ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

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Evaluation of Demographic Features, Clinical Characteristics and Quality of Life in Melasma Patients as Compared to the Control Group

Melazma Hastalarında Demografik Özellikler, Klinik Karakterler ve Yaşam Kalitesinin Kontrol Grubuna Göre Değerlendirilmesi

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ABSTRACT Objective: Melasma has been shown to have a significant emotional and psychologic impact on affected patients. We aimed to investigate the demographic features and clinical characteristics of melasma patients and the effect of the disease on the quality of life. **Material and Methods:** Medical records of 80 melasma patients who presented to outpatient clinic and 80 adult patients without facial dermatosis but had skin disease as control group were reviewed. Dermatological Quality of Life Index (DLQI) was filled out in the form of a questionnaire and the quality of life of both groups was measured. **Results:** A significant difference was found between the patient and control groups in marital status, income level and drug use due to additional systemic disease. Median DLQI score was 4.00 in the patient group; while median DLQI score was 5.50 in the control group. Patients who received previous treatment for melasma or other dermatological diagnoses had higher DLQI scores than patients who did not receive such treatment. **Conclusion:** The lower the education level, the higher the rate of melasma may be due to the lack of knowledge about sun protection. The epidermal type melasma was detected the most. In the present study, it was found that the negative effects of melasma on the quality of life of the patients were less than control group. In the control group, the negative effects of other skin diseases on the dermatological quality of life were much stronger than the effects on patient group.

Keywords: Melasma; life quality; epidemiologic factors

ÖZET Amaç: Melazmanın etkilenen hastalar üzerinde önemli bir duygusal ve psikolojik etkisi olduğu gösterilmiştir. Melazma hastalarının demografik yapısını, klinik özelliklerini ve hastalığın yaşam kalitesine olan etkisini araştırmayı amaçladık. **Gereç ve Yöntemler:** Dermatoloji polikliniğine başvuran melazma tanısı olan 80 ve kontrol grubu olarak fasiyal dermatozu olmayan fakat deri hastalığı olan 80 erişkin hastaların tibbi kayıtları incelenmiştir. Hastalara Dermatolojik Yaşam Kalite İndeksi (DYKİ) anket şeklinde doldurtularak her iki grubun yaşam kalitesi ölçülmüştür. **Bulgular**: Hasta ve kontrol grupları arasında medeni durum, gelir düzeyi ve ek sistemik hastalığa bağlı ilaç kullanımında anlamlı farklılık bulundu. Hasta grubunda DYKİ skoru ortanca değeri 4.00 iken kontrol grubunda DYKİ skoru ortanca değeri 5.50 idi. Melazma veya diğer dermatolojik tanılar için öncesinde tedavi alan hastalarda ise DYKİ skoru almayanlara göre daha yüksekti. **Sonuç:** Eğitim düzeyi düşükçe melazma oranının artması, güneşten korunma konusundaki bilgi eksikliği kaynaklı olabilir. En sık epidermal tip melazma tespit edilmiştir. Bu çalışmada, melazmanın hastaların yaşam kalitesine olumsuz etkilerinin seçilen kontrol grubuna göre daha az olduğu görüldü. Kontrol grubunda, diğer cilt hastalıklarının dermatolojik yaşam kalitesi üzerindeki olumsuz etkileri hasta grubuna göre çok daha güçlüdür.

Anahtar Kelimeler: Melazma; yaşam kalitesi; epidemiyolojik etkenler

Melasma is a chronic acquired hyper melanosis characterized by brown macular lesions with symmetrical irregular borders, produced by sun exposure, especially in facial regions. It affects both sexes and various races, being more common in women and those who have darker skins such as Fitzpatrick type 4-6.[1] Although the development mechanism of melasma is not clear, various factors such as genetic

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predisposition, exposure to ultraviolet light, pregnancy, oral contraceptives (OC), hormone replacement treatment, thyroid diseases, cosmetics, and drugs have been proposed.[2]

As melasma involves regions such as face which is immediately visible, its treatment is difficult and has a chronic course and it may exert an adverse impact on psychological condition and quality of life in patients. [3]

The most commonly used and important scales used in dermatology is The Dermatology Life Quality Index (DLQI).[4] This index, which can be used in all dermatological diseases, is beneficial in revealing the approach of the patient to his/her disease and the anxiety produced by the disease. It has been prepared based on subcategories of symptoms and feelings, daily activities, pastime activities, school-work life, personal relations, and treatment and it includes 10 items with four possible response options each. The index aims to evaluate the effect on social and physical activities within the last week. Higher scores indicate that life quality is influenced.[5] Its reliability and validity study in Turkish has been carried out.[6] The present study aimed to investigate the demographic features and clinical characteristics of melasma and the effect of disease on life quality. For this, unlike similar studies, we formed the control group from individuals with other skin diseases but without facial involvement.

MATERIAL AND METHODS

Overall 160 subjects (80 patients, 80 controls) referring to Dermatology Outpatient Clinic of Ankara Training and Research Hospital between November 2015 and November 2016 were included in the present study. Inclusion criteria were having melasma for the patient group and having dermatological diseases other than melasma for the control group. Exclusion criterion was having any kind of facial dermatosis in control group. In addition, cases younger than 18 years in both groups were excluded from the study. Approval for the study was obtained from the Ethics Committee of Ankara Training and Research Hospital on 21.12.2016 with the number 0669. This study was conducted in accordance with the Helsinki Declaration 2008 principles (http://www.wma.net/en/30publications/10policies/-b3/index.html). Informed consent was obtained from the patients and they were asked to fill DLQI to measure quality of life in both groups.

Information on age, sex, occupation, education status, marital status, income level, family history of melasma, age of onset of complaints, duration of disease, age of diagnosis, menopause, use of OC and other drugs, topical cosmetic use, additional diseases, use of sun protectors, skin type, distribution of lesions, wood light examination, triggering factors (exposure to sunlight, history of pregnancy, use of contraceptive and other drugs), skin type, distribution of lesions, previous treatment on melasma was obtained from patient records and and evaluated.

The evaluation of quality of life was carried out with DLQI including the subcategories of symptoms and feelings, daily activities, leisure activities, school/work life, personal relations and treatment for evaluating the last week before the test. No effect corresponds to (0), while large, strong effect corresponds to (3). The overall score varies between 0-30. If the score is between 0-5, it was evaluated as not being influenced or small effect from disease, between 5-11 as moderate effect and score over 11 as large, the strong effect.[7, 8]

For statistical analyses, IBM SPSS Statistics 21.0 program was used. Whether the numerical values were distributed normally was evaluated with the Shapiro Wilks Test. Descriptive statistics of variables that are not normally distributed were expressed with median (interquartile range, IQR), and normally distributed variables were expressed with mean±standard deviation values. In categorical variables, distribution of individuals was expressed with number (N) and percentage (%). In the comparison of continuous variables in patient and control groups, independent samples t-test or Mann Whitney U test was used (whichever appropriate). In categorical variables, in the comparison of groups, Pearson chi-square or Fisher's exact chi-square test was used (whichever appropriate). The relation between numerical variables was evaluated with Spearman rho correlation coefficient. In the comparison of more than two independent groups, one-way variance anal-

ysis (ANOVA) or Kruskal Wallis non-parametric variance analysis was used (whichever appropriate). Statistical significance was set at $p<0.05$.

RESULTS

Demographic characteristics of patient and control groups are demonstrated in Table 1. Age of onset, age of diagnosis and duration of disease in patient and control groups are demonstrated in Table 2. History of disease and drug use in patient and control groups are demonstrated in Table 3.

Family history of melasma was present in 28.7% of melasma patients. The most common skin type in melasma patients was type 3 (48.8%). The most common type of melasma was malar type (91.25%). While no significant relation was found between site of lesions and duration of disease (sentrofasyal; p=0.656, malar; p=0.561, mandibular; p=0.912) in those with centrofacial involvement, the number of patients with history of thyroid disease was much higher (p=0.037). In the present study, epidermal type melasma was found to be most common (57.5%). No significant relation was found between type of melasma and duration of disease (p=0.095) and smoking history (p=0.773). In melasma patients, no significant relation was found between age of onset of complaints, and skin type (p=0.072), melasma type (p=0.152), family history (p=0.330), history of gestation (p=0.656), and thyroid disease (p=0.107). Of melasma patients, 39

TABLE 1: Demographic characteristics of patient and control groups.

		Patient n (%)	Control n (%)	p
Sex	Female	73 (91.2)	73 (91.2)	1.000
	Male	7 (8.8)	7 (8.8)	
Mean age		35.53±6.60	35.51±5.45	0.979
Occupation	Public servant-worker, free enterprise	31 (38.7)	27 (33.7)	
	Housewife-unemployed	46 (57.5)	52 (65.0)	
	Student	3 (3.8)	1 (1.3)	
Education status	Illiterate and primary school	38 (47.5)	43 (53.8)	0.357
	Secondary school	10 (12.5)	10 (12.5)	
	High school	16 (20.0)	19 (23.7)	
	University	16 (20.0)	8 (10.0)	
Marital status	Married	58 (72.5)[a]	73 (91.2)[b]	0.009*
	Single	15 (18.7)[a]	5 (6.3)[b]	
	Widow /divorced/separated	7 (8.8)[a]	2 (2.5)[a]	
Income level	< TL 600	9 (11.3)[a]	3 (3.8)[a]	0.002*
	TL 600-TL 1000	15 (18.7)[a]	5 (6.3)[b]	
	TL 1000-TL 2000	32 (40.0)[a]	54 (67.4)[b]	
	> TL 2000	24 (30.0)[a]	18 (22.5)[a]	

TL: Turkish liras, *p<0.05

TABLE 2: Age of onset, age of diagnosis and duration of disease in patient and control groups.

Variables	Patient Mean±SD Median (IQR)	Control Mean±SD Median (IQR)	p
Mean age of onset	30.28±7.60	32.61±7.60	0.055
Mean age of diagnosis	33.82±6.84	33.76±6.45	0.953
Duration of disease (year)	4.00 (7.80)	0.40 (1.90)	<0.001*

*p<0.05

IQR: Inter quartile range, SD: Standard deviation.

TABLE 3: History of disease and drug use in patient and control groups.

		Patient n (%)	Control n (%)	p
History of additional systemic disease	Present	29 (36.2)	37 (46.3)	0.199
	Absent	51 (63.8)	43 (53.7)	
History of thyroid disease	Present	10 (12.5)	6 (7.5)	0.292
	Absent	70 (87.5)	74 (92.5)	
History of menstrual cycle irregularity	Present	7 (8.7)	2 (2.5)	0.167
	Absent	73 (91.3)	78 (97.5)	
History of psychiatric disease	Present	3 (3.8)	4 (5.0)	1.000
	Absent	77 (96.2)	76 (95.0)	
Drug use due to additional systemic disease	Present	21 (26.3)	34 (42.5)	0.030*
	Absent	59 (73.7)	46 (57.5)	
Use of drugs that may play a role in the development of melasma	Present	4 (5.0)	4 (5.0)	1.000
	Absent	96 (95.0)	96 (95.0)	
Previous treatment due to melasma or other dermatological diagnoses	Present	28 (35.0	37 (46.3)	0.147
	Absent	52 (65.0)	43 (53.7)	

*p<0.05.

(48.8%) presented in summer, 27 (33.8%) in autumn, 8 (10.0%) in winter and 6 (7.5%) in spring.

DLQI median score was found to be 4,00 (6,50) and 5.50 (8.75) respectively in melasma and control groups, the score in control group being significantly higher (p=0.036). No significant relation was found between median score of DLQI and factors such as sex (p=0.297), age (p=0.385), duration of disease (p=0.068), education status (p=0.343), occupational status (p=0.259), marital status (p=0.299), smoking status (p=0.382), history of psychiatric disease (p=0.468), additional systemic disease (p=0.235) and drug use (p=0.382) for these diseases in either group. Median DLQI score was higher in patients who received treatment previously for melasma and other dermatological diagnoses (p<0.001).

In melasma patients, DLQI median score in subcategories was as follows: symptom and feelings 1.00 (2.75), daily activities 1.00 (2.00), leisure activities 0.00 (2.00), school/work-life 0.00 (0.00), personal relations 1.00 (1.75), treatment 0.00 (1.00).

When patients and control groups were divided into subgroups according to quality of life index scores, in patient group there were 48 (60.0%), patients who were influenced little 25 (31.3%), influenced moderately and 7 (8.7%) influenced strongly, while the corresponding figures were 40 (50.0%), 20 (25.0%), and 20 (25.0%) respectively in the control group (p=0.023). In patient group, as the age increased, the patients were not influenced by the disease more strongly. However, in control group, younger patients were determined to be influenced moderately from the disease (p=0.014). In the patient group, in patients who did not receive treatment for melasma previously, life quality was influenced little, while in those who received previous treatment, it was influenced moderately (p=0.003). In patient and control groups, no relation was found between the degree of influence from the disease and duration of disease and drug users due to additional systemic disease (patient; p=0.120, control; p=0.185).

DISCUSSION

Melasma is a common acquired disease characterized by irregular macular hyperpigmentation in regions exposed to sun such as face and neck. As it occurs in visible places, it can affect the patients emotionally and psychologically.[4] The majority of melasma patients do not describe any physical disturbance and psychosocial effects on quality of life have assumed importance.[3]

The etiology and characteristics of melasma vary between different populations and there are different data on demographic and clinical characteristics of the patients.[2,9] In the study of Freitag, the mean age of diagnosis was 41.4 (±7.2), while in the present study,

it was found to be 33.8 (±6.8).[10] Similarly to the results of the study of Sarkar et al. (27.0%), it was established that duration of disease was longer than five years in 30% of the patients.[17] In the present study, it was found that the rate of melasma was higher in patients with lower education levels as in other studies.[10,11] This may be due to a lack of knowledge on sun protection. Similarly, consistently with the other studies, individuals with middle income level were more common than those with low and high income levels.[10,12] In the present study, family history of melasma was found in 23 (28.7%) patients and as in the study of Hexsel et al., melasma was established to have a younger age of onset in patients with a family history of melasma.[14]

Similarly to the results reported in the literature, history of pregnancy was present in 75% of the patient group, but this rate was not significantly different from that in the control group (p=0.574).[10,13-15] It is our opinion that this similarity maybe because both groups were at similar ages and in reproductive ages.

The use of topical cosmetic products was significantly higher in the patient group (p=0.002). As there was no definite information on whether cosmetic use preceded or followed the use of melasma development, no interpretation could be made on causal relation between them. It should also be kept in mind that the use of cosmetic products may be used for camouflaging melasma.

Consistently with previous studies, the most common type of melasma was established to be epidermal type (57.5%).[18,19] In the study of Sanchez et al., it was reported that melasma occurred mostly in summer months and was aggravated with sun exposure.[20] Likewise, in the present study, sun exposure was present in 88.8% of the patients. In the present study, the idea that melasma is triggered by sun exposure in summer months was supported. The employment of sun protector was seen in 56.3% of the patients, being significantly higher than the rate in control group (p<0.001), which suggested that awareness of the importance of protection from sun increases after the development of melasma.

Although varying results have been reported in the literature regarding DLQI, high scores indicate that quality of life is influenced adversely in melasma.[21,22] In the study of Harumi et al. on female melasma patients in Singapur, mean DLQI value was found to be 4.5 and median value 2.0.[16] Similarly, in the study of Maranzotto et al., the median value was found to be 2.0.[12] In the present study, DLQI score varied between 01 and 16 in melasma patients with a median value of 4.0. Congruent with the studies of Harumi and Maranzatto, it was established that there was a small effect on quality of life in melasma patients.

In the literature, DLQI scores were reported to vary between 5.9-7.4 in patients with psoriasis and between 6.1-7.3 in those with atopic eczema.[22-24] In the study of Kulthanan et al., DLQI scores were found to be 12.9, 10.6, 8.8 and 6.0 in psoriasis, acne, vitiligo, and melasma respectively. In patients with melasma, the score was found to be higher than that in a normal population, and patients with viral wart, seborrheic keratosis and benign skin tumor.[25] In the present study, DLQI score of control group varied between 0 and 28 with a median value of 5.50 (8.75), indicating that DLQI score was significantly higher in control group than in patient group (p=0.036). It may be thought that this result may be due to the selection of patients with dermatological diseases for the control group. In the present study, similarly to the findings in the literature, melasma was shown to exert relatively little effect on quality of life.

DLQI score was higher in patients who have received treatment previously for melasma and other dermatological diagnoses than patients in patient and control groups who have not received treatment previously (p=0.147). This finding suggests that currently used dermatological treatment agents for melasma and other dermatological diseases are not adequate in improving dermatological quality of life. In other words, the higher DLQI score found in the treated patients suggested treatment failure.

When melasma patients were evaluated in terms of DLQI subcategories, symptoms and feelings, daily activities and personal relations were the categories in which the effect was strongest. To our knowledge, there is no previous study in the literature in which melasma patients were evaluated in subgroups of no

or small effect of, moderate effect and large effect of disease according to their DLQI scores. Although this classification has no scientific significance, Ali et al. found the mean DLQI score of 16.23±5.35, 19.32±3.99 and 22.0±2.0 in patients with mild, moderate and severe disease, respectively.[26] In the present study, more patients in the control group were largely affected by the disease (p=0.023). In the evaluation of the relationship between the mean age of patients and degree of disease effect, it was established that there was no relation between higher age and the degree of effect (p=0.606) while in other dermatological diseases, younger patients were found to be influenced moderately (p=0.014). Also, in the patient group, there was small effect on quality of life in patients who have not received previous treatment for melasma while there was moderate effect on patients who have undergone treatment previously. It was thought that these findings may be due to high expectations of recovery in patients, to inadequacy of treatment agents or additional burden on daily life associated with treatment.

We suggest that further studies with larger patient groups and healthy volunteers will help to elucidate socio-demographic characteristics, triggering factors and the impact of disease on quality of life among melasma patients.

CONCLUSION

In the present study, it was found that the negative effects of melasma on the quality of life of the patients were less than control group. In the control group, the negative effects of other skin diseases on the dermatological quality of life were much stronger than the effects on patient group.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Hatice Meral Ekşioğlu;* ***Design:*** *Nermin Karaosmanoğlu;* ***Control/Supervision:*** *Hatice Meral Ekşioğlu, Zeynep Büşra Balık;* ***Data Collection and/or Processing:*** *Zeynep Büşra Balık;* ***Analysis and/or Interpretation:*** *Zeynep Büşra Balık, Ahmet Rıfat Balık, Selcen Yüksel;* ***Literature Review:*** *Nermin Karaosmanoğlu, Ahmet Rıfat Balık;* ***Writing the Article:*** *Zeynep Büşra Balık, Ahmet Rıfat Balık;* ***Critical Review:*** *Hatice Meral Ekşioğlu;* ***References and Fundings:*** *Zeynep Büşra Balık;* ***Materials:*** *Zeynep Büşra Balık;* ***Other:*** *Ahmet Rıfat Balık, Selcen Yüksel.*

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