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Comparison of the Diagnoses of Dermatology Patients in COVID-19 Period with Previous Year: What Has Changed?

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ABSTRACT

Background: Coronavirus disease-19 (COVID-19) pandemics has caused changes in the profile of the dermatology patients due to restrictions and changing conditions.

Materials and Methods: Patients administered to dermatology outpatient clinic during years 2019 and 2020 were included to study. Demographic characteristics, admission dates and definitive diagnoses of the patients were obtained in the hospital automation system. Among the dermatological diagnoses, those that are likely to be affected by the pandemic were selected.

Results: In 2019, 16107 patients administered to dermatology clinic while 5,887 patients administered in 2020 ($p=0.00$). The percentage of the patients diagnosed with scabies, contact dermatitis, pityriasis rosea (PR), telogen effluvium, zona zoster, alopecia areata and lichen planus increased in 2020 comparing with 2019 ($p<0.05$). The percentage of acne and psoriasis patients significantly decreased ($p<0.05$). When compared according to genders no significant difference in terms of percentages of male and female patients in scabies and PR was detected ($p>0.05$). The ratio of male patients with contact dermatitis, telogen effluvium, alopecia areata and lichen planus significantly increased ($p<0.05$). The percentage of female patients with zona zoster and psoriasis vulgaris significantly increased compared to pre-pandemic period ($p<0.05$).

Conclusion: COVID-19 outbreak caused some changes in the distribution of some dermatological diseases. These changes give information about the effect of pandemic conditions on the administration of the patients to the hospital and the role of stress and COVID-19 as triggers of the diseases.

Keywords: Comparison, Dermatology, Diagnoses, COVID-19 period

Introduction

A worldwide pandemic caused by new coronavirus, severe acute respiratory syndrome coronavirus 2 began in late 2019 [1]. The first case in Turkey was identified in March 2020 [2]. It is critical to predict the course, duration, and effect of the ongoing pandemic all over the world to improve health perspectives and it may be worthy to share case features during the pandemic at intensive

patient application polyclinics. Recently numerous reports pointed the change of dermatology admissions such as increase in the frequency of urticaria, psoriasis, allergic/irritant contact dermatitis, scabies, and zona zoster [3].

In our study we aimed to evaluate the change in the overall profile of dermatology outpatient admissions during the early pandemic focusing on selected diagnosis.



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Materials and Methods

Current study was conducted in an Education and Research Hospital. Patients administered to dermatology outpatient clinic during years 2019 and 2020 were included to study. Ethical approval for this retrospective study was gained from Kirsehir Ahi Evran University Faculty of Medicine Clinical Research Ethics Committee (decision number: 2021-02/24, date: 26.01.2021). Demographic characteristics, admission dates and definitive diagnoses of the patients were obtained in the hospital automation system. Among the dermatological diagnoses, those that are likely to be affected by the pandemic were selected. Data of patients with final diagnosis as scabies, contact dermatitis, alopecia areata, telogen effluvium, lichen planus, pityriasis rosea (PR), urticaria, psoriasis and acne vulgaris were reviewed. The frequency of those dermatological diagnosis in the last year before pandemic, 2019 and ongoing pandemic during 2020 were analyzed and compared.

Statistical Analysis

The data were analyzed using Statistical Package for Social Sciences (SPSS) software version 21.0. (SPSS Inc., Chicago, IL, USA). Pearson's Chi square test was used for the comparison of the percentage values between groups.

Results

In 2019, 16107 patients administered to dermatology clinic while 5887 patients administered in 2020. The percentage of the patients diagnosed with scabies was 4.7% in 2019 and 6% in 2020 respectively ($p=0.000$). As for contact dermatitis these percentages were 24.9% and 27.8%, ($p=0.000$) for PR 1.7 and 2% ($p=0.037$) for telogen effluvium 0.5% and 0.8% ($p=0.048$), for zona zoster 0.020% and 0.025% ($p=0.000$), for alopecia areata 4.9 and 5.2% ($p=0.03$), for

lichen planus 0.2% and 0.3% ($p=0.045$). The frequency of psoriasis 4.4% in 2019 and 3.7% in 2020 ($p=0.000$), acne (58%) in 2019 and (54.1%) in 2020 ($p=0.01$). The frequency of urticaria was 0.054% in 2019 and 0.059% in 2020 respectively ($p=0.686$), (Table 1). No significant difference in terms of percentages of male and female patients in scabies and PR was detected ($p>0.05$). The ratio of male patients with contact dermatitis, telogen effluvium, alopecia areata and lichen planus significantly increased ($p<0.05$). The percentage of female patients with zona zoster and psoriasis vulgaris significantly increased compared to pre-pandemic period ($p<0.05$), (Table 2).

Discussion

With the pandemic period the number of the patients administered to dermatology clinic decreased in number since limitations have been applied to all clinics to avoid the spread of the pandemic. However, as detected in our study, the percentages of some diseases showed some changes. The frequency of scabies which showed an increasing frequency in Turkey in the last three years was higher in pandemic period comparing with pre-pandemic period [4]. Our results were in line with the previous studies [3,5,6]. This increase may be attributed to staying in closed areas for a long time as a part of stay-at-home orders which caused more interactions between people. Increased hospitalization causing hygiene defects may be also another contributing factor. The frequency of contact dermatitis also became higher as reported in previous studies [3,5,6]. The patients' more frequent consumption of disinfectant sprays, cologne and detergents may play a role in this result. The patients most commonly presented with hand dermatitis since hands are more frequently washed and disinfected.

The decrease in the percentage of psoriasis patients in our study may be attributed to patients behaviours possibly avoiding to coming to

Table 1. The distribution of dermatological diseases in 2019 and 2020

	2019		2020		p value
	Total	Percentage (%)	Total	Percentage (%)	
Total number of patients	16,107		5,887		0.00
Diagnosis					
Scabies	757	4.7	353	6	0.00
Contact dermatitis	4,010	24.9	2,398	40.7	0.00
Pityriasis rosea (PR)	274	1.7	118	2	0.037
Telogen effluvium	290	1.8	130	2.2	0.048
Zona zoster	33	0.2	15	0.25	0.00
Alopecia areata	789	4.9	306	5.2	0.03
Acne vulgaris	9,117	58	2,299	39.0	0.01
Lichen planus	32	0.2	18	0.3	0.04
Urticaria	97	0.6	32	0.54	0.68
Psoriasis	708	4.4	218	3.7	0.00

Table 2. The distribution of dermatological diseases in both years according to gender

Diagnosis	2019				2020				p value
	Male	Female	Total	Percentage (%)	Male	Female	Total	Percentage (%)	
Scabies	509 (67.2%)	248 (32.7%)	757	4.7	231 (65.4%)	122 (35.6%)	353	6	0.071
Contact dermatitis	2,278 (56.8%)	1,732 (43.2%)	4,010	24.9	1,527 (63.7%)	871 (36.3%)	2,398	27.8	0.00
Pityriasis rosea	165 (60.2%)	109 (39.8%)	274	1.7	73 (61.9%)	45 (30.1%)	118	2	0.063
Telogen effluvium	170 (58.7%)	120 (41.3%)	290	1.8	90 (69.2%)	40 (30.8%)	130	2.2	0.00
Zona zoster	16 (48.4%)	17 (52.6%)	33	0.2	6 (40%)	9 (60%)	15	0.25	0.00
Alopecia areata	645 (81.7%)	144 (18.3%)	789	4.9	296 (96.7%)	110 (3.3%)	306	5.2	0.00
Acne vulgaris	5,216 (55.8%)	3,901 (42.7%)	9,117	58	1,232 (53.6%)	1,067 (46.4%)	2,299	54.1	0.078
Lichen planus	8 (25%)	24 (75%)	32	0.2	9 (50%)	9 (50%)	18	0.3	0.00
Urticaria	77 (79.4%)	20 (20.6%)	97	0.6	22 (68.7%)	10 (31.3%)	32	0.54	0.00
Psoriasis	379 (53.5%)	329 (46.5%)	708	4.4	90 (41.3%)	128 (58.7%)	218	3.7	0.00

hospital as the treatments of some patients were stopped in the first months of pandemics because of the unclear effects of antipsoriatic drugs such as methotrexate and cyclosporine on Coronavirus disease 2019 (COVID-19) prognosis. It was observed that the patients with psoriasis who had disturbing symptoms such as severe itch administered to hospital in this period. Concordant with previous studies, there was also an increase in the frequency of alopecia areata and telogen effluvium since stress has been reported to play a major role in the development of these diseases [5,6,7,8]. Also the effect of hydroxychloroquine, azithromycin, or other medications can also contribute to the emergence of telogen effluvium [9].

Lichen planus is a dermatological disease with a frequency of 0.38-6% of the outpatients. Stress has been noted to play a role in the onset and progression of the disease. In a study by Picardi and Abeni [10] stress was found to be related with lichen planus between 10% and 51% of the patients [10]. Mansur et al. [11] described stressful events in almost 90% of patients with cutaneous lichen planus. Turkmen et al. [3] reported a significant increase in the frequency of lichen planus patients while Kartal et al. [6] reported a decreased frequency during pandemic period [3,6]. In our study, the frequency of lichen planus increased comparing with 2019. This result may support the role of stress in the etiology of lichen planus.

PR is another disease that showed increased frequency in pandemic period. Similar to our study, Kutlu and Metin [5] and Kartal et al.

[6] also found an increase in the frequency of PR [5,6]. Reactivation of Human Herpesvirus 6 and 7, other viral agents, vaccination, psychological stress, and drugs have also been implicated in the etiology of PR [12]. It has been suggested that PR can also be a manifestation of COVID-19 [13,14,15,16]. One of the factors causing activation of Herpesviruses is coronaviruses [15]. The reactivation of HHV-6 may have a role in increased PR frequency during pandemic period. Psychological stress may also be another cause leading to this result.

Zona zoster frequency also increased in our study similar to the previous studies. The close relationship between zona zoster and stress seems to have a role in this result. Reports revealing that zona zoster can be a manifestation or complication of COVID-19 also exist [17,18].

The frequency of acne patients decreased in pandemic period. This may be related to the fact that most acne patients are teenagers and restrictions were applied to this age group in certain periods of pandemics. Similarly Kutlu and Metin [5] reported a significant decrease in the frequency of acne patients in a month after the COVID-19 (April, 2020) pandemic attributing these changes to the restrictions to the age groups under 20 [5]. In our study the overall frequency of acne vulgaris also declined. In a study by Kartal et al. [6] it was reported that the overall frequency of acne patients did not change after pandemics and however an increase in acne

frequency was seen in the centers with lower COVID incidence [6]. Since our hospital was the only pandemic hospital in the city, it's also possible that acne patients did not prefer to come to hospital leading to a decrease in the acne frequency.

The frequency of urticaria did not show a change in our clinic. Kartal et al. [6] reported an increase in the frequency of urticaria during pandemic period. Since urticaria is closely related to stress and infection, an increase in urticaria frequency is expected. There are also reports indicating that acute urticaria can be also a presentation of COVID-19 [19,20,21]. The results of our study may be related to the small population size when compared with the multicenter study of Kartal et al. [6].

Study Limitations

Our study was a single center study which included a relatively small number of patients. A specific comparison with the same month and season of the previous year was not performed.

Conclusion

In conclusion, COVID-19 outbreak caused some changes in the distribution of some dermatological diseases. These changes give information about the effect of pandemic conditions on the administration of the patients to the hospital and the role of stress and COVID-19 as triggers of the diseases. Experiences in dermatology practice during pandemic period will enable the physicians to cope with such pandemics more successfully in the future.

Ethics

Ethics Committee Approval: Ethical approval for this retrospective study was gained from Kirsehir Ahi Evran University Faculty of Medicine Clinical Research Ethics Committee (decision number: 2021-02/24, date: 26.01.2021).

Informed Consent: Retrospective study.

Peer-review: Internally and externally peer-reviewed.

Authorship Contributions

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

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