Differences in cutaneous manifestations of COVID-19 during the Delta and Omicron waves revealed using the ZOE app

Linked Article: Visconti *et al.* Br J Dermatol 2022; https://doi.org/10.1111/bjd.21784

Since the COVID-19 pandemic was declared, as of July 2022 over 565 million infections have been confirmed over the world,[1] with different variants of the virus emerging in consecutive waves. Many of those variants have been classified at some point in time as 'variants of concern'[2] due to increased transmissibility or disease severity, the latest ones being Delta and Omicron.

Those variants have been associated with different clinical presentations of the disease, such as patients during the Delta wave being more likely to present with loss of smell, while during Omicron they were more likely to present with sore throat.[3] Little was known until now about differences in presentation in the skin between waves, and the study by Visconti *et al.*[4] provides valuable information.

This community-based study was based on a prospective collection of data from 348 691 users of the UK ZOE COVID Study app, in which users were required to report daily symptoms and results for SARS-CoV-2 testing during the Delta and Omicron waves. Users were matched for age, sex, vaccination status, and self-reported eczema diagnosis between the two waves, and the final sample included 117 879 confirmed SARS-CoV-2 infections and 280 389 unrelated illnesses.

Skin involvement was less common during the Omicron wave than with Delta (11·4% vs. 17·6%), and symptom duration was shorter. Burning rash was the most frequent manifestation (in 7·2% and 11·3% of patients, respectively) and also showed the highest diagnostic value: patients with it had 1·5 times the odds for testing positive for SARS-CoV-2 during the Omicron wave, compared with 2·6 during Delta. In comparison, the odds ratios for fever were 1·9 during the Omicron wave and 3·2 during Delta. Only exceptionally was the cutaneous manifestation the presenting symptom (<1% during both waves). Acral lesions were the least frequent cutaneous finding (0·7% during Omicron and 1·1% with Delta), and are progressively losing frequency compared with the initial COVID-19 descriptions.[5]

A relevant caveat is that the differential findings between waves detected by the app are not based on the identification of the virus variant affecting each patient, but on the timing of the waves and the predominant virus variant at each time. Hence, other characteristics that also change over time might be alternative explanations for the findings. For instance, changes over time in population immunity after previous SARS-CoV-2 infections, or users of the app facing some degree of 'response fatigue',[6] might lead to less registration of skin findings and potentially cause some data to be missing not at random. While the findings might be unrepresentative of some high-risk populations like older patients, and populations at a digital disadvantage, the ZOE COVID Study app has proven to be a powerful data collection tool.

Monitoring cutaneous manifestations while the COVID-19 pandemic continues serves a useful purpose to support diagnosis and may illustrate the changes in the interactions between viruses and population immunity. This strategy could be especially efficient now that, as stated in the paper, several national surveillance studies are being scaled down as the world faces new and emerging challenges.[7]

Mercè Grau-Pérez [iD][1,2] and Ignacio Garcia-Doval [iD][1,3]

[1]*Research Unit, Fundación Piel Sana Academia Española de Dermatología y Venereología (AEDV), Ferraz 100, 1° izda, 28008, Madrid, Spain* [2]*Department of Dermatology, Hospital Universitario Puerta de Hierro Majadahonda, Joaquín Rodrigo 1, 28222, Majadahonda, Spain* [3]*Department of Dermatology, Complexo Hospitalario Universitario de Vigo, Meixoeiro sn, 36200, Vigo, Spain*
Email: merce.grau@equipo.aedv.es

Conflicts of interest: the authors declare they have no conflicts of interest.

References

1 World Health Organization. WHO Coronavirus Disease (COVID-19) Dashboard. Available at: https://covid19.who.int (last accessed 6 September 2022).
2 Centers for Disease Control and Prevention. SARS-CoV-2 variant classifications and definitions. Available at: https://www.cdc.gov/coronavirus/2019-ncov/variants/variant-classifications.html (last accessed 6 September 2022).
3 Menni C, Valdes AM, Polidori L *et al.* Symptom prevalence, duration, and risk of hospital admission in individuals infected with SARS-CoV-2 during periods of omicron and delta variant dominance: a prospective observational study from the ZOE COVID Study. *Lancet* 2022; **399**:1618–24.
4 Visconti A, Murray B, Rossi N *et al.* Cutaneous manifestations of SARS-CoV-2 infection during the Delta and Omicron waves in 348 691 UK

users of the UK ZOE COVID Study app. *Br J Dermatol* 2022; in press; doi: https://doi.org/10.1111/bjd.21784.

5 Galván Casas C, Català A, Carretero Hernández G *et al.* Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *Br J Dermatol* 2020; **183**:71–7.

6 Egleston BL, Miller SM, Meropol NJ. The impact of misclassification due to survey response fatigue on estimation and identifiability of treatment effects. *Stat Med* 2011; **30**:3560–72.

7 Català A, Clavo Escribano P, Riera J *et al.* Monkeypox outbreak in Spain: clinical and epidemiological findings in a prospective cross-sectional study of 185 cases. *Br J Dermatol* 2022; in press; doi: https://doi.org/10.1111/bjd.21790.