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A Retrospective Analysis from Turkey: The Effect of the COVID-19 Outbreak Quarantine on Dermatology Outpatient Clinics

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ABSTRACT

Background: Coronavirus disease-2019 (COVID-19) pandemic has affected daily life in many aspects with lockdowns, restrictions and social isolation. It also has a significant impact on dermatologic practice. In this study, it is aimed to evaluate the applications of dermatology patients to the outpatient clinics during the quarantine period in the first 2 months of the COVID-19 epidemic in one center from Turkey. We also aimed to investigate the incidence of patients infected with severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) examined at dermatology visits, and the frequency of patients were getting worse while their treatments were interrupted due to the outbreak.

Materials and Methods: This retrospective study included 416 participants. According to the anamnesis, dermatological examination, laboratory, and SARS-CoV-2 tests written in the files, 416 patients' files were reviewed. The age, sex, occupation, diagnosis of the patients, disease duration of the patients, their medical history were evaluated.

Results: According to the study results of 416 patients, female dominance (57.7%) was observed. The lesions in 157 of 416 patients (37.7%) were localized on the face. The most common diagnosis of the patients were acne vulgaris (n=113, 27.16%). Three of 416 patients (0.72%) were co-diagnosed with COVID-19 during hospital visits. Acute urticaria was observed after COVID-19 infection in 1 patient. Stress (31.25%) was the most triggering factor for the dermatological diseases reported by the patients.

Conclusion: According to the results of the study, pandemic process negatively affected on the dermatological patients in many ways, including treatment interruptions, restriction of outpatient clinic applications.

Keywords: Dermatology outpatients, Pandemic, SARS-CoV-2, Treatment

Introduction

The outbreak of a newly identified coronavirus in Wuhan province of China, in December 2019 was reported as the beginning of a novel pandemic named the coronavirus disease-2019 (COVID-19). COVID-19 is caused by infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. SARS-CoV-2 viruses are enveloped, positive single-stranded large RNA viruses, that can lead to severe extensive viral pneumonia, significant morbidity and mortality in infected patients. According to the World Health Organisation, SARS-CoV-2 is transmitted through respiratory droplets of infected people in either direct (close contact with an infected person) or indirect (fomites surrounding the infected persons or tools used during examination such as dermatoscope) way. Hidden transmission from asymptomatic carriers was also reported [2,3].

In Turkey, the first case was reported on March 11, 2020. Some outbreak rules of isolation, which prevented the gathering of people were implemented by the Turkish government as other countries, including curfew for citizens over the age of 65 and those with

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chronic diseases. Schools and cafes were closed. Matches in sports leagues and flights with suspicious countries were cancelled. The services of outpatient and inpatient clinics and surgery operations in hospitals were partially restricted. Outpatient clinics started service only by appointment.

Dermatological diseases rarely require urgent treatment, however, immunosuppressive agents are frequently used in dermatological diseases and if the drugs are discontinued, the diseases may exacerbate in patients through remission period. Additionally, dermatology practices have a risk for SARS-CoV-2 transmission during the close physical examination as reported before [4,5].

In this retrospective study, it was aimed to determine the characteristics of patients who applied to dermatology outpatient clinics during the early pandemic period. It is also aimed to investigate the incidence of the patients infected with SARS-CoV-2 who visited to dermatology clinics.

Materials and Methods

Study Design

The Institutional Review Board approval was obtained from the local committee of Clinical and Laboratory Research Ethics in Aksaray University (decision number: 2020/06-15, date: 22.06.2020) in "Aksaray University Research and Training Hospital", Dermatology Department for this study. This research was carried out compatible with the Declaration of Helsinki principles. This retrospective and single-centered research included patients admitting to dermatology outpatient clinics of Aksaray University Research and Training Hospital from the beginning of April 2020 to the end of May 2020.

Anamnesis, dermatological examination, laboratory results, and SARS-CoV-2 tests written in the files 416 patients' files were reviewed and analyzed from hospital database. The age, sex, occupation, diagnosis of the patients, disease duration of the patients, their medical history were evaluated. Locations of the lesions and possible triggers for the disease were noted.

Statistical Analysis

SPSS 23.0 version Package program was used to analyze the data. The data distribution normality was assessed by the Shapiro-Wilk test. Continuous variables and were represented by numbers and percentages as "mean ± standard deviation" and categorical variables by numbers and percentages. Categorical variables were analyzed with the test of chi-square and the analysis of the difference between continuous non-normally distributed variables were done by the "Mann-Whitney U test." $P<0.05$ was accepted as statistically significant.

Results

A total of 416 patients' records were reviewed and analyzed from the beginning of April 2020 to the end of May 2020. The mean age of the patients was 32.31±17.45 (range, 2-86 years old). Two hundred and forty of 416 patients (57.7%) were female, and 176 of 416 patients (42.3%) were male. According to the occupation, 252 of 416 patients (60.6%) were those who could stay isolated at home (housewives, students), 130 of 416 patients (31.2%) were those who had to work in offices (13.7% civil servant, 17.5% worker). There were 29 (6.97 %) patients over the age of 65 who had a partial curfew. Thirty-four of 416 patients (8.17%) were children.

The five most common diagnosis of the patients were acne vulgaris (n=113, 27.16%), acute or chronic dermatitis (n=96, 23.07%), cutaneous fungal infections (n=30, 7.21%), hair disorders (n=29, 6.96%), and psoriasis (n=16, 3.84%). Disease distributions of the patients were presented in detail in Table 1. Thirty-eight of 416 patients (9.13%) needed urgent treatment. These were presented in detail in Table 2. Acute urticaria was observed after COVID-19 infection in 1 patient.

The lesions in 157 of 416 patients (37.7%) were localized on the face. Thirty-nine of 416 patients (9.4%) had symptoms on the scalp. Other localizations of the lesions were presented in detail in Table 3.

Two hundred and twelve of 416 patients (50.96%) were admitted to the clinic for the first time, the remaining (n=204, 49.04%) were follow-up patients. Fifty-one (12.3%) patients with acne vulgaris were on isotretinoin treatment. One-hundred and ninety-seven of 416 patients (47.4%) had dermatological symptoms for more than 6 months, 132 of 416 patients (31.7%) had the symptoms for 1 to 6 months, and 87 of 416 patients (20.9%) had them for less than 1 month.

Systemic therapies of 8 psoriasis vulgaris patients who were followed up in our dermatology outpatient clinic were interrupted due to the pandemic. Systemic treatment and regular follow-up were interrupted in 6 of 113 acne vulgaris patients (5.31%). One wart patient who was treated with cryotherapy stopped regular visits to our clinic due to the pandemic, and the lesion progressed. Systemic treatment and regular follow-up were interrupted in 6 patients using systemic isotretinoin, 2 patients on narrowband ultraviolet B, 3 patients on methotrexate, 2 patients on acitretin, 1 patient on adalimumab therapy. Decreased treatment efficacy was seen in 74 patients (17.8%), no change in treatment efficacy was seen in 96 patients (23.1%).

Twenty-seven of 416 patients (6.49%) had symptoms of COVID-19, but 3 of 416 patients (0.72%) were diagnosed with COVID-19 during hospital visits.

Fifty of 416 patients (12.01%) gave a history of more than one triggering agent, 38.8% (n=161) of the patients did not give a history of a triggering agent. The triggering factors were presented in Table 4.

Table 1. The diseases of patients admitted to dermatology outpatient clinic

	n	%
Acne	113	27.16
Acute/Chronic dermatitis Contact Dermatitis Seborrheic Dermatitis	96 81 15	23.07
Fungal infections	30	7.21
Hair disorders Alopecia Areata Telogen Effluvium Androgenetic Alopecia	29 22 4 3	6.96
Psoriasis	16	3.84
Warts	16	3.84
Urticaria	15	3.60
Scabies	12	2.88
Bacterial skin infections	11	2.64
Herpes infections	9	2.16
Melasma	8	1.92
Aphteous stomatitis	8	1.92
Chronic prurigo generale	7	1.68
Vitiligo	7	1.68
Rosacea	6	1.44
Pityriasis Rosea	6	1.44
Benign neoplastic lesions	4	0.96
Pre-malign neoplastic lesions **Actinic keratosis**	2 2	0.48
Malign neoplastic lesions **Basal cell carcinoma** **Squamous cell carcinoma**	4 2 2	0.96
Uncus incarnatus	3	0.72
Drug eruptions	2	0.48
Other skin diseases **Callus** **Stria distensae** **Keratosis pilaris** **Neurofibromatosis** **Epidermal cyst** **Granulosis rubra nasi** **Skin burn** **Molluscum Contagiosum** **Pityriasis alba**	12 2 2 2 1 1 1 1 1 1	2.88

Table 2. Distribution of diseases needed urgent treatment

Skin diseases	n	%
Urticaria	15	3.6
Scabies	12	2.9
Herpes infections	9	2.1
Drug eruptions	2	0.5

Table 3. Distribution of the patients according to the localization of the lesions

	n	%
Face	157	37.7
Scalp	39	9.4
Upper extremity	71	17.1
Lower extremity	46	11
Trunk	17	4.1
Genital area	7	1.7
Oral mucousa	5	1.2
Total body	74	17.8
Total	416	100

Table 4. Distribution of triggering factors in patients

	n	%
Stress	130	31.25
Food	37	8.89
Sun exposure	30	7.21
Chemical/allergic exposure	19	4.56
Season change	12	2.88
Hormonal factors (pregnancy, menstruation)	10	2.40
Drug	9	2.16
Hyperhidrosis	9	2.16
Infection	6	1.44
Other factors (genetic, trauma, animal contact)	14	3.36

Discussion

COVID-19 pandemic has affected daily life in many aspects with lockdowns, restrictions and social isolation. The economy, education, health-care systems are the essentials of the population and any deprivations in these fields may result in irrevocable harm. It has a significant impact on dermatologic practice.

According to the current study results of 416 patients, female dominance (57.7%) was observed. As the suggestion in a study, this might give information about the difference in risk perception of the pandemic between the gender [6] and, female patients may have cared less about the risk posed by the pandemic compared to their skin problems than male patients. A total of 8.17% of the patients were children, and this patient group had a partial curfew. Twenty-nine of the patients (6.97%) were over the age of 65 which had a high risk for a severe infection of COVID-19, and this patient group had a partial curfew, too. The restrictions of these age groups may explain the small number of dermatology outpatient applications.

The most common triggering factor for dermatologic diseases was stress (31.25%). Stress and dermatological diseases may accompany to each other. Some studies reported the role of life stress events as

factors provoking the development of dermatologic diseases such as urticaria, vitiligo, atopic dermatitis [7,8,9]. The association between illness and psychological states has been studied recently. Anxiety, sleep loss, grief, and certain external stressors have been shown to affect immune function in some way. The support provided by social relationships can protect against immune dysregulation during acute and chronic stressors [10]. However, with COVID-19 pandemic, social isolation was imposed and personal relationships had to decline. Due to pandemic stress and loss of social support, dermatological diseases may have been increased. Additionally, post-traumatic stress disorder (PTSD) is a condition in which symptoms develop after exposure to one or more traumatic events and may be considered as a predisposan factor in the chronic, recurrent, or treatment-resistant stress-reactive dermatoses according to Gupta et al. [11]. So, dermatological diseases which occur after COVID-19 pandemic may be considered as a PTSD.

The most common reason for admitting to dermatology outpatient clinic was acne vulgaris and mostly localized on face. Acne vulgaris is a commonly seen, chronic, relapsing skin disease and that affects the quality of social life in patients mostly due to facial involvement. The disease is related to stress and psychiatric disorders, psychological instability in the causation and the course of the disease [12,13]. The pshycological stress on patients with acne vulgaris on face may lead patients to visit dermatology outpatient clinics although the situation is not urgent.

In a study, it was reported that dermatology practices were as vectors for COVID-19 transmission. They suggested that the majority of the outpatient visits were non-emergent [4]. In our study, similarly, only 9.13% of the patients who were admitted to dermatology outpatient clinic needed urgent treatment. 49.04% of the patients were follow-up patients. Additionally, according to the results of the study, 197 of 416 patients (47.4%) had dermatological symptoms for more than 6 months. We suppose that people in quarantine are more interested in their own and skin problems, and these problems may become more important than usual and may get ahead the fear of catching the virus in their perception.

In contrast with calls for staying at home, the importance of social distancing, these non-emergent patients carried on to visit the dermatology outpatient clinic. Most (60.6%) of the patients were those who could stay at home (housewives, students). Staying at home may increase the stress on patients, and it may make them think more about their skin problems as mentioned above.

Systemic treatment and regular follow-up were interrupted in 6 patients using isotretinoin, 2 patients on narrowband ultraviolet B, 3 patients on methotrexate, 2 patients on acitretin, 1 patient on adalimumab therapy. One patient with a wart treated with cryotherapy stopped regular visits. Hospital serving only by appointment, calls for staying at home and the importance of social distancing, uncertainties about the effects of drugs on the course of SARS-CoV-2 infection may cause interruptions in treatment of the patients. Decreased treatment efficacy was seen in 74 patients (17.8%). Increasing stress as a triggering factor may have an effect on decreased treatment response as it is found in the results of this study.

In a study, it was observed that 5 of 390 patients (1.28%) were diagnosed as COVID-19 while they were at hospital visits [5]. In our study, 6.49% of the patients had symptoms of COVID-19, but 3 of 416 patients (0.72%) were diagnosed as COVID-19 at hospital visits. As their suggestion, we think these patients may have been exposed after their hospital visit.

Study Limitations

The study had some limitations. First of all, the results of study was from only one center, and we evaluated the patients who admitted to the clinic at the first two months of the outbreak period, short-term patients. Additionally, we did not evaluate the chronic follow-up patients in detail. It would be better if dermato-oncology patients were analyzed in detail, they could not be assessed in detail since data in the files were missing due to flexible working procedure and dermatologists on covid duties.

Conclusion

In conclusion, this retrospective analysis is an evaluation of dermatology outpatients at the first two months of SARS-CoV-2 outbreak quarantine period from Turkey. According to the results of the study, pandemic process negatively affected on the dermatological patients in many ways, including treatment interruptions, restriction of outpatient clinic applications, the negative effects of the quarantine period for patients. To prevent stress related dermatologic conditions, people may have psychological support in traumatic situations. After all, new pandemics may appear in the future, thus, in the new pandemic world, dermatologists may turn more towards teledermatology so that diagnoses are not delayed and treatments are not disrupted.

Ethics

Ethics Committee Approval: The Institutional Review Board approval was obtained from the local committee of Clinical and Laboratory Research Ethics in Aksaray University (decision number: 2020/06-15, date: 22.06.2020) in "Aksaray University Research and Training Hospital", Dermatology Department for this study.

Informed Consent: Retrospective study.

Peer-review: Internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: F.K., Concept: F.K., E.M.A., B.T., G.A.S., Design: F.K., E.M.A., B.T., G.A.S., Data Collection or Processing: F.K., Analysis or Interpretation: F.K., E.M.A., B.T., G.A.S., Literature Search: F.K., E.M.A., B.T., G.A.S., Writing: F.K.

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