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# How dermatology has changed in the COVID-19 pandemic

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**Abstract** The emergence of the coronavirus disease 2019 pandemic has led to a change in the whole world order. The key actors and occupational groups most at risk during this period have been health care professionals. In this pandemic, we, as dermatologists, also have many responsibilities regarding patients, ourselves, and society. Dermatologists have to protect themselves, their families, and their patients while working in pandemic services and outpatient clinics, as well as in their practices. One of their roles is to inform the public about protective measures for cutaneous side effects associated with the intensive use of disinfectants and long-term use of masks. In hospitals, only emergency patients had been admitted for treatment in all units during the pandemic, and elective operations and procedures were delayed. In this context, it is very important to determine what procedures will be carried out during this period in the follow up and treatment of chronic dermatologic diseases, as well as what interventional and cosmetic procedures may be performed. Guidelines issued by various medical societies have made valuable contributions. The benefits and associated issues of teledermatology have pros and cons. Finally, one of the issues to ponder in the long term seems to be how we should pursue online education.

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## Introduction

Severe acute respiratory distress syndrome coronavirus 2 (SARS-CoV-2) is a highly contagious encapsulated RNA virus belonging to the family Coronaviridae.<sup>1</sup> Millions of people have become infected with the virus in a short time, resulting in the coronavirus disease 2019 (COVID-19) pandemic.<sup>2</sup> As do all health care professionals, dermatologists play a key role in this crisis environment. To prevent SARS-CoV-2 contagion, more caution is required during examination of patients and when performing surgical and cosmetic procedures. Different approaches have also been developed

for the planning of treatments in patients receiving systemic therapy. Patients, staff, and colleagues have been educated about using personal protective equipment (PPE) and the dermatologic problems associated with hand hygiene. Recognition of signs and symptoms, especially clinical findings occurring in patients with COVID-19, some of which are newly defined, is essential. During this period, teledermatology has also become an important method for helping patients who cannot visit the physician's office or outpatient clinics. As in all sectors, webinars have been initiated for academic dermatology education. Its value will only be appreciated in the course of time, and whether they will replace congresses and seminars is unknown.

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### *What we encounter in dermatology outpatient clinics*

Although mostly emergency patients were seen in the dermatology outpatient clinics at the beginning of the pandemic, patient examinations have since been initiated with appropriate measures to prevent the spread of the COVID-19 virus.

### *Patient examination*

Examination of patients during the pandemic may present several problems, including every patient as potentially COVID-19 positive. Temperatures are often taken on entering an outpatient facility, and those with fever should be prevented from the visit. Patients should come alone where possible or be accompanied by one person if necessary, and accompanying persons should be kept outside the examination room. Social distancing of 1.5 meters (6 feet) should be maintained in the waiting room, and a surgical mask should be worn in the facility by the patient and the accompanying person. The number of patients should be appropriately limited and determined according to the size of the waiting rooms and the number of patients present in the waiting rooms at the same time.<sup>3</sup>

Social distancing in the examination room is recommended where appropriate. In the severe acute respiratory syndrome epidemic of 2003, no contamination was observed among health care workers who wore gloves, masks, and gowns, as well as those who performed frequent handwashing.<sup>4,5</sup> Physicians and other health care professionals should also wear their PPE. The absence of anyone other than the patient and the doctor reduces the likelihood of contagion. Before and after each patient examination, the clinician should wash his or her hands with soap and water for at least 20 seconds or use disinfectant. It has been found that the coronavirus can stay in the air for up to 3 hours. Keeping the window of the examination room open or ensuring proper ventilation is recommended to reduce the number of potentially virus-carrying droplets being sprayed.<sup>6</sup>

### *Procedures*

When dermatoscopy, cryotherapy, and/or surgical procedures are required, additional precautions may be needed. In surgical procedures, interventional procedures using a N95/FFP2/FFP3 mask, goggles/visor, and/or a gown could be employed in addition to PPE.<sup>7</sup>

Considering that the surface of the dermatoscope is glass and metal, it is appropriate to wipe it with 70% isopropyl alcohol before and after use to prevent possible contamination.<sup>8</sup> A glass material such as a slide, plastic transparent plate, or disposable cap can be placed between the part that contacts the patient and the patient's skin during the examination, but that could be hard to find and expensive.<sup>9,10</sup> If these are not available, the dermatoscope must be wrapped with stretch film.<sup>9</sup> Computerized dermatoscopes or noncon-

tact dermatoscopes are preferred instead of contact dermatoscopes, if available.<sup>11</sup>

For necessary surgical procedures, such as for skin cancer, our clinic has instituted several measures. Some precautions should be taken in the operating room. It would be beneficial to carry out the operations in negative pressure operating rooms with proper ventilation and local anesthesia, if possible, to prevent contamination. It may also be helpful to prolong the time between operations.<sup>12</sup> If there is no negative pressure operating room, the operation should be performed in rooms containing a high-efficiency particulate air filter. It is recommended to start the high-efficiency particulate air filter 30 minutes prior to the surgical procedure and leave it running at least 30 minutes between two procedures.<sup>13</sup>

COVID-19 diagnostic tests should be performed before an operation. In COVID-19 cases operated upon under elective conditions, mortality and morbidity may be higher, even in the viral incubation period.<sup>14</sup>

### *Cosmetic procedures*

During the pandemic, elective procedures have been canceled, and cosmetic procedures postponed. Unfortunately, this has resulted in psychologic stress for the patients who regularly have these procedures. In this period, avoiding deep peeling treatments and laser treatments is reasonable, as they disrupt the skin barrier. Platelet-rich plasma injections are considered useful in the context of COVID-19 infection due to the thrombin they contain, as are the mesotherapy compounds used in androgenic alopecia due to their antiandrogenic effects.<sup>15-17</sup> Such applications can be done under suitable conditions. Procedures using devices, such as high-intensity focused ultrasound, fractional radiofrequency, and cryolipolysis equipped with stainless steel, gold, or plastic handpieces and probes, should be postponed due to the risk of contamination.<sup>6</sup>

### *Systemic treatments*

Weak immunity is considered a facilitating factor for COVID-19 infection.<sup>18</sup> Patients should be continued for treatment with biologics, in particular dupilumab for severe atopic dermatitis, interleukin (IL)-17, IL-12, and IL-23 inhibitors for moderate to severe psoriasis and psoriatic arthritis, IL-6 inhibitors for rheumatoid arthritis and related disorders, and tumor necrosis factor- $\alpha$  inhibitors for moderate to severe hidradenitis suppurativa. The possibility of relapse of the disease after discontinuation of such drugs poses a higher risk to patients.<sup>19-23</sup>

### *Using PPE, hand hygiene, and consequences*

To prevent contamination and provide protection during the pandemic period, frequent handwashing is recommended. This is not without a downside; occasional development of

hand dermatitis, both irritant and allergic in nature can occur.<sup>24</sup>

The US Food and Drug Administration recommends products containing at least 60% ethanol or 70% isopropyl alcohol or benzalkonium chloride for hand disinfection.<sup>25,26</sup> Benzalkonium chloride is less effective than alcohol in killing SARS-CoV-2.<sup>26</sup> Frequent handwashing and wearing gloves for long periods may lead to dryness (70.3%), tenderness (56.8%), pruritus (52.5%), and skin lesions such as desquamation (62.2%), erythema (49.4%), and maceration (39.9%).<sup>27</sup>

Using surgical or N95 masks can also cause a number of skin conditions, ranging from contact dermatitis to flares of seborrheic dermatitis, atopic dermatitis, or rosacea.<sup>28</sup> One report found that long-term wearing of N95 masks may cause acne (59.6%) and irritant or even allergic contact dermatitis (35.8%).<sup>29</sup> Less commonly, there can be mechanical damage such as ecchymosis, maceration, abrasion, and erosions due to wearing N95 masks, goggles, or visors for a long time.<sup>30</sup> Of those wearing a mask, 19.6% had pruritus (itching), and 30% of them lowered the mask to scratch the itching area, which consequently reduced protection.<sup>28</sup> To prevent this pressure, it is recommended to use attachable masks, wear the ear bands of the mask over the bonnet, keep the retroauricular area clean, and apply moisturizer.<sup>31</sup> Another approach to reduce the pressure of the mask behind the ears is by passing the ear bands of the surgical mask to the large buttons sewn on the bonnets used. The most common injuries associated with wearing masks were on the nasal bridge (83.1%) followed by the facial cheeks (78.7%).<sup>28</sup> In a study conducted in China, hydrogel dressings used in leg ulcers were also found to be successful in reducing the pressure of masks worn for a long time.<sup>32</sup> The European Academy of Dermatology and Venereology proposed the same method when using a mask and for wounds caused by masks. It is also recommended applying a transparent spray barrier film to the areas exposed to pressure before wearing a mask. It has been reported that this film will protect and moisturize the skin for up to 6 hours, as well as prevent the mask from contacting the skin.<sup>33</sup> To protect against skin damage caused by PPE, in addition to those measures listed above, it is recommended to work in short shifts, use dye-free products made of quality material, and wear light, comfortable clothing.<sup>30,31</sup>

### Teledermatology and virtual training

Although teledermatology has been known for some time, the pandemic has stimulated its use. Insurance companies in the United States now permit billing for such visits using the 99241 or 9924299241 code, and state boards of registration now allow interstate practice of dermatology.

As a result, teledermatology has come of age with a 10- to 15-fold increase of use through Zoom, FaceTime, and Google Duo.<sup>34</sup> Unfortunately, not all areas of even developed countries have good internet service, or internet service at all.

With various types of quarantine, much training has become virtual. Needless to say, there are many pros and cons for such activity.<sup>35</sup> The question now arises whether such activities will replace the majority of face-to-face visits. Will intellectual and accompanying social interactions be compromised?

## Conclusions

The Spanish Flu epidemic of 1918 to 1919 was a catastrophe equal to the COVID-19 pandemic. Physicians rose to the occasion, and medicine made many advances as a result. Will the sequela of the disease be varied and long-lasting, or will it be obscured, as was the possible association of Parkinson disease with the Spanish Flu? The progress made in teledermatology and virtual learning should prove to be significant.

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