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EDITORIAL

The skin in the era of coronavirus pandemic

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The new coronavirus (SARS-CoV-2) has affected the whole world within a couple of months by causing the new disease 'coronavirus disease 2019 (COVID-19)'. While at the beginning the virus was thought to affect mainly the lungs leading to a particularly severe form of pneumonia, it soon became clear that the disease is much more complex. Many other organs may be involved, not only because of the obvious vascular component this infection shows. We as dermatologists are interested in the question: what do we know about the skin in this pandemic?

Since early March 2020, first reports pointed to cutaneous manifestations in patients with COVID-19,[1] followed by an ever-increasing number of letters, commentaries and articles. While some years ago our Journal received a total of approximately 800 articles per year, this same number was submitted within just a single month of April 2020. The steep upward curve of manuscript submissions mirrors the exponential growth of the number of newly infected people in the pandemic. It may either be that writing articles is contagious or – and this is more likely – that some doctors just have more time in front of the computer than working full speed in their offices or hospitals.

We now know that the skin is also affected in a variable proportion of patients with COVID-19, estimated to be between 2% and 20%.[1–3] The clinical symptoms are manifold and unfortunately, they are not always described precisely, often being referred to as 'rash'. If one was to assume that this rash is an exanthematous maculopapular eruption, then one has to recognize that beyond the generic description, the morphology of skin lesions is quite colourful, often allowing only a descriptive diagnosis. Skin lesions described and reported so far have been urticarial, vesicular, pustular, eczematous, acropapular, purpuric, livedoid, chilblain-like and others (see the COVID-19 Special Forum in every issue of our Journal). Sometimes, classical infectious skin diseases may be activated or elicited like herpes simplex or varicella-zoster infection. Of course, the many possible forms of drug hypersensitivity including severe cutaneous adverse reactions (SCAR) must be specially considered.

Of special interest as the skin manifestations that are potentially and specifically related to the COIVD-19 is the occurrence of vascular lesions, be they purpura, livedo, vasculitis or chilblain-like changes on the feet and toes of many patients.[4,5] However, very similar skin lesions have also been observed in other patients living in the same area during the same period but without SARS-CoV-2 as confirmed by PCR tests. Some of these patients, however, were proven to be positive with IgG or IgA antibody tests, giving ground to the assumption they had already overcome the infection.

So far little is known about mechanisms in pathophysiology leading to these events. Although the coronavirus itself has not yet been detected in the skin, the expression of the angiotensin-converting enzyme 2 (ACE2) receptor was identified not only on endothelium but also in skin tissues, especially in keratinocytes.[6] We learn every day something new; it is a time of rapid growth of information.

A variety of pathological conditions have been named as risk factors such as age, diabetes, obesity, cardiovascular disease, hypertension, lung diseases and smoking. Whether oncological diseases, such as skin cancer, or inflammatory skin diseases, such as psoriasis or atopic eczema, are influenced and exacerbated by the virus is not known.

The role of medications given is also under discussion. Should immunosuppressants like methotrexate and cyclosporin in autoimmune diseases, cytostatics in lymphoma, biologics like checkpoint inhibitors in melanoma, or TNF and other cytokine antagonists in psoriasis be stopped? Some expert groups have given position statements to these topics, mostly giving general recommendations to 'be careful during the active phase of infection – but do not generally stop immunomodulating treatment'.[7,8] Inflamed skin might be an easier target for viral infection.

Apart from the skin of our patients, we should also take care of ourselves, that is to say, the skin of many healthcare workers, doctors and nurses in hospitals, care homes and offices. They have to follow strict hygiene rules, including frequent disinfection procedures and hand washings, which are giving rise to cases of hand eczema especially in persons with sensitive skin. Adequate skin protection and skincare with the right type of emollients is crucial.

Moreover, the adverse effects of protective clothing, masks and gloves have to be considered[9,10]; acneiform eruptions, irritative dermatitis and miliaria, just to name a few, have been reported.

The pandemic also influences the way dermatology is practised in the offices and hospitals.[11,12] Teledermatology and telemedicine are gaining momentum. The modes of education for teaching our students and residents are also undergoing a change with the use of virtual meetings and e-learning programmes.

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Some associations are now organizing entirely virtual meetings and conferences, such as EADV's annual congress that had been planned to take place in Vienna this autumn.

We immediately decided that these topics are important and should be featured in JEADV. We started a fast-track peer-review programme for COVID-19-related manuscripts and set up the COVID-19 Special Forum in every issue. These articles are published all free of access. We are also contributing to the COVID-19 hub on Wiley Online Library. The last months have been stressful as there was no 'lock-down' for our Journal. I want to thank the editorial office staff members as well as the associate and section editors who have managed to survive this tsunami of incoming papers. Unfortunately – and I apologize for that – this has led to a steadily increasing rejection rate, which is now at 90–95%.

As a human being, I am touched to see the people suffering and dying, and as a scientist, I am fascinated by this new disease with its dynamics rolling over the world and changing so many aspects of things. Reflecting on this, I am thankful to survive and that I have the chance for the second time in my life to witness the emergence of a new disease spreading over the world. The first time, as I recall, was HIV infection and AIDS 40 years ago when I had the chance to describe the first patient in Bavaria. Diseases are not sent by God to punish people, but they are *experimenta naturae* from which we must learn.

Conflict of interest

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