

Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active. Since the COVID-19 pandemic started, our living and medical environments have significantly changed, as have the frequency and types of exposure to allergens.<sup>4,5</sup> Consequently, patch tests are essential for determining the correct diagnosis in patients with facial dermatitis. Our study could be a useful index for determining the causative allergens in patients with facial dermatitis induced by disposable masks.

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- *Funding sources: This study was supported by grants from the National Research Foundation of Korea (2017R1A2B4006252, 2018R1C1 B6007998) and the Korea Centers for Disease Control and Prevention (2020-ER6714-00).*
- IRB approval status: This study was approved by the Institutional Review Board of Hallym University Kangnam Sacred Heart Hospital (IRB No. 2020-10-016).

### Reprints not available from the authors.

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### **Conflicts of interest**

None disclosed.

### REFERENCES

- Aerts O, Dendooven E, Foubert K, Stappers S, Ulicki M, Lambert J. Surgical mask dermatitis caused by formaldehyde (releasers) during the COVID-19 pandemic. *Contact Dermatitis*. 2020;83(2):172-173.
- 2. Choi SY, Hong JY, Kim HJ, et al. Mask induced dermatoses during COVID-19 pandemic: a questionnaire-based study in 12 hospitals of Korea. *Clin Exp Dermatol.* 2021.
- **3.** Yu DS, Kim HJ, Park YG, Bae JM, Kim JW, Lee YB. Patch-test results using Korean standard series: a 5-year retrospective review. *J Dermatolog Treat*. 2017;28(3):258-262.
- Warshaw EM, Schlarbaum JP, Maibach HI, et al. Facial dermatitis in male patients referred for patch testing: retrospective analysis of North American Contact Dermatitis Group data, 1994 to 2016. JAMA Dermatol. 2020;156(1):79-84.

 Xie Z, Yang YX, Zhang H. Mask-induced contact dermatitis in handling COVID-19 outbreak. *Contact Dermatitis*. 2020;83(2): 166-167.

https://doi.org/10.1016/j.jaad.2021.06.026

## Delayed skin cancer diagnosis in 2020 because of the COVID-19-related restrictions: Data from an institutional registry

To the Editor: During 2020, restrictions applied to limit COVID-19 dissemination radically modified health care services. In Greece, during the lockdown introduced in March, the routine functions of dermatology outpatient clinics were suspended, prioritizing only emergencies, including lesions suspicious for skin cancer, because of rapid growth or clinicians' referrals. This resulted in a reduction in the number of patients examined by approximately 80%. Limited routine diagnostic procedures restarted after 2 months until late October, when a new lockdown was imposed because of a second COVID-19 outbreak.

These health care disruptions raised worldwide concerns about their potential impact on early cancer diagnosis and flow-on effects on morbidity and mortality.<sup>1,2</sup> A United Kingdom-based modeling study demonstrated an up to 10% increase in mortality due to common neoplasms.<sup>2,3</sup>

We retrieved data from an institutional skin cancer registry in Northern Greece to assess the impact of the pandemic on skin cancer diagnosis. We compared the observed and expected numbers of new melanomas (per stage), basal cell carcinomas, and squamous cell carcinomas in 2020. The expected incidence of each tumor and melanoma stage was calculated as the mean of the previous 4 years (2016-2019), assuming that the incidence would remain stable in 2020.<sup>4</sup>

The analytical results are shown in Table I and Fig 1. The total number of new skin cancers was 30.1% lower than the expected number. The reduction was 36.4%, 22.3%, and 44.8% for melanoma, basal cell carcinoma, and squamous cell carcinoma patients were significantly younger at the time of diagnosis in 2020 than those in previous years, and a similar trend was found for squamous cell carcinoma patients, reflecting the increased concerns regarding COVID-19 among elderly individuals. Similarly, a higher-than-expected female representation may mirror the increased fear of severe COVID-19 consequences among men.

Variables	Expected	Observed	P value*
All skin cancers	855	598	<.001
Melanomas	165	105	<.001
Breslow thickness (mm)			
Mean	$1.8 \pm 2.0$	2.2 ± 1.9	.1838 <sup>†</sup>
Median	1.5	1.8	
Melanoma stage			
0	44 (26.7%)	19 (18.1%)	<.001
IA	23 (13.9%)	11 (10.5%)	
IB	29 (17.6%)	19 (18.1%)	
IIA	12 (7.3%)	9 (8.6%)	
IIB	11 (6.7%)	8 (7.6%)	
IIC	6 (3.6%)	8 (7.6%)	
III	19 (11.5%)	15 (14.3%)	
IV	21 (12.7%)	16 (15.2%)	
Age (years)	58.69 ± 15.05	51.12 ± 11.36	< <b>.001</b> <sup>†</sup>
Male:female	1.1:1	1:1	
Previous melanoma history	12 (7.2%)	13 (12.4%)	
Basal cell carcinomas	498	387	<.001
Age (years)	72.6 ± 19.4	67.8 ± 14.66	< <b>.001</b> <sup>†</sup>
Male:female	1.6:1	1.2:1	
Squamous cell carcinomas	192	106	<.001
Age (years)	75.2 ± 9.3	73.4 ± 12.11	.267 <sup>†</sup>
Male:female	2.9:1	2.8:1	

**Table I.** Observed and expected newly diagnosed skin cancers during 2020 in a skin cancer referral center in Northern Greece

Bold means statistically significant.

\*Pearson's  $\chi^2$  test.

<sup>†</sup>Student *t* test.

### 125 pre-COVID lockdown opening lockdown 100 0 75 50 expected observed 25 0 January February March April May June July August September October November December number of new diagnoses in the end of each month

# New skin cancers in 2020

**Fig 1.** Flow of observed and expected new diagnoses of skin cancers by month throughout 2020. The lockdown intervals were characterized by an evident divergence between observed and expected diagnoses.

A substantially lower-than-expected proportion of melanomas was diagnosed at stages 0 and IA and a significantly higher-than-expected percentage at stages IIC, III, and IV. Notably, the number of new melanomas diagnosed in patients with a previous melanoma history was slightly higher than expected, suggesting that high awareness among this group prevented diagnostic delays.

Concerns about potential diagnostic delays for cancers, with subsequent effects on morbidity and mortality, due to pandemic-related disruptions were expressed early in the course of the COVID-19 outbreak.<sup>2</sup> Our results confirm this fear by revealing a reduced number of diagnosed skin cancers and a trend toward a more advanced melanoma stage at the time of diagnosis. A previous study in the United States reported significantly fewer and more advanced melanomas during 2 months in 2020 than in the same period in 2019.<sup>5</sup> Similar observations have been reported for other common cancers.<sup>1-3</sup>

Our results indicate that skin cancer diagnosis is delayed because of COVID-19–related restrictions. Future studies should assess whether this affects melanoma-related morbidity and mortality. Considering the prolonged course of the pandemic, actions toward maintaining open access pathways for skin cancer diagnosis and reclamation of the health care-seeking attitude of the population are mandatory. Teledermatology may facilitate a diagnostic process to decrease the risk of prolonged diagnostic delay for skin cancers.

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Funding sources: None.

IRB approval status: Not applicable.

Reprints not available from the authors.

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### **Conflicts of interest**

None disclosed.

#### REFERENCES

- Richards M, Anderson M, Carter P, Ebert BL, Mossialos E. The impact of the COVID-19 pandemic on cancer care. *Nat Cancer*. 2020;1(6):565-567.
- Maringe C, Spicer J, Morris M, et al. The impact of the COVID-19 pandemic on cancer deaths due to delays in diagnosis in England, UK: a national, population-based, modelling study. *Lancet Oncol.* 2020; 21(8):1023-1034.
- Mitchell EP. Declines in cancer screening during COVID-19 pandemic. J Natl Med Assoc. 2020;112(6):563-564.
- **4.** Lallas A, Apalla Z, Kyrgidis A, et al. Second primary melanomas in a cohort of 977 melanoma patients within the first 5 years of monitoring. *J Am Acad Dermatol.* 2020; 82(2):398-406.
- Shannon AB, Sharon CE, Straker RJ III, et al. The impact of the COVID-19 pandemic on the presentation status of newly diagnosed melanoma: a single institution experience. J Am Acad Dermatol. 2021;84(4):1096-1098.

https://doi.org/10.1016/j.jaad.2021.05.021

## Mild-to-moderate COVID-19 is not associated with worsening of alopecia areata: A retrospective analysis of 32 patients

To the Editor: COVID-19 is a viral, SARS-CoV-2—induced disease associated with systemic immune activation.<sup>1</sup> Patients with COVID-19 have been reported to have substantially higher plasma concentrations of proinflammatory cytokines such as interferon gamma, tumor necrosis factor, interleukin (IL) 6, IL-1 $\beta$ , IL-2, and IL-17A.<sup>2</sup> This has raised concerns about the possible effect of COVID-19 on the course of alopecia areata. The aim of our study was to determine whether COVID-19 infection is associated with worsening disease in patients with pre-existing alopecia areata.

The study included 32 consecutive patients with alopecia areata. All the patients had confirmed, mild-to-moderate COVID-19. The patients' characteristics are presented in Table I and Supplemental Table I, available via Mendeley at https://doi.org/10.17632/8v3s224grh.1. In all the patients, the severity of alopecia tool (SALT) score was assessed during regular check-up visits 1-6 weeks before COVID-19 and 3 months after disease onset. In 5 patients, an