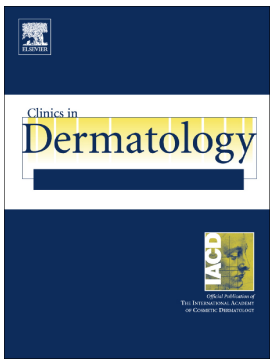

Covid-19 pandemic and the skin - What should dermatologists know?

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Comment and Controversy

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Covid-19 pandemic and the skin - What should dermatologists know?

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Abstract

The World has changed dramatically since the COVID-19 pandemic began. Together with our social, occupational, and personal life, the new corona virus poses novel challenges for all physicians, including dermatologists. Despite the virus not being dermatotropic, several skin conditions have emerged, mainly as a result of prolonged contact to personal protective equipment and excessive personal hygiene. Pressure injury, contact dermatitis, itch, pressure urticaria, and exacerbation of pre-existing skin diseases, including seborrheic dermatitis and acne, have been described. We have focused on the dermatologic aspects of COVID-19 infection, so that dermatologist may be aware of the skin complications and the preventive measures to be taken in the COVID-19 pandemic.

Keywords:

novel corona virus, contact dermatitis, urticaria, maceration, hyperhidrosis, emollient

Abbreviations:

healthcare workers - HCWs

personal protective equipment - PPE

Introduction

In December 2019, a pneumonia of unknown cause was detected in Wuhan, China. It was later disclosed that the new (novel) type of corona virus causes respiratory disease spreading from person-to-person. The outbreak was declared a Public Health Emergency of International Concern on January 30, 2020, and on February 11, the World Health Association defined the new coronavirus disease as COVID-19 (1). Since then, the pandemic has spread to all continents except Antarctica. By mid-March 2020, there have been more than 200,000 cases reported worldwide. Whereas the time for reaching the first 100,000 cases took 12 weeks, only 12 days were needed to reach the next 100000 (1). In the United States, more than 10,000 cases and a total of 150 deaths from COVID-19 infection had been reported until March 21, 2020 (2).

With the current global pandemic, dermatologists, like all physicians, should be aware of COVID-19 infection and any skin manifestations.

COVID-19 infection and the skin in humans

The tropism of the virus for the structures of the bronchial mucosa and the immune system cells with typical histopathologic pattern has been demonstrated by using autopsy specimens from the lung, heart, kidney, spleen, bone marrow, liver, pancreas, stomach, intestine, thyroid, and skin (3). Although the infection also involves changes of the heart, vasculature, liver, and kidney, the typical skin pattern was not initially described. Subsequently, mucosal membranes have been identified as the most common entry for the infection, this includes the conjunctiva with the otic canal having the lowest risk of transmission (4); therefore, specific skin changes due to Covid-19 infection have not been described, and one could expect iatrogenic secondary involvement of the skin.

Because diseases with epidermal barrier interruption could enhance the virus acquisition through indirect contact (5), dermatology patients might be at an increased risk for developing the infection. This suggests that dermatology departments and private offices should develop appropriate preventative measures. (5). Use of a sanitary mask itself may not be sufficient protection from the virus transmission, so that goggles should be used to decrease the risk of conjunctival contamination. COVID-19 has a relatively low-resistance to disinfectants. As a result, a variety of regimens have been proven effective, ranging from 75% ethanol, peracetic acid, chlorine, and UV disinfection to a hot water bath at 56°C(132.8°F) for 30 minutes (4).

Another important practical concern is the care for patients with autoimmune and chronic inflammatory disorders, such as psoriasis, atopic dermatitis, lupus, scleroderma, and hidradenitis suppurativa, which may require immune-suppressive therapy. It is not clear whether the administration of the biologics should be delayed.

Skin problems related to personal protective equipment (PPE) and personal hygiene measures

The skin complications in COVID-19 infection are mainly due to the hyper-hydration effect of PPE, friction, epidermal barrier breakdown, and contact reactions, all of which may aggravate an existing skin disease. The dermatologic manifestations are far different from those recorded during the Influenza Epidemic of 1918-1919 (6). Erythema, papules, maceration, and scaling are the most commonly reported skin changes due to extended wear of PPE (6) (**figure 1**). Symptoms have included burning, itching, and stinging. Such findings have been attributed to the use of PPE in 97.0% of 542 frontline healthcare workers (HCWs). The most commonly affected skin sites were the nasal bridge (83% due to the use of protective goggles but not the

hygiene mask, cheeks, forehead, and hands (6). The prolonged contact with masks and goggles may cause a variety of cutaneous diseases ranging from contact and pressure urticaria or contact dermatitis to aggravation of pre-existing dermatides (4). A former study pointed out that more than 1/3 of health care workers complained of acne, facial itching, and even dermatitis from wearing a N95 mask (7).

The use of protective hats and the accompanying occlusions may induce pruritus and folliculitis or exacerbate seborrheic dermatitis (4). Long-term use of protective gloves leads to occlusion and a hyper-hydration state of the epidermis clinically observable as maceration and erosions (4), possibly leading to the development of contact dermatitis. Exaggerated hand washing with detergents/ disinfectants can impair the hydro-lipid mantle of the skin surface and may also be responsible for irritation and even the development of contact dermatitis\ (**figure 2**). Two-thirds of health care workers will wash their hands over 10 times a day, but only 22% are applying skin protective cream. (7)

The atopic diathesis, low humidity, frequency of hand washing, wet work, glove use, and duration of employment are important risk factors for the development and/or aggravation of hand dermatitis (6). In terms of contact dermatitis prevention, we recommend applying hand cream frequently, especially following hand washing and before applying PPE (4).

Administrative issues

Since the outbreak of the COVID-19 pandemic, a re-structuring for the dermatologic practices is needed. In Bulgaria, several dermatologic wards have been transformed into “covidaria,” utilizing the pandemic-designated hospital structure for the treatment and isolation of patients with COVID-19 infection. A great number of private dermatology practices have temporarily

closed doors. In addition, the scientific communication between dermatologists has been hindered with the cancellation of scientific meetings and academic sessions.

A recent paper underlines the importance of patient triage at the entrance of a dermatology clinic and even the private office in order to regulate the clear vs. dirty flow (7). Where possible, it may prove prudent to conduct outpatient visits with teledermatology or postpone such consultations for non-emergency patients and those with less skin ailments. Where appropriate, wearing a N95 mask (a PPE used to protect the face from airborne particles and liquids with very small dimensions of 0.3 micron) and hand hygiene are recommended during a patient visit (6).

Conclusions

The skin and COVID-19 interactions, as well as the consequences to the skin and mucous membranes of increased personal hygiene measures, should be recognized by dermatologists and their co-workers. The use of preventive measures, including emollients, barrier creams, and moisturizers, is essential in preventing skin complications aggravated by preventive measures during the pandemic.

Figure legends

Figure 1: Facial erythema and papules accompanied by burning and itching in 42-years-old female patients who disinfected her face with 60% ethanol 5 times daily and used protective facial mask for 6 hours a day.

Figure 2: Hand dermatitis resulting from excessive hand washing as a preventive measure in COVID-19 transmission

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Figure 1

Figure 2