Dermatology Practical & Conceptual

COVID-19 Knowledge in Patients with Psoriasis Receiving Systemic Therapy: a Questionnaire Study

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Key words: COVID-19, coronavirus, pandemic, psoriasis

Citation: Özçelik S, Kılıç FA. COVID-19 Knowledge in Patients with Psoriasis Receiving Systemic Therapy: A Questionnaire Study. *Dermatol Pract Concept.* 2022;12(4):e2022166. DOI: https://doi.org/10.5826/dpc.1204a166

Accepted: January 17, 2022; **Published:** October 2022

Funding: None.

Competing interests: None.

Authorship: All authors have contributed significantly to this publication.

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ABSTRACT

Introduction: Little is known about the impact of patient behavior on the treatment of psoriasis in the COVID-19 pandemic.

Objectives: We aimed to investigate the COVID-19 knowledge of the patients with psoriasis receiving systemic therapy in the pandemic.

Methods: The patients who received systemic treatment for psoriasis presented to our dermatology outpatient clinic were enrolled in the study. A questionnaire measuring the level of knowledge about COVID-19 and psoriasis was administered to patients. Demographics and disease characteristics of patients were recorded.

Results: A total of 183 patients with psoriasis were enrolled in the study. Of the patients, 33.9% thought that psoriasis exposes them to a risk of getting COVID-19, 30.6% declared that psoriasis treatment exposes them to a risk of getting COVID-19, and 59.6% were worried about getting COVID-19. The treatment discontinuation rate was 42.1%. The patients with high scholar level showed more anxiety and discontinued their treatment.

Conclusions: The patients with psoriasis did not have adequate knowledge of the effect of both psoriasis itself and its treatment on COVID-19 during the pandemic. The patients on biologic therapy tend to discontinue their treatment based upon the physician's recommendation, whereas those on conventional therapy mostly on their own will. Clinicians should inform patients about current evidence of COVID-19 and psoriasis.

Introduction

Psoriasis is a chronic, immune-mediated disease that waxes and wanes with flareups. Most of the systemic therapies for psoriasis that are frequently used have immunosuppressive properties [1]. Since the World Health Organization (WHO) pronounced the COVID-19 (Coronavirus disease 2019) pandemic on March 11, 2020, there have been health service disruptions in the follow-up of chronic diseases such as psoriasis. Transformation of many hospitals into a COVID-19 center during the pandemic, reassignment of health workers to COVID-19 services resulted in disruptions in treatment for chronic diseases [2]. Psoriasis patients faced difficulties in accessing to medical care and routine follow-ups. Besides, it is not difficult to guess that patients with psoriasis who are taking particularly certain systemic medications that affect the immune system might have concerns about getting infected during the pandemic [3]. It has been observed that some patients on systemic therapy discontinued their treatment because of the fear of getting infected by COVID-19 [4]. However, there are few data showing how patients with psoriasis receiving systemic treatment are affected by pandemic and which way they prefer in their treatment decision making for psoriasis.

Objectives

We aimed to investigate the COVID-19 knowledge, attitude, and practice of the patients with psoriasis receiving systemic therapy in the COVID-19 pandemic.

Methods

The study was designed as a descriptive cross-sectional study. The psoriasis patients receiving systemic therapy presented to the dermatology outpatient clinic of our hospital between March 2020 and June 2021 were enrolled in the study. A questionnaire consisting of 12 questions measuring the level of knowledge about COVID-19 and their treatment for psoriasis was administered to patients giving verbal consent (Table 2). Sociodemographic (age, gender, education level, working status) and disease characteristics (duration, PASI (Psoriasis Area Severity Index), DLQI (Dermatology Life Quality Index), joint involvement, type of treatment) of the patients were recorded.

It was investigated whether there was any effect of patients' characteristics (gender, education level, working status, PASI, DLQI, joint involvement, and type of treatment) on COVID-19 knowledge. Education level was divided into two groups as: low scholarity (primary + middle school) and high scholarity (high school + university). All patients were divided into two groups based on PASI scores. The patients whose score less than 10 was classified as mild psoriasis, and those with a score greater than 10 was classified as severe psoriasis. This was also carried out for DLQI scores. Types of psoriasis therapy were divided into conventional and biological treatments.

Approval for the study was obtained from the local ethics committee (Decision number 2020/111; 07/22/2020). All participants information was kept confidential and was used only for research purposes.

Statistical Analysis

Statistical analyses were performed using SPSS software (Version 22.0, IBM Corp). The variables were investigated using visual (histograms, probability plots) and analytical methods (Kolmogorov-Simirnov test with Lilliefors significance correction) to determine whether they are normally distributed. Descriptive analyses were presented using means and standard deviations for normally distributed variables, medians, and minimum-maximum values for the non-normally distributed variables. The Chi-square test or Fisher exact test (when chi-square test assumptions do not hold due to low expected cell counts), where appropriate, was used to compare these proportions in different groups. A P of less than 0.05 was considered to show a statistically significant result.

Results

A total of 183 patients were included in the study. Ninety-one of all patients were female (49.7%) and 111 were male (50.3%). The mean age of all patients was 45.85 ± 14.13 years (Table 1). Demographic and disease characteristics of the patients are shown in Table 1. All patients completed the questionnaires (COVID-19 and DLQI). The distribution of the answers given by the patients to the questionnaire is shown in Table 2.

A small number of statistically significant differences were found in the analysis of the effect of patients characteristics (gender, education level, working status, PASI, DLQI, joint involvement, and type of treatment) on COVID-19 knowledge. Statistically significant differences between the groups in terms of the answers to the questionnaire are summarized in Table 3.

No statistically significant difference was found between those who work and those who do not in terms of having concerns about contracting COVID-19. No statistically significant difference was found between certain groups in terms of answers to questions 4, 7, 8, 9.

While most of the patients on biologic therapy discontinued their treatment based upon physician recommendation, those on conventional therapy made the decision mostly on their own will (Table 3). Secukinumab and methotrexate were the most frequently discontinued drugs in all patients (Table 4).

Table 1. Demographic and clinical characteristics of the patients (N = 183).

Characteristic	
Female, N (%)	91 (49.7%)
Male, N (%)	92 (50.3%)
Age (year), mean ± SD	45.85±14.13
Education level, N (%)	
Primary school	71 (38.8%)
Middle school	27 (14.8%)
High school	43 (23.5%)
University	42 (23%)
Employment status, N (%)	
Working	94 (51.4%)
Nonworking	89 (48.6%)
Disease characteristics	
Duration of psoriasis (year), mean ± SD	13.32±9.41
Psoriatic arthritis, N (%)	46 (25.1%)
PASI, median (min-max)	4.5 (0-35.3)
DLQI, median (min-max)	14 (2-36)
Conventional therapies, N (%)	
Acitretin	20 (10.9%)
Methotrexate	83 (45.4%)
Cyclosporine	9 (4.9%)
Biologic therapies, N (%)	
Etanercept	2 (1.1%)
Infliximab	6 (3.3%)
Adalimumab	12 (6.6%)
Ustekinumab	17 (9.3%)
Secukinumab	17 (9.3%)
Ixekizumab	17 (9.3%)

DLQI = Dermatology Life Quality Index; PASI = Psoriasis Area Severity Index; SD = standard deviation.

Table 2. Distribution of answers given by patients to the questionnaire.

Questions	Answers	Patient, N (%)
1. Do you think having psoriasis put you at risk for COVID-19?	Yes	62 (33.9)
	No	90 (49.2)
	Don't know	31 (16.9)
2. Do you think psoriasis treatment put you at risk for COVID-19?	Yes	56 (30.6)
	No	82 (44.8)
	Don't know	45 (24.6)
3. Do you have any concern that you may contract COVID-19?	Yes	109 (59.6)
	No	74 (40.4)
4. Where would you like to have your psoriasis treatment?	Home	120 (65.6)
	Hospital	42 (23)
	Don't know	21 (11.5)
5. Do you think going to the hospital put you at increased risk of contracting COVID-19?	Yes	123 (67.2)
	No	44 (24)
	Don't know	16 (8.7)

Table 1 continues

Table 2. Distribution of answers given by patients to the questionnaire. *(continued)*

Questions	Answers	Patient, N (%)
6. Has anyone in your family or friends had COVID-19?	Yes	30 (16.4)
	No	144 (78.7)
	Don't know	9 (4.9)
7. How is COVID-19 transmitted?	Respiratory	108 (59)
	Contact	16 (8.7)
	All (Respiratory+ Contact)	54 (29.5)
	Don't know	5 (2.7)
8. What are the symptoms of COVID-19?	Fever	154 (84.2)
	Sore throat	121 (66.1)
	Cough	127 (69.4)
	Dyspnea	113 (61.7)
	Loss of smell	108 (59)
	Fatigue	97 (53)
	All	89 (48.6)
	Don't know	6 (3.3)
9. Which symptom(s) do you have make you think that you might have COVID-19 and seek medical attention?	Fever	64 (35)
	Sore throat	29 (15.8)
	Cough	37 (20.2)
	Dyspnea	26 (14.2)
	Loss of smell	19 (10.4)
	Fatigue	9 (4.9)
	All	85 (46.4)
	Don't know	6 (3.3)
10. Has your psoriasis treatment been discontinued during the pandemic?	Yes	77 (42.1)
	No	106 (57.9)
11. What was the reason for discontinuation of your treatment?	On my own will (patient)	35 (19.1)
	Physicianrecommendation	40 (21.9)
	Adverse effect	2 (1.1)
12. How long have you been without treatment?	One week	0 (0)
	Two weeks	1 (0.5)
	Three weeks	2 (1.1)
	Four weeks	5 (2.7)
	Eight weeks	15 (8.2)
	Twelve weeks	36 (19.7)
	Over twelve weeks	18 (9.8)

The most common duration that patients remain without treatment was 12 weeks, followed by over 12 weeks, 8 weeks, and 4 weeks (Table 5). No statistically significant difference was found between the medications in terms of duration of treatment discontinuation.

Conclusions

Since the beginning of the pandemic, the ability of health systems to manage chronic diseases has been impacted. Many hospitals in our country have been transformed into COVID-19 centers, health workers have been reassigned to COVID-19 services, and it has been aimed to reduce the admission of patients without urgent conditions to health institutions as much as possible. Therefore, there were health service disruptions in the follow-up of chronic diseases that require regular follow-up, such as psoriasis. In addition to pandemic measures and restrictions, many psoriasis patients discontinued their ongoing treatments or applied their treatments improperly due to the fear of getting infected. Various

Table 3. Comparison of certain groups in terms of the answers to the questionnaire.

Answers	Groups		P
Q1: Yes, having psoriasis put me at risk for COVID-19.	Mild psoriasis (PASI < 10)	Severe psoriasis (PASI > 10)	0.04
	Psoriatic arthritis (-)	Psoriatic arthritis (+)	0.01
Q2: Yes, psoriasis treatment put me at risk for COVID-19	Mild psoriasis (PASI < 10)	Severe psoriasis (PASI > 10)	0.04
Q2: No, I don't think psoriasis treatment put me at risk for COVID-19	Severe psoriasis (DLQI > 10)	Mild psoriasis (DLQI < 10)	0.02
	Conventional treatment	Biological treatment	0.01
Q3. Yes, I have concerns about contracting COVID-19.	High scholarity	Low scholarity	0.01
Q5. Yes, going to the hospital put me at increased risk of contracting COVID-19.	Female	Male	0.03
Q6. Yes, some of my family and friends have had COVID-19.	Severe psoriasis (DLQI > 10)	Mild psoriasis (DLQI < 10)	0.01
Q10. Yes, my psoriasis treatment has discontinued during the pandemic.	Biological treatment	Conventional treatment	0.01
Q12. I discontinued treatment.	Conventional treatment	Biological treatment	< 0.01
	High scholarity	Low scholarity	0.01
Q12. My doctor recommended that I stop treatment	Biological treatment	Conventional treatment	< 0.01
	Low scholarity	High scholarity	0.01
The group in which a statistically significant difference was found in favor of itself is shown in bold.			

DLQI = Dermatology Life Quality Index; PASI = Psoriasis Area Severity Index.

Table 4. Distribution of the reasons for treatment discontinuation according to medications.

	Patient will	Physician recommendation	Adverse effect	TOTAL
Acitretin	2	3	0	5
Methotrexate	19	9	1	29
Cyclosporine	2	2	0	4
Conventional (Total)	23	14	1	38
Etanercept	0	0	0	0
Infliximab	1	4	1	6
Adalimumab	5	4	0	9
Ustekinumab	2	3	0	5
Secukinumab	3	8	0	11
Ixekizumab	1	7	0	8
Biological (Total)	12	26	1	39
Total	35	40	2	77

studies on psoriasis and COVID-19 are available in the literature [5-7]. These studies primarily focus on the management of psoriasis during the pandemic, and the effects of psoriatic disease itself and systemic treatments on COVID-19. There are few studies on the knowledge of psoriasis patients about COVID-19. In this study, we aimed to investigate the COVID-19 knowledge of the patients with psoriasis and how they address their psoriasis treatment during the pandemic.

In the present study, 33.9% of the patients stated that psoriasis exposes them to a risk of getting COVID-19, whereas 49.2% responded that there was no risk, and 16.9% did not know. In addition, mostly patients with mild psoriasis (PASI <10 and without arthritis) declared that psoriasis exposes them to a risk of getting COVID-19. In a study including psoriasis (N = 51), atopic dermatitis (N = 22), and hidradenitis suppurativa (N = 25) patients, 28.6% patients thought that

Table 5. Duration of treatment discontinuation according to drugs.

	1 week	2 weeks	3 weeks	4 weeks	8 weeks	12 weeks	> 12 weeks
Acitretin	0	0	0	1	0	2	2
Methotrexate	0	0	2	1	7	14	5
Cyclosporine	0	0	0	1	0	1	2
Conventional (Total)	0	0	2	3	7	17	9
Etanercept	0	0	0	0	0	0	0
Infliximab	0	0	0	0	1	4	1
Adalimumab	0	0	0	2	1	4	2
Ustekinumab	0	0	0	0	3	2	0
Secukinumab	0	1	0	0	1	5	4
Ixekizumab	0	0	0	0	2	4	2
Biological (Total)	0	0	0	2	8	19	9
Total	0	1	2	5	15	36	18

their disease expose them to a moderate-to-severe risk to contract COVID-19 [4]. It is not exactly known that the effects of psoriasis on contracting COVID-19. However, existing literature generally suggest that psoriasis patients have similar rates of COVID-19 infection as the general population [8].

In our study, 30.6% of the patients declared that psoriasis treatment exposes them to a risk of getting COVID-19, whereas 44.8% responded that there was no risk, and 24.6% did not know. Patients on conventional therapies were more than those on biologics among the patients who thought that psoriasis treatments do not expose them to a risk of contracting COVID-19. Similarly, patients with high DLQI (> 10) were more than those with low DLQI (< 10) among the patients who thought that psoriasis treatments do not expose them to a risk of contracting COVID-19. However, patients with low PASI (< 10) were more than those with high PASI (> 10) among the patients who thought that psoriasis treatments expose them to a risk. Bragazzi et al. reported that 8.1% of patients thought that biologics expose them to a risk to contract COVID-19 [4]. In our study, this rate was 13.1%. It remains unclear if treatments for psoriasis affect the risk of contracting COVID-19. Based on the available evidence, treatments for psoriasis do not meaningfully alter the risk of contracting COVID-19 [8].

Our patients had not adequate knowledge of the effect of both psoriasis itself and its treatment on COVID-19 to cope with psoriasis during the pandemic. Doctors are the most reliable source of health information for patients. In addition to the fact that doctor-patient interactions have been negatively impacted in the pandemic, the patients may not have requested information about COVID-19 from their physicians and/or the physicians may not have provided adequate information.

Thirty out of 183 patients had a history of COVID-19 in the family. A statistically significant difference was found between patients with severe and mild psoriasis in terms of having a family history of COVID-19. The patients with severe psoriasis may have avoided seeking medical attention because of increased anxiety since their relatives had COVID-19. Further investigation is needed on this issue.

In our study, 59.6% of the patients were worried about contracting COVID-19. Bragazzi et al. reported that this rate was 79.6% [4]. The relatively low rate in our study may be related to the limited knowledge of our patients about COVID-19. Further, patients with high scholarity level were more than those with low scholarity level among the patients who have concern about getting COVID-19 (P = 0.01). It seems that the increase in knowledge affects attitude. The patients with high scholarity may be looking up more information on COVID-19.

In our study, 65.6% of the patients declared that they would like to have their psoriasis treatment at home, whereas 23% prefer the hospital, and 11.5% did not know. In addition, 67.2% of patients stated that going to the hospital put them at increased risk of contracting COVID-19, 24% responded that there was no risk, and 8.7% did not know. It may be related that the patients who have inadequate knowledge of COVID-19 and the low number of people around them who had COVID-19 (16.4%).

Most of our patients had adequate knowledge and awareness about the symptoms of COVID-19 and how it transmits (Table 2). This is most likely related that there has been a lot of easy-to-read information sharing on COVID-19 everywhere since the beginning of the pandemic.

The treatment discontinuation rate was 42.1% and physician recommendation was the most common reason of the treatment discontinuation in our study (Table 2). In our clinic, we tried to reach out to all our patients receiving immunosuppressive drugs at the beginning of the pandemic. Despite the lack of information on how exactly

immunosuppressive drugs should be used in the treatment of psoriasis in the early days of the pandemic, every patient who we reached out was evaluated for the risk: benefit ratio of immunosuppressive treatment. In this way, shared decision-making between clinician and patient was carried out. The uncertainty in the early days of the pandemic may have led both physicians and patients to be more cautious. This may have affected the treatment discontinuation rate in our study. In addition, while most of the patients on biologic therapy discontinued their treatment based upon physician's recommendation, those on conventional therapy made the decision mostly on their own will (Table 3). Pre-treatment procedures are often required before starting treatment with biologics. So, patients with psoriasis receiving biologics could have more contact with physicians than those on conventional therapy. This opportunity may have provided an effective doctor-patient communication. In this way, our patients receiving biologics may have been more informed on their health issues than those receiving conventional therapy.

It appears that psoriasis patients with low scholarity level discontinued their treatment based upon the physician's recommendation, those with high scholarity level made the decision mostly on their own will. The patients with high scholarity were more than those with low scholarity among the patients who have concern about getting COVID-19. This may have caused them to discontinue their treatment. Also, it may be related that patients with low scholarity tend to leave decision-making to physician in the use of systemic therapies in the pandemic.

This study is not without any limitation. It is a single-center study including relatively a low number of patients.

Patients with psoriasis may not have adequate knowledge of the effect of both psoriasis itself and its treatment on COVID-19 during the pandemic. The present study reveals that psoriasis patients with high scholarity level can show more anxiety and discontinue their treatment. Patients with psoriasis on biologic therapy tend to discontinue their treatment based upon the physician recommendation, whereas those on conventional therapy mostly on their own will. Clinicians should inform patients about current evidence of psoriasis and COVID-19.

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