

SHORT PAPER

Coronavirus-days in dermatology

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Abstract

Severe acute respiratory syndrome-corona virus-2, which causes coronavirus disease 2019 (COVID-19), is highly contagious and a particularly popular problem in all around the World and also in all departments of every hospital. In order to protect the well-being of health care providers while providing a sufficient workforce to respond to the COVID-19 are vital for pandemic planning. In this article, we will discuss this problem from a dermatological aspect.

KEYWORDS

COVID-19, dermatology, skin

1 | INTRODUCTION

Coronavirus disease 2019 (COVID-19) has rapidly spread across the world since its identification at the end of 2019. Dermatologists are at a risk due to the close contact with the skin and the mucosa.¹ We present information on COVID-19 management relevant to dermatologists in this pandemic situation and provide related information on dermatology practice. We summarized this coronavirus-related dermatologic condition as five phases; dermatologic education and congress, associated skin problems, treatment of COVID-19 with orphan dermatologic drugs, skin care to prevent COVID-19, and problems of routine dermatologic patients using immunosuppressive drugs.

1.1 | Skin care to prevent COVID-19

There are no available therapies, and the only way to prevent the virus spread is to regularly and thoroughly clean hands with an alcohol-based hand gel or wash them with soap and water for minimum 20 seconds, to maintain at least 1 m distance from anyone who is coughing or sneezing, to avoid touching eyes, nose, hair, ear, and mouth, and to stay home if one feels unwell. The best way to protect everybody against COVID-19 is done by frequently cleaning the hands. By doing this; we eliminate the viruses that may be on our

hands and avoid infection that could occur by then touching our eyes, mouth, and nose. Some antiseptics such as alcohol or chlorine can try to kill the viruses that have already entered our body. But these substances can be harmful to clothes or mucosal surfaces including eyes and mouth. Soap works better than alcohol and disinfectants at destroying the structure of viruses. Soap dissolves the fat membrane, and the virus falls apart like a house of cards and “dies,” or rather, it becomes inactive as viruses are not really alive. Viruses can be active outside the body for hours, even days. Disinfectants, or liquids, wipes, gels, and creams containing alcohol have a similar effect but are not as good as regular soap. Apart from alcohol and soap, antibacterial agents in those products do not affect the virus structure much. Consequently, many antibacterial products are just an expensive version of soap for virus killing. Soap is the best, but alcohol wipes are good when soap is not practical or handy, for example, in office reception areas. Soap contains fat-like substances known as amphiphiles, structurally similar to the lipids in the virus membrane. The soap molecules “compete” with the lipids in the virus membrane. That is more or less how soap also removes the normal dirt of the skin. The soap molecules also compete with a lot of other non-covalent bonds that help the proteins, RNA and the lipids to stick together. The soap is effectively “dissolving” the glue that holds the virus together. When you add to that all the water it is even better. The soap also outcompetes the interactions between the virus and the skin surface. Soon the virus gets detached and falls apart like a house of cards due to the combined action of the soap and the water.²

Alcohol-based products include all “disinfectants” and “antibacterial” products that contain a high share of alcohol solution, typically 60% to

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80% ethanol, sometimes with a bit of isopropanol, water, and a bit of soap. Ethanol and other types of alcohol do not only readily form hydrogen bonds with the virus material but, as a solvent, are more lipophilic than water. Hence, alcohol does dissolve the lipid membrane and disrupt other supramolecular interactions of the virus. However, you need a fairly high concentration (may be 60%-plus) of the alcohol to get a rapid dissolution of the virus. To sum up, viruses are almost like grease-nanoparticles. They can stay active for many hours on surfaces and then get picked up by touch. Then they get to our face and infect us because most of us touch our face frequently. Water is not effective alone in washing the virus off our hands. Alcohol-based products work better. But nothing beats soap—the virus detaches from the skin and falls apart readily in soapy water. Supramolecular chemistry and nanoscience tell us not only a lot about how the virus self-assembles into a functional, active menace, but also how we can beat viruses with something as simple as soap.³

1.2 | Skin manifestations of COVID-19

According to the literature knowledge, we can see erythematous rash, petechia, urticaria, and vesicles during COVID-19 infection as 20%. In my opinion, we will also see erythroderma, erythema nodosum, erythema multiforme, pruritus, and different rashes associated with COVID-19 in the future. Also we have a risk of COVID-19 vaccine-related skin eruptions in the future years like other viral vaccine-related eruptions such as urticaria, scleroderma, and maculopapular rashes.^{4,5} If our patients have atypical skin rash associated with fever, cough, and shortness of breath; we must think COVID-19 associated skin rash as the differential diagnosis.

During this COVID-19 pandemic, we can see skin problems associated with the personal protective equipment in health care workers. Medical masks can induce acne vulgaris, rosacea, irritation, ecchymosis, and even erosions. We can recommend topical benzoyl peroxide, retinoic acid, antibiotics for acne vulgaris; topical metronidazole, and azelaic acid for rosacea, barrier creams to prevent facial irritation and also frequent changing of the mask. Medical gloves can cause maceration and contact dermatitis responding well to topical steroids and moisturizer creams. We can recommend regularly changing of the gloves especially of latex-free type. Frequent washing of the hands with soap and also using antiseptics may induce allergic and irritant contact dermatitis. We can advise moisturizer and barrier creams after cleaning and also bar soaps with moisturizers.⁶⁻⁸

1.3 | Dermatologic patients and COVID-19

After COVID pandemic, we postponed all nonurgent dermatological procedures such as biopsy, electrocauterization, cryotherapy, patch and prick tests, dermoscopy, and all aesthetic dermatology interventions in Mersin University like in all other dermatology departments. We discharged all hospital inpatients who are medically fit to leave and in these days we have only four inpatients in our department. We

also minimized all nonessential outpatient appointments and we accept only serious and emergent cases now. We are trying to use telemedicine, WhatsApp, e-mail, or phone for simple skin issues in our city.

There is a very limited evidence base to formulate a specific advice for dermatology patients on immunomodulators with regards to COVID-19. The following is based on expert opinion, taking into account the known risks of other RNA viruses. There are complex interactions between coronaviruses' replication and host immune response in COVID-19. Since there are limited studies, we need more information on the risk of immunosuppression in patients exposed to this virus.⁹ We can propose that mono-immunosuppressive therapy, target therapies, immunomodulatory agents such as intravenous immunoglobulin, acitretin, etc. in the presence of significant comorbidities including diabetes mellitus, hypertension, and obesity. We should do a patient-by-patient evaluation about ongoing treatments in patients with psoriasis, lupus erythematosus, lichen planus etc.

1.4 | Dermatologic education and congress

In our university, standard medicine student education was canceled due to COVID-19 outbreak. All universities created e-learning programme such as webinar, online lectures with PowerPoint slides, and also online conversations. After March 2020, all national and international congress, symposiums, and training events have been canceled or postponed due to COVID-19 pandemic. We barely accomplished our international INDERCOS congress in 11 to 14 March 2020 and more than 20 international and national lecturers could not come because of COVID-19 including our Honorary Congress President Prof Lotti.

1.5 | Treatment of COVID-19 with orphan dermatologic drugs

We use hydroxychloroquine for the treatment of discoid lupus erythematosus and understand its relative safety. Hydroxychloroquine and chloroquine have antiviral activity against COVID-19 in vitro and in small uncontrolled clinical studies with limited and inconclusive results. In COVID-19, a small non-randomized study from France indicated some benefits with serious methodological flaws, and a follow-up study still lacked a control group. However, another very small, randomized study from China in patients with mild to moderate COVID-19 found no difference in recovery rates. Sadly, reports of adverse events have increased, with several countries reporting side-effects including ventricular arrhythmias, QT prolongation, other cardiac toxicities, ocular toxicity, and even death. We should know that these drugs may pose particular risk to critically ill persons. Due to the remarkable pharmacokinetics and efficacy, azithromycin with immunomodulatory and anti-inflammatory properties, is well established as a potent treatment for some skin diseases such as rosacea, psoriasis, and synovitis, acne, pustulosis, hyperostosis, and osteitis (SAPHO) syndrome. Combining hydroxychloroquine with the antibiotic

azithromycin has also been associated with positive patient outcomes according to low-powered France study.¹⁰ Whether this results in better clinical outcomes—that is, if patients recover more quickly—is still being debated.

Colchicine has been used to treat various dermatologic diseases, some of which are quite seldom, which include Behçet's disease, epidermolysis bullosa acquisita, recurrent oral aphthosis, cutaneous vasculitis, chronic urticaria, and Sweet syndrome for its anti-neutrophilic immunomodulatory effect. In the last clinical trial called COLCORONA (Colchicine COVID-19 Trial), colchicine is being used to reduce the inflammatory reaction caused by COVID-19 that can lead to pulmonary involvement, organ failure, and death. It will be used for its anti-inflammatory and anti-cytokine storm effects when treating COVID-19.¹¹

A variety of repurposed drugs and investigational drugs have been identified for COVID-19 treatment. However, evaluation of investigational agents requires adequately powered, randomized, controlled trials with realistic eligibility criteria, and appropriate stratification of the patients.

2 | DISCUSSION

These are globally uncertain and testing times. We can prefer webinar and online education models, online examinations, and online patient examination until the COVID-19 pandemic is over. But the most important thing is that we have to work together as a professional community to support one another, therefore upcoming challenges will undoubtedly create learning experiences for us all. Literature knowledge suggests that humans have been afflicted by viruses throughout their evolutionary history, although the number and the types have changed. Endogenous retroviral insertions since the divergence between humans and chimpanzees were capable of directly affecting hominid evolution through changes in gene expression and development. It is estimated that there are about 10^{31} viruses on Earth and most of the viruses are bacteriophages, and most of them are in the oceans. The Human Genome Project has revealed the presence of numerous viral DNA sequences scattered throughout the human genome. These sequences make up around 8% of human DNA, and appear to be the remains of ancient retrovirus infections of human ancestors. These pieces of DNA have firmly established themselves in human DNA. Most of this DNA is no longer functional, but some of these friendly viruses have brought with them novel genes that are important in human development.^{12,13} Questions remain regarding that COVID-19 pandemic is whether or not a major driver of human evolution.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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