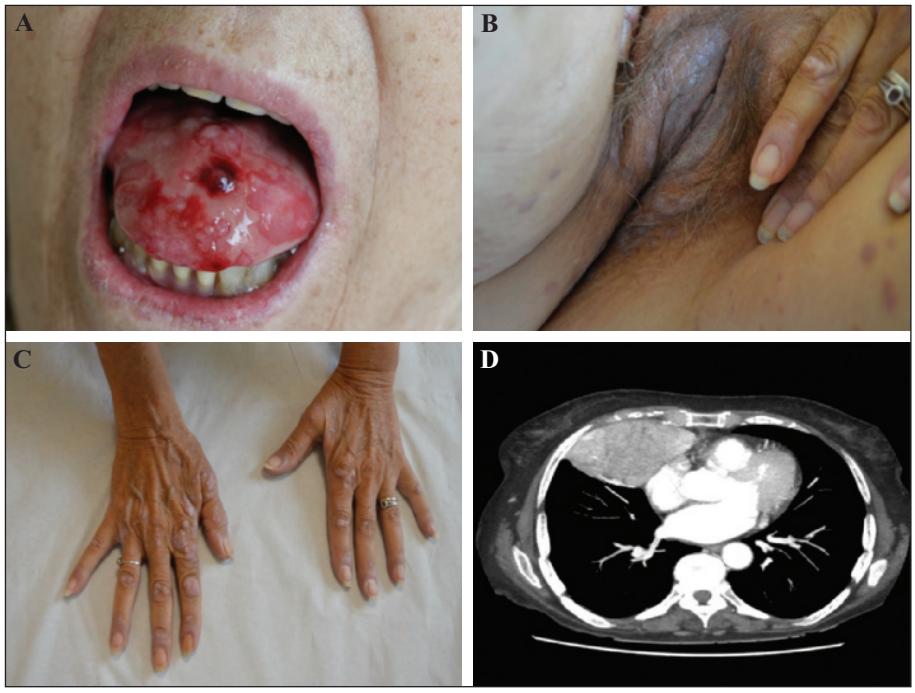

Figure 1. A) Haemorrhagic tongue erosion. **B**) Genital erosions. **C**) Lichen planus of the hands. **D**) Voluminous thymoma, 93 × 80 mm.

indeed, patients with GS frequently develop recurrent infections that could be a predisposing factor for OLP. ■

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Table S1 Characteristics of 16 reported cases of lichen planus in patients with Good syndrome.

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1. Malphettes M, Gérard L, Galicier L, *et al.* Good syndrome: an adult-onset immunodeficiency remarkable for its high incidence of invasive infections and autoimmune complications. *Clin Infect Dis* 2015; 61: e13-9.
2. Macdonald JB, Mangold AR, Connolly SM. Good syndrome and lichen planus: case and review. *J Eur Acad Dermatol Venereol* 2014; 28: 1828-30.
3. Kelesidis T, Yang O. Good's syndrome remains a mystery after 55 years: a systematic review of the scientific evidence. *Clin Immunol* 2010; 135: 347-63.
4. Blanchard M, Méneret A, Moguelet P, *et al.* Lichen plan buccal érosif associé à un syndrome de Good. *Rev Méd Interne* 2010; 31: 498-501.
5. Maehara T, Moriyama M, Kawano S, *et al.* Cytokine profiles contribute to understanding the pathogenic difference between good syndrome and oral lichen planus: two case reports and literature review. *Medicine (Baltimore)* 2015; 94: e704.
6. Baek K, Choi Y. The microbiology of oral lichen planus: is microbial infection the cause of oral lichen planus? *Mol Oral Microbiol* 2018; 33: 22-8.

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The COVID-19 pandemic: implications for patients undergoing immunomodulating or immunosuppressive treatments in dermatology

The spectrum of dermatologic conditions is astonishingly broad and comprises, among others, neoplasms, drug reactions, autoimmune disorders and infections. Consequently, an enormous variety of therapeutic options for skin diseases exists. Immunomodulatory or immunosuppressive agents are prescribed to many patients and biologicals are applied to specifically target signalling pathways and key molecules of innate and adaptive immunity. The exact implications of these treatments and the susceptibility of patients receiving such treatments in the setting of an increased community risk of viral infections are not yet precisely known. Whereas some infections (*e.g.* with Mycobacterium tuberculosis) must be excluded prior to the initiation of immunosuppressive treatment, the presence of viral infections, other than

HIV and Hepatitis B and C, has so far been given little attention. This may change dramatically as the COVID-19 pandemic is currently spreading rapidly around the globe including Europe, and as the majority of patients with dermatologic diseases will inevitably be affected at some point [1].

Conventional immunosuppressive agents (such as glucocorticosteroids, cyclosporine A, methotrexate, and mycofenolate mofetil) are commonly prescribed for inflammatory diseases. Immunosuppressed patients are more susceptible to viral infections and at increased risk of more severe manifestations therefrom [2]. Risk factors for COVID-19 include age ≥60 years and cardiopulmonary comorbidities [3], however, a specific risk assessment and stratification for COVID-19 patients is not yet available. Conversely, recent evidence suggests that infection with SARS-CoV-2 may not cause more severe disease in immunosuppressed patients; acute respiratory distress syndrome (ARDS) induced by COVID-19 may be mediated by an excessive immune response, and could potentially even be improved by immunosuppressants [4-6]. Nevertheless, we believe that iatrogenic immunosuppression is also a probable a risk factor, and that patients with psoriasis or atopic eczema receiving systemic treatments should also be considered at risk of COVID-19. Although the individual risk is currently unclear, it should be discussed critically on a case-by-case basis whether immunosuppressive treatments should be initiated during the zenith of the COVID-19 pandemic. Ongoing treatments may be continued, albeit with caution, after discussion of the pros and cons with the patient, who should be closely monitored for signs of infection.

Chemotherapeutic drugs increase the risk of viral infections, mainly by depleting white blood cells. Patients undergoing cytotoxic chemotherapy are generally at high risk of infections, including COVID-19 [7]. Fortunately, such treatments are increasingly abandoned in dermato-oncology, as targeted therapies and immune checkpoint inhibitors (ICPI) are becoming first-line choices [8, 9]. Although patients treated with ICPI are generally not immunosuppressed, interactions of PD1 and CTLA4 inhibitors with COVID-19 are currently unknown. Furthermore, symptoms of viral infections may mimic immune-related adverse events and could delay their management. Therefore, these patients should be made aware of protective measures and be educated on the symptoms of COVID-19 infection.

In summary, it is very important to assess the risk that each dermatologic patient carries with iatrogenic immunomodulation and immunosuppression, all the more so in the current setting of the COVID-19 pandemic. As solid evidence is currently lacking for almost all conditions and medications in use, treatment decisions must be made after individual assessment of the risk/benefit ratio. Patients with health concerns and a history of infection after iatrogenic immunosuppression could be switched to less immunosuppressive regimens or given a drug holiday. Importantly, a distinction must be clearly made between patients with immunosuppressive treatments or biotherapies for inflammatory or autoimmune dermatoses and those treated for skin cancers with chemotherapy, immunotherapies and targeted agents. In any case, these patients must strictly conform to the measures of containment, quarantine and social distancing that have been recently imposed. Initiation of new treatments should be carefully discussed, as the access to medical care may be limited during the pandemic. We recommend paying special attention to possible risks of immunosuppresive and immunomodulatory therapies for skin diseases during the COVID-19 pandemic. It might be expected that patients with such therapies will have more severe manifestations of viral infections, including COVID-19. Likewise, patients under immunomodulatory therapies, such as ICPI, may have different outcomes in cases of pulmonary inflammation and ARDS associated with high levels of IL-6 in the context of SARS-CoV2 infection. A final evaluation will probably only be possible retrospectively. ■

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1. Spiteri G, Fielding J, Diercke M, *et al.* First cases of coronavirus disease 2019 (COVID-19) in the WHO European Region, 24 January to 21 February 2020. *Euro Surveill* 2020; 25: 9.
2. Englund J, Feuchtinger T, Ljungman P. Viral infections in immunocompromised patients. *Biol Blood Marrow Transplant* 2011; 17: S2-5.
3. Zhou F, Yu T, Du R, *et al.* Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *Lancet* 2020; 395: 1054-62.
4. D'Antiga L. Coronaviruses and immunosuppressed patients. The facts during the third epidemic. *Liver Transpl* 2020; 26: 832-4.
5. Zhu L, Xu X, Ma K, *et al.* Successful recovery of COVID-19 pneumonia in a renal transplant recipient with long-term immunosuppression. *Am J Transplant* 2020; 20 :1859-63.
6. Mehta P, McAuley DF, Brown M, *et al.* COVID-19: consider cytokine storm syndromes and immunosuppression. *Lancet* 2020; 395: 1033-4.
7. Liang W, Guan W, Chen R, *et al.* Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China. *Lancet Oncol* 2020; 21: 335-7.
8. Hodi FS, Chiarion-Sileni V, Gonzalez R, *et al.* Nivolumab plus ipilimumab or nivolumab alone versus ipilimumab alone in advanced melanoma (CheckMate 067): 4-year outcomes of a multicentre, randomised, phase 3 trial. *Lancet Oncol* 2018; 19: 1480-92.
9. Migden MR, Khushalani NI, Chang ALS, *et al.* Cemiplimab in locally advanced cutaneous squamous cell carcinoma: results from an open-label, phase 2, single-arm trial. *Lancet Oncol* 2020; 21: 294-305.

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