was associated with worse skin-related quality of life on the KC-specific subscale in multivariable analysis (regression coefficient: 1.19; *P* = .011).

AK, Actinic keratosis; FU, fluorouracil; KC, keratinocyte carcinoma; SCI, Skin Cancer Index.

*Calculated by averaging the means of emotion, symptom, and function subscales (Skindex) or emotion, social, and appearance subscales (SCI).

[†]Developed to estimate burden of comorbidities and calculated as the sum of points assigned to diseases based on severity; diabetes, chronic lung disease, and congestive heart failure counted for 1 point each and malignant tumors (excluding skin cancers) counted for 6 points.

[‡]Calculated as a sum of points for questions assessing ability to bathe, manage money, and do specific physical activities (walk or move a large object), each of which counted for 1 point; these impairments were also examined individually (0 = able to do activity, 1 = unable to do activity).

medical records, and baseline AK count on the face and ears was assessed by study dermatologists. Skindex-29,³ plus 6 KC-specific questions,⁴ and Skin Cancer Index⁵ instruments were used to assess skin-related QoL. Univariable and backwards stepwise multivariable linear regression models were done using software (Stata, Release 8.0, StataCorp, College Station, TX). This study was approved by the VA Central Institutional Review Board, Declaration of Helsinki protocols were followed, and patients gave written informed consent.

Participants (n = 930) with a history of at least 2 KCs in the past 5 years were recruited from 12 VA medical centers. Almost all were Caucasian, elderly, and male (Table I). Worse skin-related QoL was strongly associated ($P \leq .01$) with younger age and greater functional impairments. It was also associated with higher comorbidities, increased sun sensitivity, and history of 5-fluorouracil use (expected to represent past AKs), but largely unrelated to baseline AKs on the face and ears and prior KC count (Table II).

Study strengths include a large study group and use of validated surveys. Limitations include a largely Caucasian, male, elderly population, possibly limiting generalizability of findings. In addition, because we examined skin-related QoL cross-sectionally at enrollment rather than looking at change in skin-related QoL longitudinally over time, there may be other factors that affect skin-related QoL that are not controlled for in this analysis. Finally, much of our data are self-reported and hence may be subject to error.

The VA Topical Tretinoin Chemoprevention (VATTC) trial,⁴ which studied a similar high-risk population, also found that worse skin-related QoL was associated with increased sun sensitivity, history of 5-fluorouracil use, and higher comorbidities, but not with past KCs. In contrast to our findings, however, the VATTC study found that higher current AK count was related to worse QoL. In addition, they found that participants (who had a history of multiple KCs) had worse skin-related QoL compared with a reference population without skin disease.

Together, our findings suggest that chronic conditions of sun damage, which may be accompanied by worry about future skin cancers and increased visits to the dermatologist, may contribute to worse skin-related QoL even though discrete KCs may not. Also, individuals with worse overall health have QoL impacts that may need more dermatologic attention, not less. Consistently inquiring about and addressing patient concerns may be useful for these populations. A comprehensive approach to management of this high-risk population including education,

counseling, and prevention might assist in reducing impacts on QoL.

Information about key personnel of the Department of Veterans Affairs Keratinocyte Carcinoma Chemoprevention trial is listed in the Appendix. All persons who have contributed substantially to this letter are authors.

Julia A. Siegel, BA,^{a,b} Mary-Margaret Chren, MD,^c and Martin A. Weinstock, MD, PhD,^{a,b} for the Department of Veterans Affairs Keratinocyte Carcinoma Chemoprevention Trial Group

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Analyses in this letter are done using prerandomization baseline data of a population that proceeded to be used in a randomized controlled trial, but this letter does not report results from a randomized controlled trial. Clinical trial registry: [ClinicalTrials.gov](https://clinicaltrials.gov). Registration number: NCT00847912.

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Appendix

Key personnel of the Department of Veterans Affairs Keratinocyte Carcinoma Chemoprevention trial

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Clinical centers (unblinded practitioners):

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Ramaswamy, MD⁹; Jennifer Nevas, CRNP¹⁰; Caroline H. Rao, MD¹¹; Allen J. Gifford, PA-C¹¹; Kelly A. Asher, PA-C¹¹; Adela Rambli G. Cardones, MD¹¹; Angela F. Richardson, MHS, PA-C¹¹; Carmen Adams Patrick, PA¹²

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Cooperative studies program clinical research pharmacy coordinating center, Albuquerque, NM: Mike Sather, PhD; Carol Fye, MS; Robert J. Ringer, PharmD, BCNP; David Hunt, MS

Dermatopathologists, Providence, RI: Leslie Robinson-Bostom, MD; Gladys Telang, MD; Caroline Wilkel, MD

Data and safety monitoring board: Harley A. Haynes, MD (chair); Maurice Alan Brookhart, PhD; Eliot N. Mostow, MD, MPH; Thomas Rector, PharmD, PhD

Clinical centers: ¹Bay Pines, FL; ²Hines, IL; ³Palo Alto, CA; ⁴Atlanta, GA; ⁵San Diego, CA; ⁶Minneapolis, MN; ⁷Nashville, TN; ⁸Denver, CO; ⁹Boston, MA; ¹⁰Philadelphia, PA; ¹¹Durham, NC; ¹²Miami, FL
Study personnel who helped to plan and/or oversee the trial but who were not at one of 12 clinical centers do not have locations listed.

Florida school boards restrict access to outdoor sun protection: An observational study



To the Editor: Sun exposure and sunburns during childhood are linked to increased risk for development of skin cancers, premature aging, cataracts, and other eye conditions in adulthood.¹ The consistent use of hats and sunglasses while outdoors may help reduce the risk of these future problems. Florida students are subject to significant sun exposure during outdoor school activities such as recess and physical education classes. Since 2009, Florida law (statute 1001.43b) has provided students with the right to wear hats and sunglasses while outdoors. Nevertheless, many Florida school boards have instituted countywide policies that fully or partially restrict students' rights to these outdoor sun protection measures.

To investigate the current restrictions on outdoor sun protection measures for Florida students, a Google search using the terms, "dress code" and/or "code of conduct" in conjunction with the names of each of the 67 Florida school districts was