

Analysis of treatment adherence in patients undergoing phototherapy

I.D. OĞUZ, S. KULAKLI

Department of Dermatology, Faculty of Medicine, Giresun University, Giresun, Turkey

Abstract. – OBJECTIVE: Phototherapy is a convenient and effective treatment alternative for a range of skin diseases. However, a major challenge in patient adherence to phototherapy may be the necessity of visiting a phototherapy center regularly over an extended period of time. The aims of this study were (i) to investigate the adherence rate to phototherapy and (ii) to determine factors associated with adherence to narrow-band ultraviolet B phototherapy (nbUVB) treatment.

PATIENTS AND METHODS: A retrospective review of patient records who underwent nbUVB phototherapy between January 1, 2018, and March 31, 2023, was performed. Patient records were reviewed for age, gender, skin type, diagnosis, type of phototherapy applied, duration of treatment, total number of sessions, presence of side effects, reasons for discontinuation of treatment, and perceived benefits of treatment.

RESULTS: Of a total of 729 patients undergoing phototherapy, 281 (38.5%) discontinued treatment before completing 20 sessions. In particular, younger patients and those who experienced fewer side effects tended to discontinue treatment prematurely. The most common reason for discontinuing treatment was difficulty in visiting the hospital regularly.

CONCLUSIONS: The patient's compliance with phototherapy was 61.5%. These results indicate that phototherapy is still one of the preferred treatment methods, although many new treatment agents have been developed in dermatology in recent years. Identifying and addressing factors that affect patient adherence will certainly help increase the effectiveness of treatment.

Key Words:

Adherence, Skin diseases, Narrowband ultraviolet B, Phototherapy.

Introduction

Taking patient adherence into account is a key consideration before initiating any treatment.

Failure to comply with treatment results in decreased treatment effectiveness, increased risk of side effects, and increased treatment costs¹. Patients with chronic conditions generally have lower compliance with treatment. This phenomenon is also observed in patients with various chronic skin diseases since these conditions often require long-term treatment². It has been shown that 35-45% of patients with dermatological disorders are non-compliant with treatment².

Phototherapy is a simple and cost-effective treatment option used for a variety of skin diseases such as psoriasis, atopic dermatitis, vitiligo, mycosis fungoides, photodermatoses, scleroderma, graft vs. host disease, etc.^{3,4}. It is also a safe treatment alternative for patients who cannot receive systemic treatment due to side effects or who do not respond to topical treatments^{5,6}.

However, the biggest challenge to patient adherence to phototherapy is the need for patients to visit a phototherapy center regularly over a long period of time⁷. In addition, factors such as the gradual onset of treatment effects, being alone in the cabin during the treatment, fear of skin cancer, and discomfort with light may also contribute to decreased compliance with treatment^{1,7}. Nevertheless, there are a limited number of studies on this subject.

A study⁷ conducted by The National Ambulatory Medical Care Survey in the United States showed a significant decline over the years in the use of phototherapy for psoriasis. Although the exact reasons for this trend are not fully understood, it has been suggested⁷ that factors such as the cost of phototherapy devices, the need for auxiliary staff, health insurance costs, and the obligation of patients to attend phototherapy sessions regularly on certain days of the week may be effective in this decline.

The primary aim of the study was to determine the adherence rate among patients undergoing narrow-band ultraviolet B (nbUVB)

phototherapy. Additionally, it was aimed to elucidate the underlying reasons for discontinuation of treatment in patients receiving nbUVB phototherapy as well as to examine the possible effects of factors such as gender, diagnosis, and side effects on treatment adherence. Identifying factors that reduce adherence or better understanding why patients prematurely discontinue treatment regimens will provide valuable insights into the existing literature. Addressing all these factors is aimed to contribute to the improvement of treatment adherence of patients who will undergo phototherapy in the future.

Patients and Methods

Patient Population

The data of patients who underwent nbUVB phototherapy in the phototherapy unit of the clinic between January 1, 2018, and March 31, 2023, were retrospectively examined with various diagnoses, such as psoriasis, vitiligo, mycosis fungoides, lichen planus, pruritus, parapsoriasis, morphea, and other skin conditions. Ethical approval was obtained from the Giresun Training and Research Hospital Ethics Committee (Ethical Approval Number: E-53593568-771-213326083, Date: 13/04/2023, KAEK 74. Decision Number: 10.04.2023/05).

Patient Information

Patient records, including data such as age, gender, skin type, diagnosis, applied phototherapy method (local treatment or cabin treatment), treatment duration, total number of sessions, side effects, reasons for discontinuing treatment, and perceived treatment benefits were comprehensively reviewed. Patients were divided into two groups. Patients with less than 20 treatment sessions were labeled as the “ED (early discontinuation) group”, and patients with 20 or more treatment sessions were labeled as the “ND (non-early discontinuation) group”. Data such as patients’ age, gender, diagnosis, phototherapy type, treatment duration, total number of sessions, cumulative doses, presence of side effects, adherence to treatment sessions, and perceived treatment benefit were compared between the two groups.

Phototherapy Protocols

In the phototherapy unit, the Waldman UV 7002 cabin device (Waldman UV Therapy System UV 7002, Herbert Waldmann GmbH & Co.,

Villingen-Schwenningen, Germany) is used for nbUVB treatments, and the Waldman 182 localized device (Waldman UV Therapy System UV 182, Herbert Waldmann GmbH & Co., Villingen-Schwenningen, Germany) is used for localized nbUVB treatments. The treatment protocol (starting dose, increments and maximum dose) was individualized to each patient’s skin type and diagnosis using programmed treatment regimens in the device’s software. Manual adjustments to the energy dosage were made in case of discontinuation of treatment or detection of side effects.

Statistical Analysis

Statistical analyses of the data were performed using IBM® SPSS® Statistics 25 Software (IBM Corp., Armonk, NY, USA). The normality of the numerical data obtained was examined by visual (histograms and probability plots) and analytical (Kolmogorov-Smirnov and Shapiro-Wilk tests) methods. Descriptive statistics were presented as mean \pm standard deviation for normally distributed variables and as median with minimum-maximum range for non-normally distributed variables. Categorical variables were presented as percentages. Univariate analyses of variables between the two groups were investigated using the Student’s *t*-test for normally distributed variables and the Mann-Whitney U test for non-normally distributed variables. The Chi-square or Fisher’s Exact test was used to compare categorical data between two groups. A *p*-value lower than 0.05 was considered a statistically significant result. The Chi-square test for multiple proportions was used to analyze categorical variables between multiple groups. Bonferroni correction was applied for post hoc analysis to determine significance thresholds. For multivariate analysis, logistic regression analysis was used to examine independent predictors of treatment discontinuation using potential factors identified in previous analyses. Hosmer-Lemeshow goodness of fit statistics was used to assess model fit. A type-1 error level lower than 5% was interpreted as statistically significant.

Results

Medical records of 729 patients who underwent phototherapy treatment in the phototherapy unit between January 1, 2018, and March 31, 2023, were evaluated retrospectively. The median age of the

Table I. Distribution of diagnoses of patients receiving narrowband UVB phototherapy.

Diagnosis	n: 729	%
Psoriasis	343	47.1
Pruritus	76	10.4
Parapsoriasis	46	6.3
Lichen planus	34	4.7
Mycosis fungoides	34	4.7
Vitiligo	33	4.5
Atopic dermatitis	23	3.2
Reactive perforating collagenosis	17	2.3
Other unspecified dermatitis	16	2.2
Prurigo nodularis	13	1.8
Contact dermatitis	11	1.5
Morphea	11	1.5
Pityriasis rosea	11	1.5
Pityriasis lichenoides chronica	10	1.4
Pigmented purpuric dermatosis	8	1.1
Nummular dermatitis	5	0.7
Macular amyloidosis	5	0.7
Lichen amyloidosis	5	0.7
Lichen simplex chronicus	5	0.7
Granuloma annulare	4	0.5
Pityriasis lichenoides et varioliformis acuta	4	0.5
Pityriasis rubra pilaris	3	0.4
Palmoplantar keratoderma	2	0.3
Polymorphous light eruption	2	0.3
Alopecia areata	1	0.1
Lichen sclerosis	1	0.1
Erythrokeratoderma variabilis	1	0.1
Sezary syndrome	1	0.1
Urticaria pigmentosa	1	0.1
Erythema dyschromicum perstans	1	0.1
Acanthosis nigricans	1	0.1
Lichen niditus	1	0.1

Narrowband Ultraviolet B (nbUVB).

patients was 46 (3-93) years; 414 (56.8%) of them were female, and 315 (43.2%) were male. The most prevalent diagnosis in patients was psoriasis, with 47.1% (n=343). The distribution of diagnoses within the patient cohort is detailed in Table I.

The results revealed that 281 patients (38.5%) left the treatment before completing 20 sessions for various reasons; 133 of them continued for 1-9 sessions, and 148 of them continued for 10-19 sessions. The remaining 132 patients received 20-29 sessions, and 316 patients completed 30 sessions or more. Demographic data of all patients are detailed in Table II.

While the median age in the ED group was 40, it was significantly higher in the ND group, at 51 ($p<0.001$). Additionally, the occurrence of reported side effects was significantly lower at 5.3% in the ED group than at 16.1% in the ND group. Moreover, response to the treatment was

Table II. Demographic data of all patients who received nbUVB phototherapy.

Diagnosis	n: 729
Age-median (range)	46 (3-93)
Gender	
Female	414 (56.8%)
Male	315 (43.2%)
Fitzpatrick skin type	
Skin type 1	2 (0.3%)
Skin type 2	247 (33.9%)
Skin type 3	479 (65.7%)
Skin type 4	1 (0.1%)
Phototherapy modality	
Local	202 (27.7%)
Cabin	544 (74.6%)
Local+cabin	16 (2.2%)
Side effects	87 (11.9%)
Erythema	65 (8.9%)
Pruritus	6 (0.8%)
Photosensitivity	5 (0.7%)
Fascial erythema	4 (0.5%)
Increase of lesions	3 (0.4%)
Hand desquamation	1 (0.1%)
Feeling of discomfort	1 (0.1%)
Xerosis	1 (0.1%)
Facial vesicles	1 (0.1%)
Patients who do not attend treatment regularly	335 (46%)
Treatment response*	
Full recovery	218 (37.8%)
Partial recovery	106 (18.4%)
No benefit	353 (43.8%)
Number of treatment sessions	
1-9 sessions	133 (18.2%)
10-19 sessions	148 (20.3%)
20-29 sessions	132 (18.1%)
30 sessions or more	316 (43.3%)
Patients who discontinued treatment before 20 sessions	281 (38.5%)

*Treatment response data of 577 patients were obtained. Narrowband Ultraviolet B (nbUVB).

significantly higher in the ND group ($p<0.001$) (Table III).

Logistic regression analysis revealed that patients' age and the presence of adverse effects had a noticeable impact on the likelihood of early treatment discontinuation. Specifically, younger patients and those who experienced fewer adverse effects tended to discontinue treatment prematurely (Table IV).

While investigating the reason for discontinuing treatment, the data of a total of 621 patients, 214 patients in the ED group and 407 patients in the ND group, were compiled. It was determined that 83 patients (38.3%) in the ED group discontinued treatment without notifying the doctor or

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Table III. Comparative results of data in the ED group and ND group.

	ED group	ND group	<i>p</i>
Age- median (range)	40 (3-93)	51 (4-91)	<0.001*
Gender			
Male - n (%)	116 (36.8%)	199 (63.2%)	
Female - n (%)	165 (39.9%)	249 (60.1%)	0.41**
Phototherapy modality			
Cabin phototherapy - n (%)	203 (37.3%)	341 (62.7%)	0.242**
Local phototherapy - n (%)	85 (42.1%)	117 (57.9%)	0.225**
Cabin+local phototherapy - n (%)	6 (37.5%)	10 (62.5%)	0.931**
Side effects - n (%)	15 (5.3%)	72 (16.1%)	<0.001**
Treatment response			
Full recovery-n (%)	37 (17.2%)	181 (50%)	
Partial recovery-n (%)	22 (10.2%)	84 (23.2%)	
No benefit- n (%)	156 (72.6%)	97 (26.8%)	<0.001**/‡
Diagnosis			
Psoriasis	132 (38.5%)	211 (61.5%)	0.263***
Lichen planus	10 (29.4%)	24 (70.6%)	
Vitiligo	11 (33.3%)	22 (66.7%)	
Atopic dermatitis	12 (52.2%)	11 (47.8%)	
Contact dermatitis	5 (45.5%)	6 (54.5%)	
Morphea	2 (18.2%)	9 (81.8%)	
Pruritus	40 (52.6%)	36 (47.7%)	
Mycosis fungoides	4 (11.8%)	30 (88.2%)	
Alopecia areata	1	0	
Parapsoriasis	11 (23.9%)	35 (76.1%)	
Other unspecified dermatitis	6 (37.5%)	10 (62.5%)	
Nummular dermatitis	4 (80%)	1 (20%)	
Granuloma annulare	2 (50%)	2 (50%)	
Macular amyloidosis	2 (40%)	3 (60%)	
Pityriasis lichenoides chronica	5 (50%)	5 (50%)	
Pityriasis rosea	4 (36.4%)	7 (63.6%)	
Reactive perforating collagenosis	7 (41.2%)	10 (59.8%)	
Prurigo nodularis	6 (46.2%)	7 (53.8%)	
Pigmented purpuric dermatosis	5 (62.5%)	3 (37.5%)	
Lichen sclerosus	0	1	
PLEVA	0	4	
Erythrokeratoderma variabilis	0	1	
Sezary syndrome	0	1	
Urticaria pigmentosa	0	1	
Pityriasis rubra pilaris	2 (66.7%)	1 (33.3%)	
Erythema dyschromicum perstans	0	1	
Acanthosis nigricans	1	0	
Lichen niditus	0	1	
Lichen amyloidosis	3 (60%)	2(40%)	
Palmoplantar keratoderma	2	0	
Lichen simplex chronicus	2 (40%)	3 (60%)	
Polymorphous light eruption	2	0	

ED: early discontinuation, ND: non-early discontinuation, PLEVA: Pityriasis lichenoides et varioliformis acuta. *Mann-Whitney U. **Chi Square. ***Fisher's Exact. ‡Significance level calculated with Bonferroni correction=0.016.

Table IV. Risk factors affecting early discontinuation of treatment.

Risk factor	OR (95% CI)	<i>p</i>
Age	1.019 (1.011-1.028)	<0.001
Gender (Male to female)	1.063 (0.776-1.455)	0.704
Local phototherapy	0.914 (0.336-2.478)	0.86
Cabin phototherapy	1.028 (0.367-2.878)	0.958
Side effect frequency	3.425 (1.903-6.165)	<0.001

OR: Odds ratio, CI: Confidence interval.

phototherapy nurse. Among the patients in the ED group, 12.6% discontinued treatment due to achieving remission, 7.9% cited difficulties in regular transportation to the hospital, 7.5% reported perceiving any improvement, and 7.5% had their treatment discontinued due to the closure of the unit because of the COVID-19 pandemic. A comprehensive overview of other reasons for treatment discontinuation is summarized in Table V.

Discussion

Phototherapy is considered a safer, cheaper and more cost-effective alternative to other systemic treatments⁸. Phototherapy causes apoptosis of T cells and keratinocytes, thus exerting its effect through local immunosuppression⁹. The treatment methods used in phototherapy are narrow band ultraviolet B (nbUVB) and psoralen ultraviolet A (PUVA) phototherapy. NbUVB treatment is used more frequently than PUVA because it is more effective at low cumulative doses, does not require a photosensitizing agent, is easier to apply, has fewer side effects, and can be used safely in pregnant women and children¹⁰.

Giresun province, with an area of 6,972 km², has an approximate registered population of 500,000 individuals¹¹. Our hospital attracts great

attention because it is the only hospital in this region with a phototherapy unit. Therefore, patients who need phototherapy must visit the center two or three days a week for a long time. However, patients coming from distant towns and villages spend a significant part of their time going to and from the hospital, which can lead to serious problems as it causes both physical fatigue and transportation costs¹²⁻¹⁴. Likewise, the obligation of patients who work or go to school to visit the hospital regularly during work or education hours may disrupt their professional and academic responsibilities¹³. As a result, poor patient adherence is almost inevitable due to these negativities.

Records revealed that 38% of patients discontinued treatment before completing 20 sessions, and 18% before completing 10 sessions. Young age and lack of side effects were determined as risk factors affecting discontinuation of treatment. Reasons for discontinuing treatment were found by examining the data of a total of 621 patients: 214 patients in the ED group and 407 patients in the ND group. Since 38.3% of the ED group stopped treatment without informing the medical staff, no data could be obtained regarding the reasons for stopping treatment. Other discontinuation rates with their reasons were as follows: 7.9% were difficulties in transportation to the hospital, 7.5% were perceived lack of ben-

Table V. Risk factors affecting early discontinuation of treatment.

	All participants (n=621)	ED group (n=214)	ND group (n=407)
Patients who discontinue treatment without providing any reason	103 (16.6%)	82 (38.3%)	21 (5.2%)
End of treatment	268 (43.2%)	27 (12.6%)	241 (59.2%)
Due to no benefit from the treatment	85 (13.7%)	16 (7.5%)	69 (17%)
Difficulty in accessing the hospital	28 (4.5%)	17 (7.9%)	11 (2.7%)
Living/moving far away from the phototherapy unit	21 (3.4%)	10 (4.7%)	11 (2.7%)
Due to partial benefit, switched to another treatment	5 (0.8%)	0	5 (1.2%)
Due to side effect	17 (2.7%)	10 (4.7%)	7 (1.7%)
Due to work	9 (1.4%)	7 (3.3%)	2 (0.5%)
Due to school	5 (0.8%)	3 (1.4%)	2 (0.5%)
The unit has been closed due to the COVID pandemic	43 (6.9%)	16 (7.5%)	27 (6.6%)
Due to pregnancy	3 (0.5%)	3 (1.4%)	0
Due to breastfeeding	2 (0.3%)	2 (0.9%)	0
Due to health insurance problem	4 (0.6%)	4 (1.9%)	0
Prisoner	2 (0.3%)	1 (0.5%)	1 (0.2%)
Switched to other treatment due to the development of psoriatic arthritis	6 (1%)	3 (1.4%)	3 (0.7%)
Due to other health problems	6 (1%)	5 (2.3%)	1 (0.2%)
Increase in lesions	3 (0.5%)	3 (1.4%)	0
Financial difficulty	1 (0.2%)	0	1 (0.2%)
Due to sports training	2 (0.3%)	0	2 (0.5%)
Other social problems	8 (1.3%)	5 (2.3%)	3 (0.7%)

ED: early discontinuation, ND: non-early discontinuation.

eft, 7.5% were the closure of the unit during the COVID-19 outbreak, and 4.7% were moved away from the phototherapy center. The remaining reasons, included side effects, conflicts with work, school, or training schedules, change of treatment due to psoriatic arthritis development, inability to visit the phototherapy center due to other health problems, pregnancy, breastfeeding, increase in lesions, financial constraints, health insurance issues, and difficulties in commuting because of being in prison.

One of the limited studies examining phototherapy adherence conducted by Kandaswamy et al¹⁵ investigated the adherence of patients undergoing phototherapy for vitiligo. The study revealed that only 26.5% adhered to the prescribed treatment regimen consistently, while just over two-thirds of patients did not adhere to it. Younger patients, those with more extensive disease, those who did not experience side effects during treatment, and patients with facial lesions showed better adherence. However, education level and gender were not determined as significant factors affecting adherence to treatment. While 37.9% of patients who discontinued treatment expressed a lack of confidence in the treatment, all patients who consistently adhered to treatment expressed firm confidence in the approach. Patients with visible lesions in open areas appeared to have a reduced rate of treatment discontinuation, possibly due to a higher psychosocial impact. The rates and reasons for discontinuation of phototherapy in this study were as follows: 22.8% due to side effects, 14.4% being far from the phototherapy center, 13.4% mentioned the demanding treatment schedule, 10.9% perceived ineffectiveness, 9.5% rated the lesions as insignificant, 7.4% noticed a decrease in the lesion, 3.9% found comfort in-home treatment, 3.4% cited financial concerns, and 2.4% encountered transportation difficulties⁷.

In another study, the adherence of patients who underwent phototherapy due to vitiligo and psoriasis was investigated by Kalia et al¹⁶. It has been reported that 53% of patients receiving phototherapy for psoriasis discontinued treatment before completing 20 sessions, and one third stopped treatment before completing 10 sessions. 49% of patients with vitiligo discontinued treatment before completing 60 sessions. In both diagnostic groups, age, gender, and travel distance were identified as factors affecting adherence with treatment. Age was the most important factor. Patients aged 40 and over were 1.65 times more likely to receive more than 20 sessions of treat-

ment. The increase in adherence with treatment as advancing age is consistent with this study.

In a retrospective study¹⁷ examining the patient records of 817 people receiving nbUVB phototherapy, the compliance rates of the patients during the first month of treatment were determined. Of the aforementioned patients, 29% were diagnosed with atopic dermatitis, 27% with psoriasis, 23% with vitiligo, and 21% with mycosis fungoides. The adherence rate was 71%, with no significant difference in age, gender and skin phototype between patients who complied with the treatment and those who did not. However, unlike the current study, their multivariate analysis showed that compliance decreased as age increased. It was also reported that patients diagnosed with mycosis fungoides were more compliant than patients with other diagnoses.

Decreased compliance in young patients may be attributed to the fact that they are more likely to be working or attending school. The need to take time off from work or school can significantly hinder young patients' adherence with treatment¹³. However, among the patients who received less than 20 treatment sessions, only 3.3% discontinued the treatment due to work reasons, and 1.4% due to school-related reasons. Specifically, 38.3% of patients discontinued treatment without notifying the clinic, and subsequent attempts to contact these patients were unsuccessful. There might also be patients in this group who could not continue treatment due to work or school obligations. In order to alleviate the grievances of patients who cannot complete their treatments due to work or school, a solution may be to employ the staff in the phototherapy unit to provide treatment in shifts after working hours. However, this requires a sufficient number of trained health professionals. Another alternative for these patients may be home-based phototherapy¹³.

Transportation difficulties and related costs are also important factors that may negatively affect treatment adherence. While 7.9% of patients who received less than 20 sessions stated that they had difficulties in transportation to the hospital, 4.7% reported that they were unable to continue treatment due to the distance from the phototherapy center. By introducing home-based phototherapy systems, the frequency of treatment discontinuation due to transportation difficulties may be reduced. A study⁵ demonstrated a remarkable 96% treatment adherence rate among patients using home-based phototherapy. Home-based phototherapy devices are portable, user-friendly, and

easy to use. Offering side effects and effectiveness similar to office-based phototherapy, this treatment alternative offers higher levels of patient satisfaction¹⁸. For compliant patients and those who can afford the equipment, home-based phototherapy may serve as a valid alternative approach.

Another potential alternative for patients who live far from the hospital and do not have access to public transportation could be the use of patient transport vehicles managed by health centers, similar to the approach for dialysis patients. This approach has the advantage of reducing patients' travel costs and enhancing transportation comfort by minimizing the time spent on public transportation and the associated inconveniences. However, this method can be costly, and the hospital budget may not easily cover these costs¹⁹. In order to implement such a solution, various stakeholders such as the Ministry of Health, provincial health directorates, and hospital management need to cooperate. Working together on this issue will be beneficial to investigate the feasibility and sustainability of this transportation option.

The incidence of side effects was significantly higher in patients who received phototherapy for more than 20 sessions compared to those who received less than 20 sessions. It is naturally expected that patients who undergo treatment for a shorter period of time will experience a lower frequency of treatment-related side effects. However, the rate of discontinuation of treatment due to side effects was 4.7% in the ED group and 1.7% in the ND group, respectively. This points out that although the frequency of side effects is higher in those who continue treatment, the frequency of side effects severe enough to require treatment discontinuation is relatively low.

Approximately 38.3% of patients in the ED group discontinued therapy without informing either their doctor or the phototherapy staff, and these patients could not be contacted afterward. It is essential to keep accurate patient records to prevent the loss of such critical data.

Insufficient communication with patients and not being informed about their diseases and treatment processes are important factors contributing to treatment non-compliance. Therefore, effective communication with the patient and comprehensive information about the treatment should be provided. By adequately explaining the effectiveness, duration, and anticipated processes of the treatment to the patient, confidence in the treatment will increase, and thus, the possibility of premature treatment discontinuation without

consulting the healthcare professional will decrease^{20,21}. In a study²² conducted in Turkey in 2010, phototherapy units were evaluated from the patients' perspective. While it was determined in the research that patients generally had positive opinions about the staff in the phototherapy unit, the trust in the physician responsible for phototherapy was lower. This lack of trust was attributed to physicians' busy schedules; this may have resulted in gaps in providing information to patients or patients constantly seeking more information. To solve this problem, the study suggested that by improving the working conditions and routines of physicians and improving the quality of communication with patients, the situation can be effectively corrected²².

Based on the results of the current study, a plan was prepared to implement improvements that would increase the compliance of patients undergoing phototherapy. First of all, the communication between the patient, the physician and the phototherapy staff should be improved. The high numbers of patients applying to the hospital on a daily basis and insufficient visit times negatively affect communication. In this context, we planned to organize training hours and prepare patient information brochures in order to ensure that patients have sufficient information about their disease and treatment process before undergoing phototherapy. In addition, we planned to implement shift schedules for phototherapy staff in the unit so that patients can receive service outside normal working hours. To solve this problem, hospital administrators have already been requested to increase the number of employees trained in this regard. Due to the high costs of both patient transport vehicles and phototherapy devices at home, a study on this subject cannot be initiated at the moment.

Limitations

One of the limitations of the study is that its retrospective design makes it difficult to access demographic information such as education level, marital status, comorbidities, and the distance of the patients to the phototherapy center. Another limitation is that the reasons for discontinuing treatment could not be determined in 38.3% of patients.

Conclusions

Phototherapy is an effective and dependable treatment method that can be applied to a wide range of diagnoses. The study showed that the

compliance rate for patients undergoing phototherapy was 61.5%. This indicates that phototherapy is still a preferred treatment approach despite the emergence of many new treatment agents in the field of dermatology in recent years. Nevertheless, to achieve optimal treatment effectiveness, it is essential for patients to adhere to a consistent treatment schedule. Identifying and resolving factors that hinder patient compliance will significantly contribute to increasing treatment effectiveness.

Conflict of Interest

The authors declare that they have no conflict of interests.

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Ethics Approval

Ethical approval was obtained from the Giresun Training and Research Hospital Ethics Committee (Ethical Approval Number: E-53593568-771-213326083, Date: 13/04/2023, KAEK 74. Decision Number: 10.04.2023/05).

Informed Consent

Not applicable.

Authors' Contributions

Concepts: I.D.O., S.K.; Design: I.D.O., S.K.; Literature search: I.D.O., S.K.; Clinical studies: I.D.O., S.K.; Data acquisition: I.D.O., S.K.; Data analysis: I.D.O., S.K.; Statistical analysis: I.D.O.; Manuscript preparation: I.D.O.; Manuscript editing: I.D.O., S.K.; Manuscript review: I.D.O., S.K.

ORCID ID

I.D.O.: 0000-0001-8628-6107
S.K.: 0000-00001-7866-1060

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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