

Effect of COVID-19 on Clinical Spectrum of patients presenting to the Dermatology Outpatient Department of a Tertiary Care Hospital in Rawalpindi

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¹ Conception of study

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^{1,2} Analysis/Interpretation/Discussion

^{1,2} Manuscript Writing

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Article Processing

Received: 23/6/2020

Accepted: 05/8/2020

Cite this Article: Sharif, S., Saleem, M.S., Nisar, N. & Butt, A.Q.(2020). Effect of COVID-19 on Clinical Spectrum of patients presenting to the Dermatology Outpatient Department of a Tertiary Care Hospital in Rawalpindi. Journal of Rawalpindi Medical College, 24 COVID-19 Supplement-1, 26-31.

DOI: <https://doi.org/10.37939/jrhc.v24iSupp-1.1421>

Conflict of Interest: Nil

Funding Source: Nil

Access Online:



Abstract

Introduction: COVID-19 has significantly decreased the influx of patients presenting with dermatologic diseases at hospitals due to lockdown and restrictions pertaining to stop the spread of COVID-19.

Objective: To describe the effect of changes of COVID-19 on the clinical spectrum of patients presenting in dermatology OPD at a tertiary care unit in Rawalpindi, Pakistan.

Method: A comparison of the census of the dermatology outpatient department of three corresponding months before and after COVID-19 was done. During the pandemic year (2020) a significant decrease in patients visiting the dermatology outpatient department was observed.

Results: This reduction was much more prominent for the extreme of ages i.e. children and elderly. Infections and infestations were the predominant causes of presentation of patients at our dermatology outpatient department in pre-COVID-19 as well as during the pandemic. Patients with serious dermatologic conditions (e.g., pemphigus vulgaris, erythroderma, and cellulitis), however, had significantly fewer visits during the pandemic as compared to Pre COVID-19 era. In contrast, patients suffering from eczema constituted a significantly higher rate of outpatient visits during the pandemic.

Conclusion: Patients with serious dermatologic conditions (e.g., pemphigus vulgaris, erythroderma, and cellulitis), had significantly fewer visits during the pandemic as compared to the Pre COVID-19 era. In contrast, patients suffering from eczema constituted a significantly higher rate of outpatient visits during the pandemic.

Keywords: COVID-19, Dermatology, Clinical Spectrum, OPD, Outpatient Department.

Introduction

A large number of cases of pneumonia were reported by China to the World Health Organization (WHO) in the last month of 2019 that was being caused by a novel virus.¹ A new virus was isolated from the respiratory tract samples of these infected patients, later termed as SARS-CoV-2 and the pneumonia was designated as COVID-19 (Coronavirus Disease 2019).² The disease has quickly become a global pandemic over a period of just a few months.

Pakistan reported its first case in the last week of February 2020 from its largest city, Karachi which has an estimated population of 16 million. Afterward, SARS-CoV-2 transmission rapidly escalated throughout the country and has currently spread to almost all regions of Pakistan.³ To cease the spread of this pandemic the WHO has advised strict lockdown policies restricting the movement of people without an emergency. So, governments around the world imposed lockdowns with varying amount of strictness to control the pandemic. This has severely affected the influx of patients at hospitals.² Dermatologic conditions constitute a major bulk of a general hospital outpatient department.⁴ This new pandemic has significantly altered the dynamics of the health care system. The hospitals providing skin care services to their respective communities have also been affected. Therefore, such hospitals have re-organized their dermatological services as per the needs of their communities.⁵ For instance, in the United States of America with an estimated 49.9 million annual dermatology office visits, COVID-19 has caused above 50% decrease in predicted dermatology visits.⁶ Therefore, in our study, we have aimed at finding the change in the pattern of dermatological conditions presenting at a tertiary care hospital of a modern, populous city of Pakistan, Rawalpindi due to COVID-19 pandemic. Currently, there is no classification or description of such data from our country. This information will be beneficial for altering the healthcare policies for future dermatology practices, both during and after a pandemic.

Materials and Methods

Study Design: Descriptive, cross-sectional study

Setting: Department of Dermatology, Benazir Bhutto Hospital, Rawalpindi, Pakistan.

Data Collection:

After authorization by the ethics committee of Rawalpindi Medical University, this retrospective cross-sectional study was undertaken. The patient's entry registers of the dermatology outpatient department of Benazir Bhutto Hospital were reviewed from March till May for the year 2019 and the corresponding months of the year 2020. This is because in Pakistan the first case was reported in the last week of February and in March the policy of lockdown was implemented that is still in practice for halting the pandemic, though less strict now. The data was entered on special performa month-wise including the total number of patients and the distribution pattern of the major dermatological disease encountered in the dermatology outpatient department. The disease distribution was further stratified as per gender and five age groups.

Data Analysis:

The analysis consists of a description of the data and distribution tests and will be done using SPSS v.23.

Results

A total of 14,135 patients attended the outpatient department of dermatology, Benazir Bhutto Hospital Rawalpindi before COVID-19 during March, April, and May of last year (2019). Among them 40.7% were males and 59.3% were females. The majority of patients were of the age group 41-50 years. This is shown in Table 1. Infection and infestations formed the major bulk of the patient load at the outpatient department (42.27%). This is shown in Figure 1. Scabies was the most common diagnosis on presentation making up 17.5% of the total patients followed by various skin infections as shown in Table 2 and Figure 2. Fungal diseases were the most common among all skin infections (12.8%) followed by bacterial (5.84%) and viral (5.59%) skin diseases. This is also depicted in Table 2 and Figure 2. Infections & infestations were followed by eczema (13.31%), acne (8.50%), and urticaria (6.20%) in descending order of presentation. This is shown in Table 2.

The analysis of the data of the COVID-19 pandemic year showed a marked reduction of patients visiting the outpatient department. A total of 4,810 patients attended our outpatient department after the pandemic and lockdown implementation of lockdown by the government of Pakistan during March, April, and May of 2020. The males were 34% and females were 66%. Despite the similarity in gender distribution of the patients as compared to the previous year, a marked change of the age distribution was seen during

these months of the pandemic with the majority of the patient lying in the age group 20-30 years. This is illustrated in Table 1. In 2020, again the major bulk of our outpatient department consisted of infections and infestations (42.56%) as illustrated in Figure 1. Scabies topped once again being the most common disease (19.08%) followed by skin infections- fungal (11.06%), bacterial (7.75%), and viral (4.28%) as shown in Table 2 and Figure 2. After infections and infestation, the most commonly seen diagnosis in the months of pandemic (March, April & May of 2020) was eczema (15.8%) and acne (8.81%) followed by melasma (5.14%). This is illustrated in Table 2.

After COVID-19, patients with eczema have increased from 13.31% to 15.8%. Psoriasis, urticaria, drug

reactions, and hair disorders have decreased as compared to before Covid-19.

The serious dermatological diseases such as immunobullous diseases and erythroderma which frequently require inpatient care and management showed a greater decline of presentation during the lockdown period. The decline was 75% as compared to before Covid-19. This decline is more than infections & infestations (65%) and other dermatological diseases (71%). This is illustrated in chart III. Among serious dermatological diseases, the cases of pemphigus vulgaris plunged the most by 85.7% as compared to the previous year. A similar fall was also seen in cases of systemic lupus erythematosus (80%), erythroderma (78.6%), and vasculitis (75%).

Table 1: Demographic details of the dermatological patients in OPD (2019 vs. 2020)

Year	Total Patients (N)	Gender		Age Group (Years)					
		Male n (%age)	Female n (%age)	< 13	13-19	20-30	31-40	41-50	> 50
2019	14,135	5,753 (40.7%)	8,382 (59.3%)	2,266	2,690	2,407	2,334	2,737	1,701
2020	4,810	1,636 (34%)	3,174 (66%)	602	843	1,276	1,009	593	487

Table 2: Clinical Spectrum of the patient presenting to Dermatology OPD in 2019 and 2020

Diseases	Before COVID-19 n (%age)	After COVID-19 n (%age)
Fungal Infections	1,813 (12.8%)	532 (11.06%)
Bacterial Infections	826 (5.84%)	373 (7.75%)
Viral Infections	790 (5.59%)	206 (4.28%)
Scabies	2,474 (17.5%)	918 (19.08%)
Cutaneous Leishmaniasis	77 (0.54%)	19 (0.39%)
Acne	1,202 (8.50%)	424 (8.81%)
Eczema	1,881 (13.31%)	764 (15.8%)
Psoriasis	851 (6.02%)	190 (3.95%)
Urticaria	877 (6.20%)	206 (4.28%)
Drug Reaction	539 (3.81%)	36 (0.75%)
Hair Disorder	751 (5.31%)	52 (1.08%)
Melasma	582 (4.12%)	247 (5.14%)
Pemphigus Vulgaris	14 (0.10%)	2 (0.04%)
Bullous Pemphigoid	11 (0.08%)	5 (0.10%)
Cellulitis	9 (0.06%)	3 (0.06%)
Vasculitis	24 (0.17%)	6 (0.12%)
Systemic Lupus Erythmatosus	20 (0.14%)	4 (0.08%)
Erythroderma	14 (0.10%)	3 (0.06%)

Table 3: Percentage decline of the patient presenting to Dermatology OPD during lock-down as compared to the pre- COVID-19 year

Dermatological Disease Groups	Specific Diseases	Dermatological % Decline of Specific Dermatological diseases	% Decline of Dermatological Disease Groups
Infections & Infestations	Fungal Infections	70.6%	65%
	Bacterial Infections	54.8%	
	Viral Infections	73.9%	
	Scabies	62.9%	
	Cutaneous Leishmaniasis	75.3%	
Other Dermatological Diseases	Acne	64.7%	71%
	Eczema	59.4%	
	Psoriasis	77.7%	
	Urticaria	76.5%	
	Drug Reaction	93.3%	
	Hair Disorder	93.1%	
	Melasma	57.6%	
	Pemphigus Vulgaris	85.7%	
Serious Dermatological Diseases	Bullous Pemphigoid	54.5%	75%
	Cellulitis	66.6%	
	Vasculitis	75.0%	
	Systemic Lupus Erythematosus	80.0%	
	Erythroderma	78.6%	

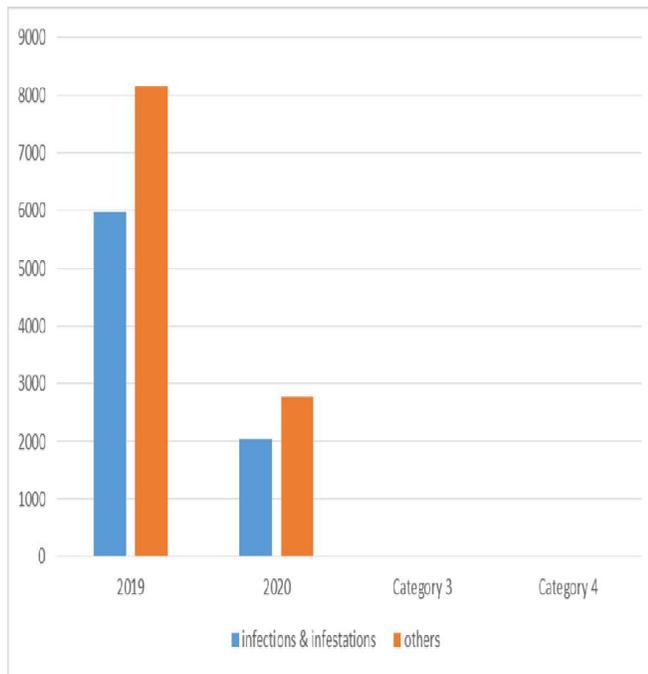


Figure 1: Comparison of Infections & infestations with other dermatological diseases seen at our OPD in the year 2019 and 2020

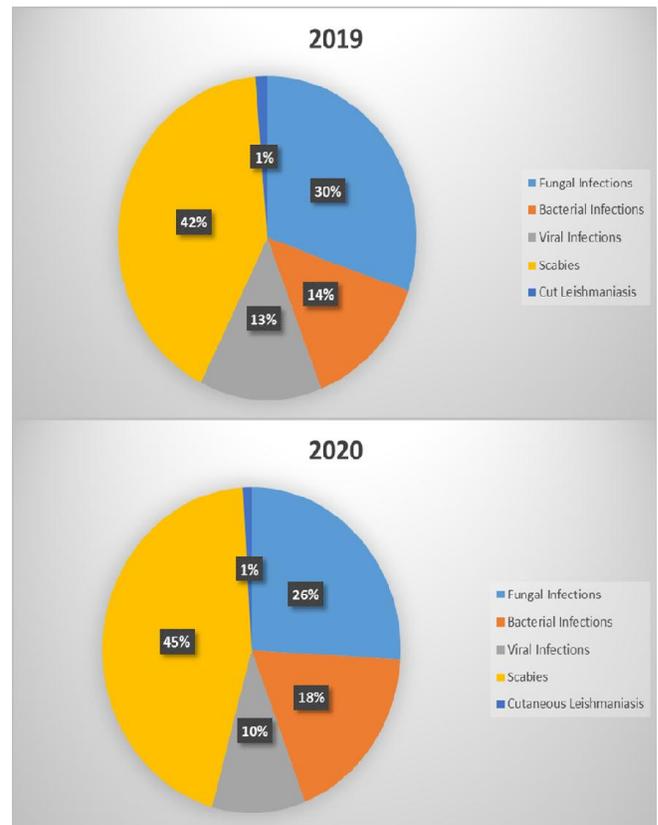


Figure 2: Distribution frequency of infections and infestations in the year 2019 & 2020

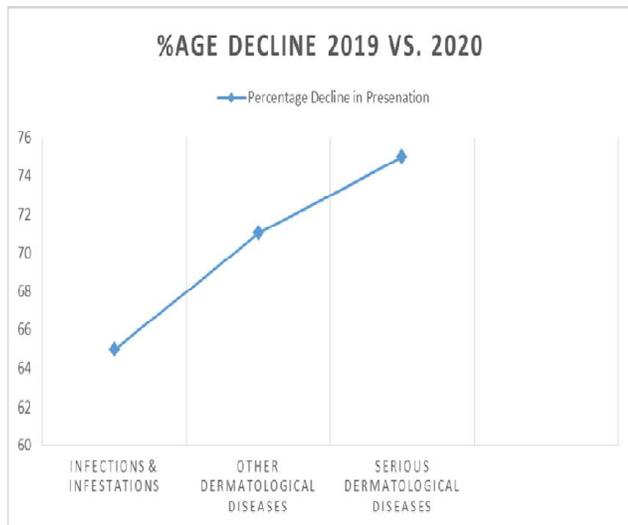


Figure 3: The decline in various groups of dermatological diseases during the Pandemic year 2020 as compared to the previous year 2019

Discussion

The dermatology outpatient census has plunged significantly after the COVID-19 pandemic in a very short period. The “stay-at-home” policy has decreased the overall number of patients visiting the hospitals.⁷ We saw a drastic decrease in the number of our regular dermatology patients at Benazir Bhutto Hospital. The predominant age group which presented to us during the pandemic was 20-30 years whereas last year the predominant age group of presentation during these three months of March, April, and May was 41-50 years. The COVID-19 pneumonia is more severe and often fatal in elderly patients so most probably they were hesitant to come out to seek dermatological consultation during the lock-down period.⁵

Infections and infestations were the predominant causes of presentation of patients at our dermatology outpatient department in pre-COVID-19 as well as during the pandemic period. More infections and infestations can be attributed to the fact that most people belong to the rural community having low socioeconomic status, poor hygienic conditions, and lack of education.⁸ Among infections, scabies was the most common in both pre and post COVID-19 era, rather an increase from 17.5% to 19.08% was seen. The itching in scabies is nocturnal which can reduce the sleep quality and hence the quality of life. This can be the reason behind such a large number of scabies patients visiting our dermatology clinic for consultations despite the strict lock-down policies

imposed by the government. Scabies is traditionally given the name of “the worst itch” and it has been responsible for multiple and huge epidemics in the past plus it causes a very negative impact on social health systems worldwide.⁷ Similarly, bacterial infections have also increased during the pandemic.

Eczema, which includes the cases of allergic and irritant contact dermatitis, has increased in the post-COVID-19 era. This increase may have resulted from excessive use of sanitizers and soaps plus other disinfectants for keeping hands clean resulting in contact dermatitis. The education of masses and health care workers in this regard can reduce the cases of irritant contact dermatitis.⁷

Drug reactions have decreased in COVID-19 times likely due to less consultation causing less prescription of medicines by doctors.

In our study, we have observed a novel feature of the dermatological outpatient spectrum i.e., serious dermatology consultations have decreased far more than other conditions. These include patients with immunobullous disorders, cellulitis, and erythroderma. Those needing the care the most are unable to reach a tertiary care dermatological unit. This needs to be taken seriously as it can be life-threatening for such patients.

The significant psychological impact of acne is primarily teenage patients is evident from a large number of acne and melasma patients visiting our dermatology clinic for consultations despite strict lock-down enforced by the government to curb the spread of a pandemic. The negative effect of these diseases on quality of life is so significant that such patients seek dermatology consultations even at this time. However, a huge fall in the number of these patients during the pandemic will result in the accumulation of such patients and the load on dermatology outpatients is expected to climb very high after COVID-19. Equipping the dermatology departments with teledermatology services can be helpful to combat such accumulation of patients.⁷ Measures need to be taken in this regard on a priority basis.

In a nutshell, after exhaustive literature review, we have concluded that our study is the first of its kind being reported from Pakistan that provides data and analysis of numbers as well as the nature of skin outpatient visits during the COVID-19 pandemic. We expect that our fellow dermatologists around the globe would benefit from our experience and that the data and analysis of our study will enable them to provide better care to their patients, especially in such a difficult scenario of the pandemic.

Conclusion

Patients with serious dermatologic conditions (e.g., pemphigus vulgaris, erythroderma, and cellulitis), had significantly fewer visits during the pandemic as compared to the Pre COVID-19 era.

In contrast, patients suffering from eczema constituted a significantly higher rate of outpatient visits during the pandemic.

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