

Impact of COVID-19 Pandemic on Dermatologists and Dermatology Practice

Abstract

The COVID-19 pandemic has directly or indirectly affected every human being on this planet. It's impact on the healthcare system has been devastating. The medical fraternity across the world, including India, is facing unprecedented challenges in striving to cope up with this catastrophic outbreak. Like all other specialties, dermatology practice has been profoundly affected by this pandemic. Measures have been taken by dermatologists to control the transmission of the virus, whereas providing health care to patients in the constrained environment. Preventive measures such as social distancing and hand hygienic practices along with patient education is being prioritized. Dermatological conferences and events scheduled across the globe in the first half of year 2020 have been either cancelled or postponed to discourage gatherings. Rationalization of resources and practice of tele dermatology are being encouraged in current scenario. Non-urgent visits of the patients are being discouraged and elective dermatology procedures are being postponed. Many national and international dermatology societies have recently proposed recommendations and advisories on usage of biologicals and immunomodulators in present context of COVID-19 pandemic. Urticarial, erythematous, varicelliform, purpuric and livedoid rash as well as aggravation of preexisting dermatological diseases like rosacea, eczema, atopic dermatitis, and neurodermatitis rash have been reported in Covid-19 patients. Self medications and poor compliance of dermatology patients in addition to lack of proper treatment protocols and monitoring are a serious concern in the present scenario. Strategies for future course of action, including the dermatology specific guidelines need to be framed. This issue includes a special symposium on dermatology and COVID-19 having recommendations from special interest groups (SIGs) of Indian Association of Dermatologists, Venereologists and Leprologists (IADVL) Academy on leprosy, dermatosurgery, lasers and dermoscopy.

Keywords: COVID-19, dermatological, developing

The outbreak of novel corona virus infection (severe acute respiratory syndrome-SARS CoV-2) has taken a humongous toll on human lives both physically and mentally. As of April 14th 2020, 1.9 million cases have been reported while 0.12 million lives have been lost worldwide to this deadly viral disease and the numbers are increasing exponentially.^[1] The number of cases in India at present is 10,541 and 358 deaths. The outbreak which started towards end of 2019 has resulted in a serious economic slump throughout the world. Healthcare workers all over the world are facing innumerable problems, dermatologists being no exception.^[2] People dwelling in developing countries are more at risk due to overcrowding, lack of proper sanitation

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and limited healthcare infrastructure. Medical fraternity working under such environment are prone to higher risk due to the presence of asymptomatic carriers of the infection and lack of adequate personal protective equipments. Family members of the healthcare workers (HCW) are also at greater risk of transmission of infection from them.^[3,4] In China, the primary epicentre of the pandemic, an estimated 3,000 HCW have been infected and at least 22 have died. About 8,358 HCW have contracted COVID-19 in Italy as per the Italian Higher Health Institute (ISS), while 109 doctors have already lost their lives in this pandemic till now.^[5] The impact of the outbreak on HCW is following similar pattern in developing countries like India. The quality of life among healthcare workers is also taking a brunt with most of

How to cite this article: Bhat YJ, Aslam A, Hassan I, Dogra S. Impact of COVID-19 pandemic on Dermatologists and Dermatology Practice. Indian Dermatol Online J 2020;11:328-32.

Received: 01-Apr-2020. **Revised:** 14-Apr-2020.

Accepted: 14-Apr-2020. **Published:** 10-May-2020.

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Access this article online

Website: www.idoj.in

DOI: 10.4103/idoj.IDOJ_180_20

Quick Response Code:



the doctors complaining of physical exhaustion and mental fatigue with every passing day. Higher rates of distress, anxiety, and depression has been seen in HCW caring for patients of corona virus infection.^[6]

Dermatology practices are also affected, though to a lesser extent than the front-line departments attending emergency and intensive care units dealing directly with suspected and confirmed COVID-19 patients. Cutaneous manifestations of COVID-19 may be rare but no other disease has ever had a more profound effect on dermatologists and their practice.^[7] As the outbreak knocked at the doors of India on 30th Jan 2020 and subsequently after release of advisories from Indian government since then, many policies and precautions have been implemented by the dermatologists in their practice to tackle this pandemic. Outpatient consultations have dramatically reduced during the nation-wide lockdown in India from 24th March to 3rd May 2020. Routine outpatient clinics are nonfunctional or discouraged throughout the country, aided by increasing the gap of follow-up of patients by the treating dermatologists. Guidelines for rational use of the resources and manpower in most of the institutions have led to considerable decrease in working hours of routine departments.

While taking history pertaining to the cutaneous involvement, suspicion of COVID-19 is kept in mind for those having fever with urticaria, exanthematous or vesicular rash. History of travel and respiratory symptoms are being enquired for.^[8] As dermatological examination requires a close inspection and often palpation, avoiding contact during examination, maintaining adequate distance from the patient, using alcohol based sanitizers, disposable gloves, frequent hand washing with soaps, periodic disinfection of the rooms and working preferably in negative pressure rooms while performing procedures is being practised judiciously by dermatologists. Triple layered surgical masks or N 95 masks are being used to prevent aerosol spread. Bedside investigations like dermatoscopy are better avoided or done with precautions but essential laboratory investigations are being carried out regularly. Elective dermatosurgical procedures, hair transplantation, laser sessions, aerosol generating, and aesthetic procedures have been almost stopped completely as the virus is most stable on plastic and stainless steel.^[9] Same is the case with phototherapy since the chamber used can become a source of infection despite adequate sanitation. Only very sick patients with dermatologic emergencies and acute skin failures are admitted in hospitals.

Rational use of biologics with specific avoidance of rituximab and immunosuppressive pulse therapies in newly diagnosed patients is being practiced by dermatologists in India; however, patients are being kept on minimal doses of immunosuppressive therapy to avoid flare of the diseases. A key aspect of risk mitigation is prevention of COVID-19 in at-risk populations.^[10] American academy

of dermatology (AAD) recommends to discontinue or postpone biologics in COVID-19 positive patients while the physicians need to assess their use in patients who have not tested positive or exhibited signs and symptoms of COVID-19 on case by case basis.^[11] The International Psoriasis Council recommends dermatologists to discontinue or postpone immunosuppressant medications for psoriasis patients diagnosed with COVID-19 infection, however apremilast can be continued unless severe symptoms are present.^[12] In confirmed cases of COVID-19 infection who are on systemic steroids for dermatological disorders, it can be continued with tapering doses. However, in patients at higher risk or elderly with co-morbidities, benefit to risk ratio of any immunomodulator needs to be carefully assessed with lower doses recommended.^[13] British Association of Dermatologists (BAD) have also provided guidelines with respect to patients on immunosuppressive medications in current times advising patients at definite high risk or with comorbidities who are on two agents within the class of immunosuppressants (methotrexate, azathioprine, mycophenolate, ciclosporin, fumaric acid esters, 6-mercaptopurine, leflunomide, cyclophosphamide, tacrolimus, sirolimus) or biologics/Monoclonals (all anti-TNF drugs, IL 17 agents, anti B cell, IL 6 agents, IL1) or novel small molecule immunosuppressants (apremilast, JAK inhibitors); corticosteroid dose of ≥ 20 mg of prednisolone per day for more than 4 weeks; cyclophosphamide at any dose orally or if received intravenous within last 6 months; rituximab or infliximab; to undergo shielding with self isolation upto 12 weeks. Well-controlled patients with minimal disease activity and no co-morbidities who are being treated with single agents of immunosuppressants or biologics or topical treatment need to maintain social distancing.^[14] Patients on dupilumab or omalizumab have possibly lower risk of infection than other biologics. They have further recommended to continue medications like acitretin, isotretinoin, hydroxychloroquine, sulfasalazine or dapsone following proper monitoring protocols along with social distancing.^[15] However these guidelines advise tele dermatology for remote patients and avoid hospital visits by patients as much as possible.^[16] Recommendation for leprosy patients is to continue multidrug therapy (MDT), provide medications for 2-3 months in order to decrease their hospital visits and advise them to take all precautions to control the outbreak. However, patients being treated for leprosy reactions mandate extra caution as therapeutic immunosuppression makes them vulnerable to COVID-19.^[17] Although there are no guidelines recommended for the treatment of advanced skin cancers with regards to COVID-19, successful management with sonidegib and vismodegib (hedgehog inhibitors) after satisfactory compliance to treatment in advanced basal cell carcinoma has been reported.^[18]

Patients are also advised to resort to tele dermatology though the majority of patients and dermatologists in developing

countries as of now are not very familiar with its routine use in clinical practice. Telemedicine is a very useful tool in the current scenario where physical contact with the patient can be avoided to curb the outbreak. Dermatologists can utilise this tool better than many other specialities mainly because of the advantage of snapshot diagnosis possible in many of dermatological diseases. Modes of communication include video, audio and text based. Whatsapp, facebook messenger, skype, and email are the virtual tools being used for teledermatology practices. It seems that dermatology practice has shifted from bedside to phone-side in this pandemic.^[19] Telemedicine practice guidelines have been established by the board of governors in supersession of Medical Council of India to enable registered medical practitioners to provide health care using telemedicine. It has been encouraged more than ever before during these times. MCI recommends development of an online course to be completed by a registered medical practitioner to practise telemedicine.^[20] There is an updated framework for telemedicine in the COVID-19 pandemic which needs to be applied at a large scale to improve the public health response so as to integrate telemedicine within health systems for postpandemic times as well.^[21] Investments in teledermatology, apart from being assets in current times, will reap long-term benefits by serving as remote service both for the patients not able to attend routine appointments and also to dermatologists.^[22] A guest editorial in this issue by Ashique and Kaliyadan gives detailed recount of teledermatology and its current perspective in evolving COVID-19 scenario.

The impact of this outbreak on postgraduate and undergraduate dermatology teaching, as well as the scientific research in medical colleges and institutions is profound. MD/DNB postgraduate dermatology examinations scheduled for May-June 2020 session have been postponed in most of the medical colleges across India. Online seminars, journal clubs, and case discussions have been resorted to combat the academic hour loss in institutions. For continued medical education, digital podcasts and blended learning concepts as well as inverted classroom approaches provide the required solution in this time of crisis.^[23] Virtual meetings and webinars are being conducted instead of conventional medical conferences while many healthcare professionals are of the opinion that it is a better way of interaction even after the pandemic is over in view of saving both time and expenses with optimal benefits.^[24] On a positive note, the manuscripts submitted to this journal have increased almost three folds over these weeks likely to be due to dermatologists having more time in hand during lockdown to complete their pending academic work and paper writing. However, it's hard time for editorial team to process many daily submissions amidst limited workings of publisher, technical and supporting teams.

As dermatologists, we should be aware of the cutaneous manifestations of COVID-19. Aggravation of previous

skin diseases such as rosacea, eczema, atopic dermatitis, and neurodermatitis has been seen in COVID patients.^[8,25] Urticarial, erythematous, and varicelliform rash and even pseudo-frostbite like acro-ischemic lesions have been reported.^[26,27] Rare presentations mimicking dengue rash and vaso-occlusive unilateral livedoid eruption have also been seen.^[28,29] As only limited data are available regarding the dermatological manifestations of the disease as of now and the early pointers to vasculitic or vasculopathic pathogenesis, there is definitely scope for more careful observations and studies in near future. Due to frequent hand hygienic practices, many people and HCW dealing with COVID-19, as well, are complaining of xerosis, fissuring and hand eczema, requiring dermatologists to prescribe use of suitable moisturisers.^[30] Some dermatology departments have introduced colour coding system depending upon the severity (white, green and yellow for less, moderate and high severity dermatological pathologies, respectively) to provide consultations accordingly.^[31] Many clinicians have resorted to teledematology in routine cases while reserving in-person visits for emergency patients.^[32] Following the virus surge, dermatologists in many hospitals are being posted to work in dedicated COVID-19 wards and emergency screening area including training in basic life support and ventilation.^[33]

Many stringent measures have been taken by the government of India to curb this growing pathological phenomenon. Dermatology conferences and events have been cancelled throughout the country in view of the advisory from the government.^[34] The national and international dermatology society meetings are taking place on various online platforms. Indian association of dermatologists, venereologists and leprologists (IADVL), one of the largest dermatology association in the world, was also prompt to issue position statement for its members with the objectives of providing strategies to combat COVID-19 in dermatology practice in the form of education about the prevention of transmission; avoiding all non-essential outpatient consultations and elective procedures; stressing upon the dermatologists to be updated with ever changing scenarios and guidelines, canceling travels and gatherings including CMEs, meetings, and conferences and recommendations about the use of immunosuppressives and biologics in patients.^[35] Government has even come up with a guide “minding our minds during the COVID-19 pandemic” to make people understand the importance of lockdown as well as advising people not to resort to alcohol or drugs to cope with emotions or boredom during lockdown.^[36] “Aarogya Setu”, a new user data based corona virus tracking mobile internet application has also been launched by the government of India to combat the pandemic which warns people if they had recently come near the infected people and assess their risk to acquire infection.^[37]

Multiple clinical trials are being carried out throughout the world to find a cure to this infection. Antivirals like

remdisivir or favipiravir have been used. Anti-malarial drug hydroxychloroquine alone or in combination with azithromycin has been studied the most which has shown promising results though larger studies and metaanalysis is lacking.^[38] The side effects of the these drugs especially cardiotoxicity narrows down its option of wide use. Indian Council of Medical Research (ICMR) recommended prophylactic use of hydroxychloroquine in high risk populations including HCW.^[39] However, the potential of hydroxychloroquine to treat COVID-19 and thus having huge surge in its demand has created fears of shortage among its chronic users of various dermatology and connective tissue disorders especially lupus erythematosus where disease control is highly dependent on this medication.^[40] There are also reports of exacerbation of psoriasis in a patient of COVID-19 treated with hydroxychloroquine which raises the question whether there will be an increase in number or flare in psoriasis cases during the pandemic.^[41] Ivermectin, FDA approved drug for parasitic infections, has also been recently reported to inhibit SARS COV-2 virus *in vitro*.^[42] Both these drugs are routinely prescribed by the dermatologists and their rampant use for COVID-19 prophylaxis may lead to scarcity for dermatological patients.

Self-medication and lack of compliance to prescribed treatments have become a worrisome issue of dermatological patients in present scenario. Lack of proper treatment protocols and monitoring is also adding to the misery. Measures such as taken by Chen *et al.* for patient safety at Chinese dermatology clinics need to be enacted in our setting as well. Temperature of the patient and accompanying person should be checked at the entrance of OPD and those with fever or history of contact with people with fever or from hot zones and high-risk areas, should be sent to the fever clinic for screening. Patients should not be allowed to take off their masks except on indications of facial lesions. Dermatologists must wear personal protective equipment and take it off only in a designated disposable area.^[25]

We are not sure how long this critical situation will last but we need to frame strategies for future course of action including the dermatology specific research and guidelines. As is rightly said “prevention is better than cure”—the statement is apt for the current situation where even the countries with best healthcare system have succumbed to this microscopic entity. To fulfil our obligation as professional in the house of medicine, we the dermatologists are morally and ethically bound to perform our duty when called upon to fight this medical crisis.^[43] The right approach may be to embrace every moment with courage, precautions and hope that the current milieu is just darkness before the sunshine. Humanity will overcome these tough times as they always have in the past, all we need to do is to maintain placidity and show benevolence and do our bit to serve and save mankind.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Coronavirus COVID-19 Global Cases by the Centre for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU). Available from: <https://corona.virus.jhu.edu/map.html>. [Last accessed on 2020 Apr 11].
2. Piccolo V, Argenziano G. The impact of novel coronavirus on dermatology. *Dermatol Pract Concept* 2020;10:e2020049.
3. Bai Y, Yao L, Wei T, Tian F, Jin D, Chen L. Presumed asymptomatic carrier transmission of COVID-19. *JAMA* 2020 Feb 21. doi: 10.1001/jama.2020.2565.
4. Adams JG, Walls RM. Supporting the Health Care Workforce During the COVID-19 Global Epidemic. *JAMA* 2020;323:1439–1440. doi:10.1001/jama.2020.3972.
5. Coronavirus: Doctor death toll rises to 109. FNMCEO.ANSA. Available from: https://www.ansa.it/english/news/2020/04/10/corona-virus-doctor-death-toll-rises-to-109_2d71c69d-58a3-496e-9e00-352332647f9b.html. [Last accessed on 2020 Apr 14].
6. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, *et al.* Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw Open* 2020;3:e203976.
7. Heymann RW. The profound dermatological manifestations of COVID-19. *J Am Acad Dermatol* 2020;2:11.
8. Zheng Y, Lai W. Dermatology staff participate in fight against COVID-19 in China. *J Eur Acad Dermatol Venereol* 2020 Mar 23. doi: 10.1111/jdv.16390.
9. Kwatra SG, Sweren RJ, Grossberg AL. Dermatology practices as vectors for COVID-19 transmission: A call for immediate cessation of non-emergent dermatology visits. *J Am Acad Dermatol* 2020 Mar 22. doi: 10.1016/j.jaad.2020.03.037.
10. Shah P, Zampella JG. Use of systemic immunomodulatory therapies during the coronavirus disease 2019 (COVID-19) pandemic. *J Am Acad Dermatol* 2020 Mar 31. doi: 10.1016/j.jaad.2020.03.056.
11. Price KN, Frew JW, Hsiao JL, Shi VY. COVID-19 and Immunomodulator/Immunosuppressant use in dermatology. *J Am Acad Dermatol* 2020 Mar 26. doi: 10.1016/j.jaad.2020.03.046.
12. Statement on the coronavirus (COVID-19) Outbreak. International Psoriasis Council. 2020 Mar 11. Available from: <http://www.psoriasis-council.org>. [Last accessed on 2020 Apr 14].
13. Rademaker M, Baker C, Foley P, Sullivan J, Wang C. Advice regarding COVID-19 and use of immunomodulators in patients with severe dermatological diseases. *Australas J Dermatol* 2020 Mar 26. doi: 10.1111/ajd.13295.
14. Dermatology Advice Regarding Self-Isolation and Immunosuppressed Patients: Adults, Paediatrics and Young People. Healthcare Professionals. British Association of Dermatologists. Available from: <https://www.bad.org.uk/healthcare-professionals/covid-19/covid-19-immunosuppressed-patients>. [Last accessed on 2020 Apr 14].
15. Treatment-specific guidance. Healthcare Professionals. British Association of Dermatologists. Available from: <https://www.bad.org.uk/healthcare-professionals/covid-19/treatment-specific-guidance>. [Last accessed on 2020 Apr 14].
16. COVID-19: Clinical guidelines for the management of

- dermatology patients remotely. Healthcare Professionals. British Association of Dermatologists. Available from: <https://www.bad.org.uk/healthcare-professionals/covid-19/remote-dermatology-guidance>. [Last accessed on 2020 Apr 14].
17. Guidelines for doctors of the Brazilian Society of Hansen's disease on the possibility of coinfection Leprosy and COVID-19. Leprosy and COVID19.Infolep monthly overview of new publications on leprosy. 2020 Apr. 5. Available from: <https://www.leprosy-information.org/>. [Last accessed on 2020 Apr 14].
 18. Villani A, Fabbrocini G, Costa C, Scalvenzi M. Patients with advanced basal cell carcinomas in treatment with sonic hedgehog inhibitors during the coronavirus disease 2019 (COVID-19) period: Management and adherence to treatment. *J Am Acad Dermatol* 2020 Mar 31. doi: 10.1016/j.jaad.2020.03.057.
 19. Jakhar D, Koul S, Kaur I. WhatsApp messenger as a teledermatology tool during coronavirus disease (COVID-19): From Bedside to Phone-side. *Clin Exp Dermatol* 2020 Apr 3. doi: 10.1111/ced.14227.
 20. Telemedicine Practice Guidelines. 2020Mar. Available from: <https://www.mciindia.org>. [Last accessed on 2020 Apr 14].
 21. Ohannessian R, Duong TA, Odone A. Global telemedicine implementation and integration within health systems to fight the COVID-19 pandemic: A call to action. *JMIR Public Health Surveill* 2020;6:e18810.
 22. Chawla S. COVID-19: Challenges and opportunities for dermatology response. *J Dermatolog Treat* 2020 Apr 3. doi: 10.1080/09546634.2020.1751040.
 23. Reinholz M, French LE. Medical education and care in dermatology during the SARS-CoV2 pandemic: Challenges and chances. *J Eur Acad Dermatol Venereol* 2020 Mar 27. doi: 10.1111/jdv.16391.
 24. Mulcahy N. Medical Meetings May Be Forever Changed. *Medscape Medical News* 2020 Mar 27. Available from: <https://www.medscape.com/viewarticle/927626>. [Last accessed on 2020 Apr 14].
 25. Chen Y, Pradhan S, Xue S. What are we doing in the dermatology outpatient department amidst the raging of the 2019 novel coronavirus? *J Am Acad Dermatol* 2020;82:1034.
 26. Recalcati S. Cutaneous manifestations in COVID-19: Afirst perspective. *J Eur Acad Dermatol Venereol* 2020 Mar 26. doi: 10.1111/jdv.16387.
 27. Press release on unusual corona virus symptom. Le Syndicat National des Dermatologues-Vénérologues (SNDV).2020 Apr 6. Available from: <http://nypost.com/2020/04/09/dermatologists-in-france-have-uncovered-another-unusual-corona-virus-symptom/>. [Last accessed on 2020 Apr 14].
 28. Joob B, Wiwanitkit V. COVID-19 can present with a rash and be mistaken for Dengue. *J Am Acad Dermatol* 2020 Mar 22. doi: 10.1016/j.jaad.2020.03.036.
 29. Otto MA. Skin manifestations are emerging in the coronavirus pandemic. *Dermatology News. MD Edge*. 2020 Apr 3. Available from: <https://www.mdedge.com/dermatology/article/220183>. [Last accessed on 2020 Apr 14].
 30. Lan J, Song Z, Miao X, Li H, Li Y, Dong L, *et al.* Skin damage among healthcare workers managing coronavirus disease-2019. *J Am Acad Dermatol* 2020 Mar 18. doi: 10.1016/j.jaad.2020.03.014.
 31. Radi G, Diotallevi F, Campanati A, Offidani A. Global coronavirus pandemic (2019-nCoV): Implication for an Italian medium size dermatological clinic of a ii level hospital. *J Eur Acad Dermatol Venereol* 2020 Mar 22. doi: 10.1111/jdv.16386.
 32. Price KN, Thiede R, Shi VY, Curiel-Lewandrowski C. Strategic dermatology clinical operations during COVID-19 pandemic. *J Am Acad Dermatol* 2020 Apr 8. doi: 10.1016/j.jaad.2020.03.089.
 33. Sengupta S. With Virus Surge, Dermatologists and Orthopedists Are Drafted for the E.R. *The New York Times*. 2020 Apr 3. Available from: <https://www.nytimes.com/2020/04/03/nyregion/new-york-coronavirus-doctors.html>. [Last accessed on 2020 Apr 14].
 34. Government of India Advisory- Cancellation of conferences/events. Available from: <https://www.india.govt.org>. [Last accessed on 2020 Apr 14].
 35. IADVL Position Statement on current COVID-19 VIRUS PANDEMIC. Indian Association of dermatologist, Venereologist and leprologists-2020. 2020 Mar 15. Available from: <https://iadvl.org/>. [Last accessed on 2020 Apr 14].
 36. Minding our minds during the COVID-19. Ministry of Health and Family Welfare Government of India. 2020 Mar 31. Available from: <https://mohfw.gov.in>. [Last accessed on 2020 Apr 14].
 37. AarogyaSetu App for staying informed and alert against COVID 19. Ministry of Health and Family Welfare Government of India. 2020 Apr 2. Available from: <https://mohfw.gov.in>. [Last accessed on 2020 Apr 14].
 38. Duquero V. COVID-19: More Hydroxychloroquine Data From France, More Questions.Medscape Medical News. 2020 Mar 30. Available from: <https://www.medscape.com/viewarticle/927758>. [Last accessed on 2020 Apr 14].
 39. Recommendation for empiric use of hydroxy-chloroquine for prophylaxis of SARS-CoV-2 infection. Technical Documents and Advisory.Indian Council of Medical Research. 2020 Mar 22. Available from: <https://www.icmr.nic.in/content/covid-19>. [Last accessed on 2020 Apr 14].
 40. Jakhar D, Kaur I. Potential of chloroquine and hydroxychloroquine to treat COVID-19 causes fears of shortages among people with systemic lupus erythematosus. *Nat Med* 2020 Apr 8. doi: 10.1038/s41591-020-0853-0.
 41. Kutlu O, Metin A. A case of exacerbation of psoriasis after oseltamivir and hydroxychloroquine in a patient with COVID-19: Will cases of psoriasis increase after COVID-19 pandemic? *Dermatol Ther* 2020 Apr 7. doi: 10.1111/dth.13383.
 42. Caly L, Druce JD, Catton MG, Jans DA, Wagstaff KM. The FDA-approved Drug Ivermectin inhibits the replication of SARS-CoV-2 in vitro.*Antiviral Res* 2020 Apr 3. doi: 10.1016/j.antiviral.2020.104787.
 43. Stoj VJ, Grant-Kels JM. Dermatology Residents and the care of COVID-19 Patients. *J Am Acad Dermatol* 2020 Apr 4. doi: 10.1016/j.jaad.2020.03.086.