multicentre study in 13 European countries. Acta Derm Venereol 2020; **100**:adv00120.

- 2 Tzellos T, Zouboulis CC, Gulliver W et al. Cardiovascular disease risk factors in patients with hidradenitis suppurativa: a systematic review and meta-analysis of observational studies. Br J Dermatol 2015; 173:1142–55.
- 3 Wright S, Strunk A, Garg A. Trends in body mass index before and after diagnosis of hidradenitis suppurativa. Br J Dermatol 2021; 185:74-9.
- 4 Garg A, Neuren E, Cha D et al. Evaluating patients' unmet needs in hidradenitis suppurativa: results from the global VOICE project. J Am Acad Dermatol 2019; 82:366–76.

Psoriasis, COVID-19 and shielding

DOI: 10.1111/bjd.20055

Linked Article: Mahil et al. Br J Dermatol 2021; 185:80-90.

The COVID-19 pandemic has presented clinicians managing immune-mediated inflammatory diseases (IMIDs) such as psoriasis, with many challenges. Patients with severe psoriasis have an increased prevalence of risk factors for severe COVID-19 including obesity, hypertension, diabetes and male sex.¹ Moreover, many systemic treatments for psoriasis are known to increase the risk of severe infection. Therefore, it is understandable that in the early stages of the pandemic, patients on conventional targeted systemic therapies were considered to be at higher risk of severe COVID-19 infection. In addition to risk-mitigating behaviours such as social distancing recommended by the World Health Organization, those who were thought to be more vulnerable, for instance those on immunosuppressants, were advised to adopt stricter measures of social isolation including distancing themselves from other members of their household.^{2,3} There was a pressing need to establish whether patients on immunosuppressive or immunomodulatory medications should continue on their medications.

By early 2020, international registries for patients with IMIDs, such as PsoProtect and SECURE-AD Registry, had been established for healthcare professionals to record cases of COVID-19 and the impact of systemic treatments on outcomes of the infection. Registry data have shown that patients on targeted systemic treatment such as biologics do not appear to be at increased risk of severe COVID-19 compared with those on standard systemic agents or no treatment.⁴ Counterintuitively, patients receiving treatments that block cytokines such as tumour necrosis factor and interleukin-17A appear to have a lower rate of hospitalization from COVID-19.⁵ This could be due to immunomodulatory effects of these drugs on the overproduction of cytokines that contribute to deleterious consequences of severe COVID-19 infection. An alternative explanation is behavioural – perhaps patients on biologics are

less likely to be exposed to the virus because of particularly effective shielding.

PsoProtectMe and the CORE-UK study (COVID-19 Rheumatology Register) are online self-reporting registries for patients with psoriasis and rheumatoid arthritis, respectively, to record their experiences and behaviour during this pandemic. In this issue of the BJD, Mahil et al. characterize the shielding behaviours in 3720 participants with IMIDs from 74 countries, and report on how these differ by treatment type.⁶ Patients were divided into three treatment groups: standard systemic agents (e.g. methotrexate), targeted systemic treatments (biologics and Janus kinase inhibitors) and no systemic treatment. Of the 3720 participants, 2262 reported shielding behaviour. Of those shielding, 1632 were based in the UK and, interestingly, only 899 of them reported having been specifically advised to shield. Along with male sex, obesity and comorbidity burden, the investigators found that the use of targeted systemic treatment was most strongly associated with increased shielding behaviour, compared with standard systemic therapy or no therapy. The reasons for this are unclear, and further studies would be useful to ascertain if there are differences in patient perception of risk across different treatment groups and why this might be. Shielding correlated positively with anxiety and depression, and inversely with larger households and cigarette smoking, suggesting individual factors contribute, as well as the advice received.

Despite the limitations of online self-reporting, for instance access to and literacy in information technology, as well as recall bias, this study provides valuable information both for clinicians caring for patients with IMIDs during this pandemic, and for public health agencies responsible for advising patients on risk-mitigating behaviour. Registries such as PsoprotectMe are vital in helping clinicians understand more about the complicated relationships between psoriasis, its treatments, patient behaviours and COVID-19 infection.

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

References

- 1 Gelfand JM, Armstrong AW, Stacie Bell S et al. National Psoriasis Foundation COVID-19 Task Force guidance for management of psoriatic disease during the pandemic: Version 1. J Am Acad Dermatol 2020; 83:1704–16.
- 2 Guidance on shielding and protecting people who are clinically extremely vulnerable from COVID-19. February 2021. Department of Health & Social Care and Public Health England. Available at: https://www.gov.uk/government/publications/guidance-on-shielding-

British Journal of Dermatology (2021) 185, pp3-18

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and-protecting-extremely-vulnerable-persons-from-covid-19/guidanceon-shielding-and-protecting-extremely-vulnerable-persons-from-covid-19 (last accessed 10 March 2021).

- 3 World Health Organization. Information note on COVID-19 and NCDs. 23 March 2020. Available at: https://www.who.int/publica tions/m/item/covid-19-and-ncds (last accessed 10 March 2021).
- 4 Gianfrancesco M, Hyrich KL, Al-Adely S et al. Characteristics associated with hospitalisation for COVID-19 in people with rheumatic disease: data from the COVID-19 Global Rheumatology Alliance physician-reported registry. Ann Rheum Dis 2020; **79**:859–66.
- 5 Mahil SK, Dand N, Mason KJ et al. Factors associated with adverse COVID-19 outcomes in patients with psoriasis – insights from a global registry-based study. J Allergy Clin Immunol 2020; 147:60–71.
- 6 Mahil SK, Yates M, Langan S et al. Risk-mitigating behaviours in people with inflammatory skin and joint disease during the COVID-19 pandemic differ by treatment type: a cross-sectional patient survey. Br J Dermatol 2021; 185:80–90.

Psychiatric conditions in children with atopic dermatitis

DOI: 10.1111/bjd.20394

Linked Article: Vittrup et al. Br J Dermatol 2021; 185:91–100.

It is well-known that children with atopic dermatitis (AD) have a reduced health-related quality of life that is of a similar magnitude to children with cerebral palsy and diabetes mellitus.^{1,2} It is also known that children with AD have an increased risk of attention deficit hyperactivity disorder (ADHD).³ Less is known about other psychiatric comorbidities in children with AD.

Two recent systematic reviews and meta-analyses^{4,5} found an association between AD and depression among adults and children, with a stronger association in adults when comparing patients with AD with healthy controls.4,5 However, AD was not significantly associated with depression when comparing patients with AD with patients who had other skin disorders.⁵ A significant association between AD and suicidal ideation was also reported.4,5 The majority of the studies in the systematic reviews were cross-sectional (15 of 23⁴ and 36 of 36⁵). The Danish review also included analyses of the association between AD and anxiety, and found a positive association when comparing healthy controls with adults and children with AD together (including only one study in children).⁴ Information on the longitudinal relationship between AD and depression as well as other psychiatric conditions is scarce, particularly for children.

In this issue Vittrup et al., based on well-defined national registries, describe the longitudinal association between hospital-diagnosed AD from birth up to the age of 18 and hospital-diagnosed psychiatric disorders, consultation with a psychiatrist or psychologist, or use of psychotropic drugs among all children born in Denmark between 1995 and

2012.⁶ The control group consisted of 10 matched individuals without hospital-diagnosed AD during the study period (but with possible AD or psychiatric diagnosis in primary care) per child with hospital-diagnosed AD. As previously shown, they confirmed a positive association between hospital-diagnosed AD and hospital-diagnosed ADHD as well as medication used for ADHD.

Unlike previous studies, they did not find any association between hospital-diagnosed AD and hospital-diagnosed depression, anxiety or self-harming behaviour. The longitudinal design of this study probably minimizes the risk of ascertainment bias (having one diagnosis and contact with healthcare increases the risk of picking up more diagnoses on the same visit, which might introduce bias in cross-sectional studies)⁷ and is an important contribution to epidemiological studies analysing the association between AD and psychiatric conditions. However, Vittrup et al. did show a significant association between hospital-diagnosed AD and the use of antidepressants or anxiolytics. Even though this is somewhat contradictory. Including milder cases of both AD and psychiatric disorders (seen in primary care) in the control group might have diluted the association between hospital-diagnosed AD and psychiatric conditions. Another explanation, suggested by the authors, is that psychiatric disorders in children with hospital-diagnosed AD might be transient or milder.

In a population-based setting, when compared with healthy controls, children with hospital-diagnosed AD have an increased association with treatment for psychiatric conditions, but not with receiving a psychiatric hospital diagnosis. This is an important contribution for the exploration of psychiatric comorbidities among patients with AD. Further research should focus on the mechanisms behind this association.

Acknowledgments: I would like to thank Carl-Fredrik Wahlgren for reviewing and commenting on this text.

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Funding sources: the Swedish Asthma and Allergy Association Research Foundation and Hudfonden (The Welander-Finsen Foundation).

Conflicts of interest: E.K.J. has received speaker and consult honoraria from Sanofi-Genzyme and Leo Pharma.

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