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Editorial Note on Ultraviolet Diagnostics and Dermatology Treatments in COVID-19

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Editorial

Due to its antiproliferative and immunosuppressive effects, ultraviolet (UV) therapy is an effective and well tolerated therapeutic tool for various dermatologic conditions. Broadband UVB, narrowband UVB, UVA1, PUVA and excimer laser therapy include contemporary phototherapy (PhT). The 2019 pandemic of coronavirus disease (COVID-19) has resulted in the closing of many patient care facilities worldwide, including phototherapy units. For several patients with chronic dermatosis, home phototherapy, thalassotherapy and other UV-therapy modalities are an option. Possible associations between UV-therapy effects and the COVID-19 pandemic have been highlighted and based on organization and interventions against infection transmission in phototherapy units. Dermatology departments have reopened their units, reviewing patient costs and benefits, optimizing safety regulations and complying with disinfection laws.

Since December 2019, the novel coronavirus disease 2019 (COVID-19) caused by the SARS-CoV-2 virus has been a global health concern. As of August 15th, 2020, the World Health Organization (WHO) recorded 21 026 758 cases with COVID-19 and confirmed 755 786 deaths worldwide. The fatality rate of the disease is many times greater than that of influenza, acute respiratory distress syndrome caused by proinflammatory responses and oxidative stress is the leading cause of death.

It is very difficult to manage treatment choices in patients with chronic dermatologic disorders at the time of the pandemic. Patients with many dermatoses lacked with the closure of several dermatology facilities, including their phototherapy units.

It is well known that UVC radiation, with an intensity of 3.75 mW/cm2 for 60 seconds, will inactivate the SARS-CoV-2 virus and disrupt the transcription, translation and replication of viral RNA. UV-light, temperature, environment and COVID-19 this technique is commonly used to clean respirator masks and shields, as well as other personal protective devices. Robot-controlled surface disinfection in hospitals and microbial inactivation of food are other UVC-based germicidal applications. As a UV germicidal substitute, UVB light is also identified as a promising candidate. In several dermatological offices and departments worldwide, UVB therapeutic devices are available; however, there is not enough evidence to date for its efficacy. High-dose UV radiation degrades polymer materials, which can reduce the respirator's effectiveness and safety ability when disinfected by this process.

Alterations of the hematopoietic system and hemostasis are one of the pathological symptoms of the SARS-CoV-2 virus, inducing the accumulation of iron ions in the bloodstream. Iron deposition is capable of causing an inflammatory process leading to an increase in dehydrogenase C-reactive protein, albumin, and lactate. ORF8 and other surface glycoproteins of COVID-19 can bind to porphyrin and thus form protoporphyrin that affects the ability of hemoglobin to transport. The stability of the iron ion bond with the pyrrolic ring of the hemoglobin molecule increases after in vitro photon absorption, thus preventing the heme from losing its oxygen transport role. Since porphyrins have a peak of absorption at 640 nm and the peak of HbO2 absorption is centered at 900 nm, As a promising therapeutic tool, the irradiation of COVID-19 patients with close-infrared region light with a range between 630 nm and 1000 nm has been suggested. This technique is in a clinical trial for both bacterial pneumonia and in the COVID-19 pandemic, several dermatologic disorders could be exacerbated. PhT units should take the decision to reopen, taking into account the available patient and staff safety advice. There are discordant views regarding the effect of classic cytostatics and biologics on psoriasis during the COVID-19 outbreak. This makes it a valuable alternative to phototherapy.

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