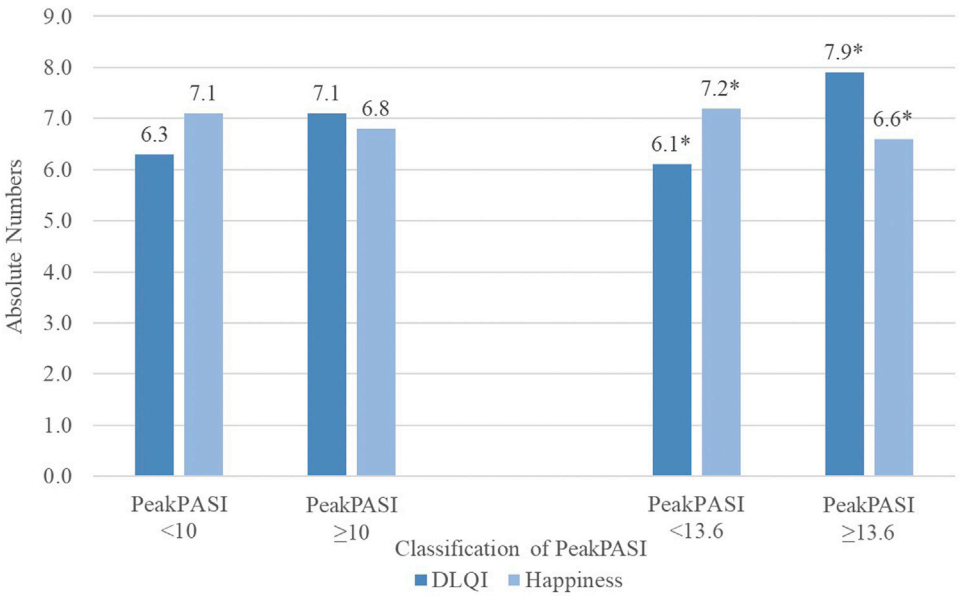

Fig 1. Psoriasis. The DLQI (higher values represent a lower perceived quality of life) and happiness (higher values mean higher happiness) in the study population classified by 2 PeakPASI (the highest ever-documented PASI) thresholds. *Significant at $\alpha < .005$. *DLQI*, Dermatology Life Quality Index; *PASI*, Psoriasis Area and Severity Index.

Funding sources: Supported in part by an unrestricted research grant by Novartis Pharma GmbH, Germany.

Disclosure: Author Tizek was financially supported for the presentation of scientific posters and received unrestricted research grants by Novartis Pharma GmbH, Germany. Author Schielein was financially supported for the presentation of scientific posters by and/or received speaker's honoraria from Novartis Pharma GmbH, Germany and Janssen-Cilag, Germany. Dr Zink has been an advisor and/or has received speaker's honoraria and/or received grants and/or participated in clinical trials of the following companies with psoriasis products: AbbVie, Germany; Almirall, Germany; Amgen, Germany; Celgene, Germany; Eli Lilly, Germany; Janssen-Cilag, Germany; Novartis Pharma GmbH, Germany.

IRB approval status: Reviewed and approved by the local ethics committee of the Medical Faculty of Technical University of Munich (reference 485/17 S).

Reprint requests: Alexander Zink, MD, MPH, PhD, Technical University of Munich, School of Medicine, Department of Dermatology and Allergy, Biedersteiner Str 29, 80802, Munich, Germany

E-mail: alexander.zink@tum.de

REFERENCES

1. Schuster B, Ziehfreund S, Albrecht H, et al. Happiness in dermatology: a holistic evaluation of the mental burden of skin diseases. *J Eur Acad Dermatol Venereol*. 2020;34:1331-1339.
2. Strober B, Karki C, Mason M, et al. Characterization of disease burden, comorbidities, and treatment use in a large, US-based cohort: results from the Corrona Psoriasis Registry. *J Am Acad Dermatol*. 2018;78(2):323-332.
3. Kimball AB, Gieler U, Linder D, et al. Psoriasis: is the impairment to a patient's life cumulative? *J Eur Acad Dermatol Venereol*. 2010;24(9):989-1004.
4. Warren RB, Kleyn CE, Gulliver WP. Cumulative life course impairment in psoriasis: patient perception of disease-related impairment throughout the life course. *Br J Dermatol*. 2011;164(Suppl 1):1-14.
5. Zink A, Herrmann M, Fischer T, et al. Addiction: an underestimated problem in psoriasis health care. *J Eur Acad Dermatol Venereol*. 2017;31(8):1308-1315.

https://doi.org/10.1016/j.jaad.2020.08.096

Cutaneous signs and risk factors for ocular melanoma

To the Editor: Ocular melanoma makes up <5% of all melanomas and can be subdivided into uveal (choroid, ciliary body, iris), conjunctival, eyelid, and orbital melanoma.[1,2] Uveal melanoma is the most common type (83%) of ocular melanoma and is associated with high mortality rates.[1]

Although ophthalmologists are primarily responsible for diagnosing and managing ocular melanoma, dermatologists can play a role in early

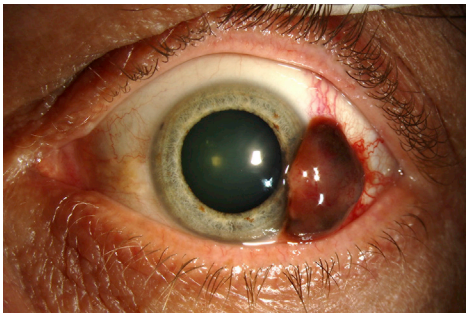

Fig 1. Conjunctival melanoma. Photograph taken by Dr Hatem Krema.

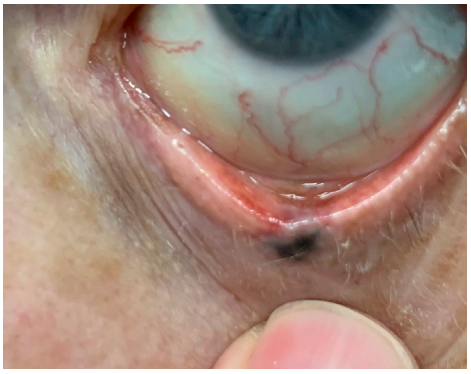

Fig 2. Melanoma extending full thickness on the lower eyelid margin. Photograph taken by Dr Hector McDonald.

recognition and referral for this vision- and life-threatening diagnosis. Dermatologists are in a unique position to arrange screening due to shared risk factors between ocular and cutaneous melanoma as well as the increased risk of ocular melanoma associated with several dermatologic conditions. Each subtype of ocular melanoma has potential cutaneous manifestations (Supplemental Table I, available via Mendeley at https://doi.org/10.17632/26sjznk48d.1ed). We review the risk factors and cutaneous signs for ocular melanoma that might prompt an early referral to ophthalmology.

Risk factors for ocular melanoma include light eye color (blue/grey; relative risk, 1.75), fair skin (relative risk, 1.80), and inability to tan (relative risk, 1.64), but not blonde hair.[1] Whether a history of ultraviolet light exposure is a risk factor remains unclear.[1] Patients with a family history of ocular melanoma, familial atypical mole and melanoma syndrome, xeroderma pigmentosum, and dysplastic nevi also have increased risk of ocular melanoma.[3] Oculodermal melanocytosis (nevus of Ota) increases the risk for both uveal melanoma and orbital melanoma.[1] Occupational exposures (ie, welding) may be associated with uveal melanoma.[3] Finally, patients with primary acquired melanosis of the conjunctiva should be monitored and referred for biopsy, because 13% progress to melanoma when severe atypia is present.[4]

Most cases of uveal melanoma are sporadic, but a small percentage are inherited.[2] Uveal melanomas express *GNAQ*, *GNAQ11*, BRCA1-associated protein 1 (*BAP1*), *EIF1AX*, and *SF3B1* mutations.[2] A germline mutation of *BAP1* can cause BAP1 predisposition syndrome, with higher risk of cutaneous melanoma, uveal melanoma, basal cell carcinoma, malignant mesothelioma, and renal cell carcinoma.[1] Somatic *BAP1* mutations are strongly correlated with metastatic disease in uveal melanoma.[2]

Dermatologists should examine for cutaneous signs of ocular melanoma (Supplemental Table I) and refer to ophthalmology when a patient has metastatic melanoma with an unknown primary. One-tenth of metastatic uveal melanomas involve the skin and subcutaneous tissue (12%) and lymph nodes (11%).[1] Dermatologists should also consider screening patients with shared risk factors for cutaneous melanoma. Because eyelid melanoma presents similarly to cutaneous melanoma, the periocular region should be examined as part of a complete skin examination, with careful attention to the medial canthus region and eyelid creases. Conjunctival melanoma can be visible on the ocular surface (bulbar conjunctiva) (Fig 1) or the palpebral conjunctiva, which can extend to the eyelid margin (Fig 2) and periocular skin. Acquired poliosis of the eyelashes is a subtle cutaneous finding that can suggest a larger conjunctival or orbital melanoma.[5]

In summary, there is a significant overlap in patient populations with ocular melanoma and cutaneous melanoma. By becoming familiar with the cutaneous signs and risk factors associated with ocular melanoma, dermatologists can help improve clinical outcomes for these patients through timely diagnosis and referral to ophthalmology.

The authors thank Hector McDonald, MD, FRCSC (Oculoplastic Surgery, Ottawa, ON, Canada), for providing the photograph of the full-thickness melanoma on the lower eyelid margin.

Katherine Ann McDonald, MD,[a] Hatem Krema, MD, MSc, FRCS, FICO (Hon),[b] and An-Wen Chan, MD, DPhil (Oxon), FRCPC[a]

From the Division of Dermatology, Women's College Hospital,[a] and Ocular Oncology, Princess Margaret Cancer Centre, University of Toronto, Toronto, Ontario, Canada.[b]

Funding sources: None.

Conflicts of interest: None disclosed.

IRB approval status: Not applicable.

Reprints not available from the authors.

Correspondence to: Katherine Ann McDonald, MD, University of Toronto, Women's College Hospital, 76 Grenville St, Toronto, ON M5S 1B2, Canada

E-mail: kmcdo026@uottawa.ca

REFERENCES

1. Kaliki S, Shields CL. Uveal melanoma: relatively rare but deadly cancer. *Eye*. 2017;31:241-257.
2. Helgadottir H, Höiom V. The genetics of uveal melanoma: current insights. *App Clin Genet*. 2016;9:147-155.
3. Nayman T, Bostan C, Logan P, Burnier MN. Uveal melanoma risk factors: a systematic review of meta-analyses. *Curr Eye Res*. 2017;42(8):1085-1093.
4. Shields JA, Shields CL, Mashayekhi A, et al. Primary acquired melanosis of the conjunctiva: risks for progression to melanoma in 311 eyes. *Ophthalmology*. 2008;115(3):511-519.
5. Alsuhaibani AH, Alhumayed M. Primary orbital melanoma with poliosis and a palpable mass. *Arch Ophthalmol*. 2011;129(10):1382-1383.

https://doi.org/10.1016/j.jaad.2020.08.099

The magnitude of increased United States melanoma incidence attributable to ground-level ultraviolet radiation intensity trends

To the Editor: Ultraviolet (UV) radiation contributes to ≥90% of melanomas.[1] The amount of UV an individual receives depends on the time of day, season, time outdoors, cloud cover, altitude, geography, and personal sun-protective measures.[2] The Ultraviolet Index (UVI), provided by the United States (US) National Weather Service, measures daily ground-level UV intensity on a scale from 0 (nighttime) to 16 (noon at high altitudes, equatorial locations). Given the rising incidence of melanoma over the past several decades[3] and the possible association with climate change influences, this study aimed to assess US UVI trends and their potential impact on changes in melanoma incidence (MI).

Published UV intensity data[2] were used to derive the mean UVI during the summer months (June, July, and August) for 54 US cities annually from 2003 to 2019. Results were aggregated into 4 regions—South, West, Midwest, and Northeast—using US Census categorizations. Estimated cases of melanoma were obtained from the American Cancer Society[3] and correlated with US Census data for the non-Hispanic White (NHW) population. Linear regression analysis was performed to determine the relationship between year, UVI, and NHW-MI. The *t* test and analysis of variance with post hoc Tukey-Kramer testing were performed for continuous data comparisons, and χ^2 was performed for categorical analyses.

Linear regression found a significant temporal correlation between mean NHW-MI ($F_{1,15} = 94.423$, $R^2 = 0.863$, $P < .0001$), mean US summer UVI ($F_{1,15} = 15.114$, $R^2 = 0.502$, $P = .001$), and between mean US summer UVI and mean NHW-MI ($F_{1,15} = 6.937$, $R^2 = 0.316$, $P = .019$) (Fig 1 and Supplemental Fig 1, available via Mendeley at https://data.mendeley.com/datasets/fs8yhz3v2f/1). Furthermore, average daily UVI increased across all 54 cities studied (Supplemental Fig 2), with significantly higher increases in mean ± SD summer UVI in the South/West (10 ± 0.03) compared with Midwest/Northeast (0.08 ± 0.01, $P = .001$) (Supplemental Table I). Eleven of 12 states with the highest increasing rate of NHW-MI were from regions with greatest increasing rate of UVI (South/West; $\chi^2_{1,49} = 5.9802$, $P = .0145$) (Table I).

The potential amount of UV radiation received by the average American in the continental US has increased. Our regression model suggests that up to 30% of increases in NHW-MI could be directly or indirectly explained by increasing ground-level UV intensity. Furthermore, this relationship is supported by a significantly disproportionate representation of states in the highest quartile of NHW-MI rate increases located in US Census regions with the highest increases in UVI.

Limitations of the study include that US Census regions encompass overlapping latitudes. Data from Alaska, Hawaii, and Puerto Rico were omitted due to geography, but showed similar trends. Impact of individual UV protective behaviors on UV exposure was not assessed.[4] Non-White census data were excluded to remove this as a confounder to more accurately determine the impact of UVI trends given the lower number of melanomas in the group and the geographic density variance. Also, given the latency between UV exposure and the clinical appearance of melanoma, the current increasing UVI may better correlate with additional future MI increases. However, our studied period and analysis were constrained by the data available.

Our findings suggest rising ground-level UV intensity may have played a role in increasing NHW-MI. Further studies analyzing lag time/latency may help better elucidate this relationship. However, these findings reinforce the importance of physician-patient dialog surrounding UV radiation protective measures and could provide guidance for future public health initiatives to combat rising melanoma incidence.[5]