

Impact of COVID-19 on Dermatology Practice: A Cross-Sectional Study

Abstract

Background: The sudden outbreak of novel coronavirus has caused confusion, anxiety, and fear not only among the general public but also the health-care system. Considering widespread effects of the disease spilling into all aspects of life in general population and health-care workers alike, we conducted a study regarding the impact of coronavirus disease 2019 (COVID-19) on the functioning of the department of dermatology at a tertiary care hospital during the period of lockdown. **Objective:** We aimed to study the impact of COVID-19 infection and lockdown due to pandemic on practice of dermatology and workings in the outpatient department (OPD) at a tertiary care center. **Materials and Methods:** A cross-sectional, observational study was conducted on patients attending the dermatology OPD at a tertiary care center from April 11, 2020, to May 31, 2020. Patients were interviewed on the basis of a simple questionnaire seeking demographic details, complaints, diagnosis, history, and duration of treatment. Data obtained were recorded as numbers and percentages. **Results:** A total of 1022 individuals participated in the study with 620 (60.6%) males and 402 (39.33%) females. Among them, 625 (61.15%) were localities and 395 (38.64%) were from surrounding rural areas. The age of patients ranged from 6 months to 94 years, and majority were farmers. Eight hundred and twenty-nine (81.1%) were educated and 146 (14.2%) were illiterates. Six hundred and ninety-seven (68.1%) of the participants were new and 325 (31.8%) follow-up cases. Dermatomythosis 194 (27.8%) and psoriasis 15 (4.6%) were the most common diagnoses among new and old cases, respectively. **Conclusion:** A significant reduction was observed in the number of patients visiting the department seeking treatment. The pandemic necessitated various modifications in the patient examination and management protocols.

Keywords: *Coronavirus disease 2019, dermatology practice, lockdown*

Introduction

The sudden outbreak of the novel coronavirus that was first reported in Wuhan, China, in November 2019, quickly spread around the world impacting countries across the continents and affected daily life and social norms in an unprecedented way. Coronavirus disease 2019 (COVID-19) is an infection associated with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It is structurally related to other coronaviruses, especially the ones that caused SARS and Middle East respiratory syndrome (MERS). Coronaviruses are enveloped, positive single-stranded large ribonucleic acid viruses. SARS-CoV-2 belongs to the beta subgroup, which is known to be capable of causing severe disease and fatalities with respiratory infectivity.^[1,2]

The state of lockdown and social distancing that was initiated in many countries as a

part of the strategy to halt the spread of the virus has led to stagnation of services and products and has severely affected majority of the population. This has affected the global economy brutally by causing a break in the global supply chains and affecting individuals in work and also in survival.^[3,4] The developing countries with a large number of its population being in the lower socioeconomic bracket have been the most affected not only in terms of the disease but also monetarily by losing jobs and not having funds for basic needs. Along with the global economic impact, the increasing morbidity and mortality due to COVID-19 have been the biggest setback. The World Health Organization report revealed the mortality rate to be between 3% and 4% with number of cases crossing 36 million worldwide as of October 2020.^[4,5] In India, the number of cases has crossed 69 lakhs with a mortality rate of 1.54%.^[6]

As COVID-19 is a new disease and is having the most devastating effects

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Janagond AB, Ratan VR, Potthuri I, Pandit VS, Inamadar AC. Impact of COVID-19 on dermatology practice: A cross-sectional study. *Clin Dermatol Rev* 2021;5:187-91.

Ajit B Janagond, Vartika R Ratan, Indira Potthuri, Vishalakshi S Pandit¹, Arun C Inamadar

Department of Dermatology, Venereology and Leprosy, Shri BM Patil Medical College, BLDE (Deemed to be University), Vijayapura, ¹Department of Dermatology, Venereology and Leprosy, Venereology, Leprosy, Koppal Institute of Medical Sciences, Koppal, Karnataka, India

Address for correspondence:

Dr. Arun C Inamadar, Department of Dermatology, Shri BM Patil Medical College, BLDE (Deemed to be University), Vijayapura, Karnataka, India. E-mail: aruninamadar@gmail.com

Submission: 24-02-2021

Revision: 15-03-2021

Acceptance: 25-03-2021

Published: 26-08-2021

Access this article online

Website: www.cdriadvlkn.org

DOI: 10.4103/cdr.cdr_15_21

Quick Response Code:



globally, its emergence and spread have caused confusion, anxiety, and fear not only among the general public but also the health-care system.^[4] It has had a significant impact on the quality of life and also affected the working of the health-care workers with a significant number being called in for working toward care of COVID-19 patients and others being required to restrict outpatient department (OPD) and private services to prevent the spread of the virus.

Considering the widespread effects of the disease spilling into all aspects of life in general population and health-care workers alike, we conducted a study regarding the impact of COVID-19 on the patients and functioning of the department of dermatology at a tertiary care hospital during the period of lockdown.

Materials and Methods

The study was conducted in the department of dermatology, venereology, and leprosy at a tertiary care center after obtaining institutional ethical clearance from April 11, 2020, to May 31, 2020. It was a cross-sectional, observational study. Patients attending the OPD were interviewed on the basis of a simple questionnaire after obtaining verbal consent. The data collected included sociodemographic variables such as age, gender, occupation, education, and area of residence. Other relevant details such as complaints, diagnosis, history, and duration of treatment on OPD and inpatient department basis were also recorded. The questionnaire did not specifically try to elicit details regarding difficulties faced by the patients due to the imposition of lockdown.

Results

A total of 1022 patients participated in the study, of which there were 620 (60.6%) males and 402 (39.33%) females. Among the patients, 625 (61.15%) were local residents whereas 395 (38.64%) patients were from surrounding rural areas. The age of patients ranged from 6 months to 94 years. Among the patients, majority were farmers followed by daily wage laborers, homemakers, students, and self-employed individuals. Graduates constituted 279 (27.2%) of the study participants followed by secondary school completed 244 (23.8%), primary school completed 165 (16.1%), preuniversity level 122 (11.9%), postgraduation 19 (1.8%), and illiterates (14.2%, 146). Six hundred and ninety-seven (68.1%) of the patients were new and 325 (31.8%) follow-up cases. Among the new cases, dermatophytosis (194, 27.8%) was the most common diagnosis followed by eczematous disorders (99, 14.2%), papulosquamous disorders (37, 5.3%), acne (34, 4.87%), and pruritus/neurocutaneous disorders (24, 3.44%), whereas follow-up patients included psoriasis (15, 4.61%), pemphigus (9, 2.76%), Hansen's disease (8, 2.46%), vitiligo (4, 1.23%), and chronic urticaria (4, 1.23%) [Table 1].

Discussion

As with previous pandemics, routine life has been severely affected during the COVID-19 pandemic due to the high communicability and transmission rate of the virus. The typical epidemiological signature of influenza pandemics includes a shift from affecting high-risk groups that are defined by age and comorbidities during seasonal influenza (elderly, children, and those with chronic and cardiac comorbidities) to affecting entire populations through multiple waves of cases. This produces substantial morbidity and mortality and shows a variability in the seasonality of these cases during pandemics.^[7,8] Historically, the impact associated with these pandemics has resulted not only from pneumonia and influenza but also from the exacerbation of other chronic diseases and comorbidities that frequently require hospitalization and place an overwhelming demand on health-care settings including outpatient clinics, emergency departments, and hospitals.^[7,8]

The current pandemic is very reminiscent of the frightening accounts described in historical and medical textbooks of the 1918–1919 influenza pandemic. There are significant differences in the social, cultural, legal, political, and scientific situation that existed between that period and the present conditions. However, the sudden emergence of a novel influenza strain affecting immunologically naive populations and being transmissible from person-to-person outside of the typical influenza seasonal pattern is seen in both pandemics.^[7,8]

Table 1: Demographic details of the patients (total number of patients=1022)

Particulars of study subjects	Number(Percentage)
Males	620 (60.6)
Females	402 (39.33)
Patients from rural area (nonlocal)	395 (38.64)
Patients from urban area (local)	625 (61.15)
Educational qualification	
Graduation	279 (27.2)
Secondary school	244 (23.8)
Primary school	186 (18.1)
Preuniversity	122 (11.9)
Postgraduation	19 (1.8)
Illiterate	143 (13.9)
New cases (697; 68.1%)	
Dermatophytosis	194 (27.83)
Eczematous disorders	99 (14.2)
Papulosquamous disorders	37 (5.3)
Acne	34 (4.87)
Pruritus/neurocutaneous disorders	24 (3.44)
Follow-up cases (325; 31.8%)	
Psoriasis	15 (4.61)
Pemphigus	9 (2.76)
Hansen's disease	8 (2.46)
Vitiligo	4 (1.23)
Chronic urticaria	4 (1.23)

In total, 1022 patients consulted our department during the study period. In contrast, we had seen 4634 patients during the same period of last year. There was a drastic reduction in the patient numbers by 77.9%. Travel restrictions imposed during lockdown and changes introduced in functioning and working hours of the hospitals during the period greatly contributed to reduction in the number of patients. The reduction was observed in both intra- and interdistrict patients including from neighboring states. Vitiligo patients requiring phototherapy constituted the bulk of the previous year's patients. Patients who were receiving phototherapy stopped visiting the department as phototherapy units were temporarily shut during this time resulting in marked fall in the numbers.

We also observed changes in awareness regarding the nature and severity of the pandemic and the need for restricted movement in the general population. It was slow during the initial phase of the pandemic, where we still saw a significant number of patients which gradually declined over the period of lockdown and again increased as the travel restrictions were relaxed. Repetitive counseling regarding the nature of the disease and the need for social distancing was crucial in creating awareness in patients. Implementation of lockdown and travel restrictions also helped in curbing movement. The attempts to reduce nonemergency visits to the hospital from various platforms including television, newspapers, public announcements, and other social media, eventually reaching the masses, also helped in restricting unnecessary exposure to patients and health-care workers.

The protocols of examination in our OPD were altered as per the All India Institute of Medical Sciences COVID protocol to better manage the patients during the lockdown, while providing adequate care and treatment and protecting the patients as well as the health-care workers.^[9] Only urgent outpatient visits were encouraged. Patients were advised to seek medical counsel only for emergency conditions and refrain from visiting the hospital for minor complaints. Patients were asked few relevant questions and screened for temperature and oxygen saturation before entering our OPD. Patients and their attendants were asked to wear a mask. The numbers of patients as well as attendants were restricted, and necessary arrangements were made for them to maintain adequate distance in the waiting area. Transparent screen was placed between the patient and the doctor during interaction, and examination was done with gloves, masks, and face shields on. Inpatient admissions were restricted to emergencies. This was similar to the protocols suggested and followed in various COVID-19 hard-hit countries.^[1,10,11]

Dermatophytosis was the most common diagnosis among the patients. The significantly high number of patients with dermatophytosis could be attributed to its ongoing epidemic. The primary complaint of patients was

moderate-to-severe itching, which greatly affected sleep pattern, daily activities, and quality of life in general. The treatment consisted of systemic and topical antifungals and antihistamines which are not associated with causing immunosuppression and hence do not increase the risk of acquiring COVID-19 infection. In general, the patients are asked to follow up every month, but to reduce the hardship of frequent traveling and in turn the risk of getting COVID-19 infection, patients were prescribed medications for a longer period of time. The treatment usually lasted for 2–3 months with good compliance. In case of poor compliance and irregular follow-up, patients required prolonged therapy.

There were eight patients of Hansen's disease with history of lepra reactions among the follow-up cases. They faced difficulty in only getting clofazimine among the first-line multidrug therapy (MDT) regimen due to its unavailability. Ofloxacin, a second-line MDT drug, was used as a substitute for clofazimine. The medications for lepra reactions were administered as per standard protocols wherever necessary.

The protective measures employed for our as well as patient safety such as placing of transparent sheet between the patient and doctor during examination, face shield usage by the doctor and examination of the patient done from an adequate distance of 6 feet proved to be a hindrance in the proper assessment as visualization and analysis of a skin lesion from the distance is difficult. Examination of the oral cavity and other mucosal lesions was also not easy due to the requirement of proximity. Giacalone *et al.* also made similar observations and reported the use of personal protective equipment and social distancing having an adverse effect on the quality of diagnosis.^[11]

Besides dermatophytosis, other acute conditions such as herpes zoster (2.2%), varicella (0.8%), and urticaria (1.1%) were also seen, albeit in lower numbers. In patients with herpes zoster, it was imperative to rule out comorbid conditions such as diabetes mellitus and immunosuppression as they are more prone to more severe COVID-19. Although treatment for herpes zoster is of short term and in no way affects the immune status of a patient, care must be taken as patient may already be immunocompromised due to comorbidities.^[12] In order to minimize hospital visitations and subsequent exposure, patients were advised to visit only in case of any major complaint or complication. Recent studies by Elsaie *et al.* have also demonstrated a correlation of herpes zoster infection with COVID-19.^[13] Antecedent history of fever, myalgia, dry cough, or respiratory distress and exposure to a COVID-19 patient must hence be ruled out in patients presenting with new onset of herpeticiform lesions.^[14]

Dermoscopy was preferred over skin biopsy for aiding the diagnosis in few patients. It was performed with extra precautions such as using noncontact dermoscopy, using

disposable plastic tubes for close contact dermoscopy, and sanitization of the instrument every pre and post usage. Biopsy if absolutely necessary was performed on an urgent and emergent basis with added precautions as per the Indian Academy of Dermatologists, Venereologists and Leprologists guidelines.^[15] Closed chamber phototherapy and other operative procedures such as electrofulguration, radiofrequency cautery, and laser therapy were completely stopped and postponed indefinitely, in view of the high risk of aerosolization and requirement of close contact with the patients.^[16]

Wherever possible, we refrained from using systemic immunosuppressive medications for treatment. Apremilast for example was preferred as systemic therapy of choice for moderate-to-severe psoriasis due to its efficacy and safety profile in view of the pandemic. Melis *et al.*^[17] reported managing psoriasis patients successfully with apremilast during the time of emergence of COVID-19. Safety of apremilast was also reported by Mugheddu *et al.* in a COVID-19 patient with bilateral pneumonia who continued apremilast for psoriasis during the illness and recovered completely.^[18]

Conditions such as acute urticaria require pressing attention and care due to the risk of life-threatening angioedema. Few of our cases required short-term use of oral corticosteroids in addition to antihistamines, which were prescribed after excluding history of contact with any known case of COVID-19 or symptoms such as fever, cough, and breathlessness.

Patients who were already on immunosuppressants were advised to continue their treatment as per recommendations. Patients on immunosuppressants such as methotrexate, cyclosporine, cyclophosphamide, and azathioprine were advised regular laboratory investigations to watch for total leukocyte and lymphocyte counts, as there is an increased risk of infections with lower counts. Dosages of systemic steroids were kept at the minimum effective dosage required for maintenance of remission of the condition. Patients were instructed to maintain proper social distancing and refrain from going out, especially in potentially crowded environment, where the risk of transmission of COVID-19 infection was significant. Proper use of mask and regular handwashing was also encouraged. Patients were also counseled to seek medical assistance immediately in case of any signs and symptoms of infection and to stop immunosuppressants only on advice of a physician.^[15]

The administration of dexamethasone-cyclophosphamide pulse (DCP) therapy was stopped to the pemphigus patients who were already receiving it and were managed by tapering doses of oral corticosteroids along with intervening cyclophosphamide or azathioprine. None of the patients were newly started on DCP therapy or biologics during the study period.

Data published by Gisondi *et al.* during the past outbreak of SARS and MERS suggest that patients with drug-induced immunosuppression are not at particularly increased risk of severe pulmonary disease compared to the general population.^[19] In addition, no mortality has been reported in patients who were already on immunosuppressants and subsequently acquired SARS or MERS infection.^[19] Khurana and Saxena also suggested that currently there is very little evidence to support the presumption of a higher incidence and increased severity of COVID-19 in dermatological patients on immunosuppressants.^[20] Nevertheless, caution is definitely warranted as COVID-19 is a novel disease and thus far not much is known about it.

Newer and innovative modalities of practice, like that of tele-triage to prioritize in-person clinic visits for patients with severe conditions and the use of telemedicine for other nonemergency patient populations, have been encouraged by the government and are being increasingly adopted by health-care providers and patients alike. New guidelines have also been drafted by the government in this regard. This will not only provide proper health care to the patients but also safeguard the general population and health-care providers during circumstances like the current pandemic. Even before COVID-19, telemedicine was being adopted increasingly to bring specialty-palliative care into the homes of seriously ill patients and their families.^[21] We also effectively managed some of our patients through telemedicine during the lockdown. However, telemedicine has certain shortcomings, especially pertaining to our specialty. Close-up visualization and evolution of lesions cannot be observed in still photographs. Improper lighting and blurry images taken by novice patients add to the dilemma. Preparation, patience, and practice will help ensure the effective implementation of telemedicine. Although it can never replace an in-person clinical examination, telemedicine undoubtedly has a role in patient management in emergency situations like the ongoing pandemic.^[21]

Conclusion

During the imposition of nationwide lockdown, a marked reduction in the number of patients visiting the department seeking treatment was observed. Some of the patients were deprived of necessary treatment because of stopping of phototherapy and minor operative procedures and lasers. The pandemic necessitated various modifications in the patient examination and management protocols which posed fresh challenges. New protocols and guidelines of best practices for providing health care should be adopted and practiced in the future to ease us into the new normal.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The

patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Wollina U. Challenges of COVID-19 pandemic for dermatology. *Dermatol Ther* 2020;33:e13430.
2. Lu R, Zhao X, Li J, Niu P, Yang B, Wu H, *et al.* Genomic characterisation and epidemiology of 2019 novel coronavirus: Implications for virus origins and receptor binding. *Lancet* 2020;395:565-74.
3. Ebrahim SH, Ahmed QA, Gozzer E, Schlagenhauf P, Memish ZA. COVID-19 and community mitigation strategies in a pandemic. *BMJ* 2020;368:m1066.
4. Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian J Psychiatr* 2020;51:102083.
5. WHO coronavirus disease (COVID-19) dashboard. Geneva: World Health Organization; 2020. Available from: <https://covid19.who.int>. [Last accessed on 2020 Oct 08].
6. Ministry of Health & Family Welfare. Government of India. Information on COVID-19. New Delhi: Government of India; 2020. Available from: <https://www.mohfw.gov.in>. [Last accessed on 2020 Oct 08].
7. Franco-Paredes C, Hernandez-Ramos I, Del Rio C, Alexander KT, Tapia-Conyer R, Santos-Preciado JJ. H1N1 influenza pandemics: Comparing the events of 2009 in Mexico with those of 1976 and 1918-1919. *Arch Med Res* 2009;40:669-72.
8. Acuña-Soto R, Castañeda-Davila L, Chowell G. A perspective on the 2009 A/H1N1 influenza pandemic in Mexico. *Math Biosci Eng* 2011;8:223-38.
9. All India Institute of Medical Sciences. AIIMS COVID portal. New Delhi: All India Institute of Medical Sciences; 2020. Available from: <https://covid.aiims.edu/information-for-professionals/>. [Last accessed on 2020 Jul 15].
10. Kwatra SG, Sweren RJ, Grossberg AL. Dermatology practices as vectors for COVID-19 transmission: A call for immediate cessation of nonemergent dermatology visits. *J Am Acad Dermatol* 2020;82:e179-e180.
11. Giacalone S, Bortoluzzi P, Nazzaro G. Which are the “emergent” dermatologic practices during COVID-19 pandemic? Report from the lockdown in Milan, Italy. *Int J Dermatol* 2020;59:e269-e270.
12. Pona A, Jiwani RA, Afriyie F, Labbe J, Cook PP, Mao Y. Herpes zoster as a potential complication of coronavirus disease 2019. *Dermatol Ther* 2020;33:e13930.
13. Elsaie ML, Youssef EA, Nada HA. Herpes zoster might be an indicator for latent COVID-19 infection. *Dermatol Ther* 2020;33:e13666.
14. Tartari F, Spadotto A, Zengarini C, Zanoni R, Guglielmo A, Adorno A, *et al.* Herpes zoster in COVID-19-positive patients. *Int J Dermatol* 2020;59:1028-9.
15. Indian Association of Dermatologists, Venereologists and Leprologists. IADVL Position Statement on Our Dermatology Clinical Practice in the Evolving COVID-19 Scenario. Ghaziabad: Indian Academy of Dermatologists, Venereologists and Leprologists; 2020 March. <https://iadvl.org/announcements.php?AnnouncementId=5e78b21b9f2d2924fc186d02>. [Last accessed on 2020 May 25].
16. Fisher S, Ziv M. COVID-19 effect on phototherapy treatment utilization in dermatology. *J Dermatolog Treat* 2020:1-3. doi: 10.1080/09546634.2020.1781043.
17. Melis D, Mugheddu C, Sanna S, Atzori L, Rongioletti F. Clinical efficacy, speed of improvement and safety of apremilast for the treatment of adult Psoriasis during COVID-19 pandemic. *Dermatol Ther* 2020;33:e13722.
18. Mugheddu C, Pizzatti L, Sanna S, Atzori L, Rongioletti F. COVID-19 pulmonary infection in erythrodermic psoriatic patient with oligodendroglioma: Safety and compatibility of apremilast with critical intensive care management. *J Eur Acad Dermatol Venereol* 2020;34:e376-e378.
19. Gisondi P, Piaserico S, Conti A, Naldi L. Dermatologists and SARS-CoV-2: The impact of the pandemic on daily practice. *J Eur Acad Dermatol Venereol* 2020;34:1196-201.
20. Khurana A, Saxena S. Immunosuppressive agents for dermatological indications in the ongoing COVID-19 pandemic: Rationalizing use and clinical applicability. *Dermatol Ther* 2020;33:e13639.
21. Calton B, Abedini N, Fratkin M. Telemedicine in the time of coronavirus. *J Pain Symptom Manage* 2020;60:e12-e14.