Original Investigation
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Dermatological diseases in immigrants with Fitzpatrick skin types 5-6 evaluated in a tertiary health center

Üçüncü basamak bir sağlık merkezinde değerlendirilen Fitzpatrick deri tipi 5-6 olan göçmenlerdeki dermatolojik hastalıklar

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Abstract

Background and Design: Dermatologists have limited experience with dermatological diseases seen in immigrants with Fitzpatrick skin types 5-6 in Turkey, which can cause difficulties in diagnosis. This study aimed to examine the clinical and demographic characteristics of this patient population evaluated in a tertiary health center.
Materials and Methods: All patients with Fitzpatrick skin types 5-6 who applied to our dermatology outpatient clinic between June 1, 2018, and July 15, 2021, were included in this single-center, retrospective study. All data were obtained from the electronic database.
Results: The study included 65 patients with Fitzpatrick skin types 5-6 from 14 countries. Overall, 37 of the patients were female and 28 were male, and the mean age was 30.7±15.54 years. The patients were most commonly from East Africa (76.9%), and 38 (58.5%) patients were from Somalia. The most common diagnoses were acne (21.5%), infections (20.0%), dermatitis (12.3%), pigmentation disorders (9.2%), and xerosis cutis (9.2%). Biopsy was taken from 6 (9.2%) patients. As regards treatment, only topical treatment was recommended in 55.4%, topical and systemic treatment in 26.1%, systemic treatment in 4.6%, cryotherapy/surgical methods in 6.1%, and further examination in 7.7% of the cases.
Conclusion: Acne, dermatitis, pigmentation disorders, and alopecia, which are common diagnoses in our study, are consistent with the diagnoses reported most frequently in patients with Fitzpatrick skin type 5-6. The finding that infections (20.0%) were among the most common diagnoses in our study may be related to the difficult living conditions of this patient population as they are immigrants. Thus, physicians should recognize common dermatological diseases in individuals with Fitzpatrick skin types 5-6. Our results may guide further studies in determining the medical needs of this patient group and planning dermatological care appropriately.
Keywords: Skin phototypes, skin pigmentation, migrants, skin diseases, dermatology

Öz

Amaç: Ülkemizde Fitzpatrick deri tipi 5-6 olan göçmenlerde görülen dermatolojik hastalıklara ilişkin dermatologların sınırlı deneyimi olup bu durum zaman zaman tanıda güçlüklere neden olabilmektedir. Çalışmanın amacı üçüncü basamak bir sağlık merkezinde değerlendirilen bu hasta popülasyonunun klinik ve demografik özelliklerinin incelenmesidir.
Gereç ve Yöntem: Çalışmamız tek merkezli ve retrospektif olup 1 Haziran 2018-15 Temmuz 2021 tarihleri arasında dermatoloji polikliniğimize başvuran, Fitzpatrick deri tipi 5-6 olan tüm hastalar çalışmaya dahil edilmiştir. Tüm veriler elektronik veri tabanından elde edilmiştir.
Bulgular: Çalışmaya Fitzpatrick deri tipi 5-6 olan 14 ülkeden 65 hasta dahil edilmiştir. Hastaların 37'si kadın, 28'i erkektir ve yaş ortalaması 30,7±15,54'tür. Hastalar en sık Doğu Afrika'dan (%76,9) olup, 38 hasta (%58,5) Somali kökenlidir. En sık karşılaşılan dermatolojik tanılar akne (%21,5), enfeksiyonlar (%20,0), dermatitler (%12,3), pigmentasyon bozuklukları (%9,2) ve kserozis kutis'dir (%9,2). Toplamda 6 hastadan (%9,2) biyopsi alınmıştır. Uygulanan tedavi modaliteleri değerlendirildiğinde hastaların %55,4'üne yalnızca topikal, %26,1'ine topikal ve sistemik, %4,6'sına yalnızca sistemik tedavi, %6,1'ine kriyoterapi/cerrahi yöntemler ve %7,7'sine ileri inceleme önerilmiştir.
Sonuç: Çalışmamızda sık görülen tanılardan akne, dermatitler, pigmentasyon bozuklukları ve alopesiler, literatürde Fitzpatrick deri tipi 5-6 hastalarda en sık görüldüğü bildirilen tanılar ile uyumludur. Çalışmamızda enfeksiyonların en sık rastlanan tanılardan biri olması bu hasta popülasyonunun göçmen olması nedeniyle ülkemizde sahip olduğu zor yaşam koşullarıyla ilişkili olabilir. Fitzpatrick deri tipi 5-6 olan bireylerde

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yaygın görülen dermatolojik hastalıkların hekimler tarafından iyi tanınması önemlidir, bu nedenle çalışmamızın sonuçları uygun dermatolojik bakımın planlanması için bu hasta grubunun tıbbi ihtiyaçlarının belirlenmesinde daha sonraki çalışmalar için yol gösterici olabilir.
Anahtar Kelimeler: Deri fototipleri, deri pigmentasyonu, göçmenler, deri hastalıkları, dermatoloji

Introduction

The Fitzpatrick skin type scale is a numerical classification developed by Thomas B. Fitzpatrick in 1975 to predict the response of skin types to ultraviolet radiation. This classification includes six skin types, from the lightest skin phototype (type 1) to the darkest skin phototype (type 6)[1]. Differences in skin color are due to the amount and distribution of melanin in epidermal melanocytes and keratinocytes rather than the number of melanocytes[2]. Although certain criticisms exist regarding Fitzpatrick skin phototyping, it is the most widely accepted skin typing system and is easy to use in clinical practice[1]. Regarding their ethnicities, individuals with type 5-6 phototypes are generally of African, African-American, and Caribbean origin[3]. In Turkey, individuals with Fitzpatrick skin types 1-4 constitute the majority of the population. Therefore, dermatologists may have difficulties diagnosing patients with skin of color (SoC) because these patients are rarely encountered in routine daily practice. However, owing to the increased influx of migration from the African continent via the Mediterranean route, the number of patients with SoC is also expected to increase in Turkey. Thus, this study aimed to examine the demographical and clinical characteristics of the patient population with Fitzpatrick skin types 5 and 6 evaluated in a tertiary referral medical center.

Materials and Methods

All patients with Fitzpatrick skin types 5-6 who applied to our dermatology clinic between January 2018 and July 2021 were included in the study. Our tertiary referral center, a university hospital, has an International Patient Center. All international patient clinical examinations were conducted with professional translators accompanying the patient.

This single-center cross-sectional retrospective study was approved by the Gazi University Faculty of Medicine Local Ethical Committee (approval number: 44, date: 01.11.2021). The study was conducted according to the last revised version of the Helsinki Declaration and Guidelines for Good Clinical Practice. Informed consent from the patients with clinical photographs was obtained.

Medical information, including Fitzpatrick skin type, country of origin, sex, age, dermatological diagnosis, histopathological examination, comorbidities, and treatment of choice, were collected from our hospital's centrally registered electronic data repository. The dermatological diagnoses were grouped into 12 main groups and 21 subgroups. Data were evaluated comparatively according to age and sex.

Statistical Analysis

The statistical analyses were performed using IBM SPSS Statistics version 23.0 (IBM Corp., Armonk, NY, USA). Demographic data and disease characteristics were analyzed using descriptive statistics. Continuous variables are presented as mean ± standard deviation, and categorical variables as frequency counts and percentages.

Results

Sixty-five patients with Fitzpatrick skin types 5-6 from 14 different countries were enrolled, of which 56.9% (n=37) were female and 43.1% (n=28) were male. Patients' age ranged from 6 months to 76 years, with a mean age of 30.7±15.54. Regarding age distribution, 13.8% (n=9) of the patients were between 0-18 years old, 80% (n=52) were between 18-65 years old, and 6.2% (n=4) were >65 years old. The study patients mostly originated from East African countries (76.9%), followed by North African (9.2%), West African (6.1%), Middle Eastern (6.1%), and Central African (1.5%) countries. More than half of the patients (58.5%, n=38) were from Somalia. The distribution of patients by country of origin is presented in detail in Table 1.

After clinical examination, a total of 75 dermatological diagnoses of 65 patients were recorded. The dermatological diagnoses, which were grouped into 12 main headings and 21 subgroups, are shown in Table 2. The most common diagnoses were acne (21.5%), infections (20.0%), dermatitis (12.3%), pigmentation disorders (9.2%), and xerosis cutis (9.2%). However, dermatosis papulosa nigra and keloid, which are common in patients with SoC, were observed in one patient each (1.5%), and local-diffuse alopecias were observed in 4 (6.1%) patients. Pediatric patients comprised 13.8% (n=9) of all patients, and the diagnoses included seborrheic dermatitis (22.2%, n=2), contact dermatitis (11.1%, n=1), acne (11.1%, n=1), fungal infection (11.1%, n=1), scabies (11.1%, n=1), generalized pruritus (11.1%, n=1), callus (11.1%, n=1), and congenital nevus (11.1%, n=1). Clinical and dermoscopic images of some patients are shown in Figure 1, 2.

Table 1. Distribution of patients by country of origin

Country	Patient number (%)
East Africa	**50 (76.9)**
- Somali	38 (58.5)
- Dijibouti	4 (6.1)
- Ethiopia	3 (4.6)
- Kenya	3 (4.6)
- Tanzania	2 (3.1)
North Africa	**6 (9.2)**
- Sudan	3 (4.6)
- Algeria	2 (3.1)
- Libya	1 (1.5)
West Africa	**4 (6.1)**
- Ghana	2 (3.1)
- Niger	1 (1.5)
- Burkina Faso	1 (1.5)
Middle East	**4 (6.1)**
- Yemen	2 (3.1)
- Jordan	2 (3.1)
Central Africa	**1 (1.5)**
- Chad	1 (1.5)

Eight patients (12.3%) had more than one dermatological diagnosis. In terms of diagnostic appearance, difficulties were encountered in the diagnosis of eczema and other inflammatory dermatoses, because erythema was very subtle in some patients due to the dark skin color. However, pigmentation disorders were relatively easy to diagnose in this patient group. Additionally, patients who underwent dermoscopy had higher pigment density than patients with Fitzpatrick skin types 1-4, as expected. A punch biopsy was taken from 9.2% (n=6) of the patients. On histopathological evaluation, one patient each had lupus vulgaris, squamous cell carcinoma, pyoderma gangrenosum, senile lentigo, and psoriasis. The diagnosis was unclear in one patient, and histopathological findings were non-specific. All patients were followed up as outpatients, and none of them was hospitalized.

Table 2. Distribution of dermatological diagnoses

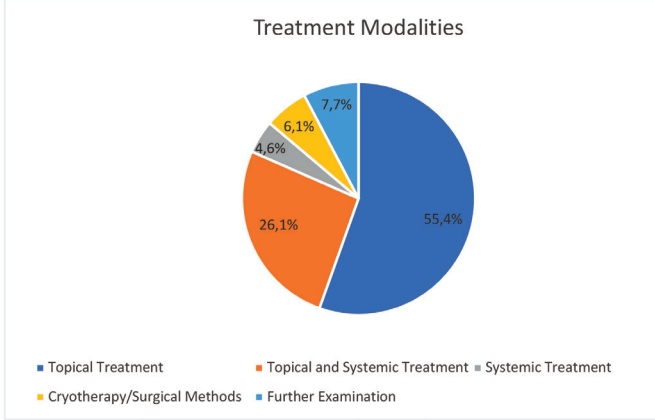
Diagnosis	Patient number (%)
Acne	**14 (21.5)**
Infections	**13 (20.0)**
Fungal infections	6 (9.2)
Bacterial infections	4 (6.1)
Verruca	2 (3.1)
Scabies	1 (1.5)
Dermatitis	**8 (12.3)**
Seborrheic dermatitis	4 (6.1)
Contact dermatitis	3 (4.6)
Neurodermatitis	1 (1.5)
Pigmentation disorders	**6 (9.2)**
Post-inflammatory hypo/hyperpigmentation	3 (4.6)
Melasma	2 (3.1)
Erythema discromicum perstans	1 (1.5)
Xerosis cutis	**6 (9.2)**
Alopecias	**4 (6.1)**
Telogen effluvium	2 (3.1)
Androgenetic alopecia	1(1.5)
Cicatricial alopecia (folliculitis decalvans)	1 (1.5)
Generalized pruritus	**4 (6.1)**
Inflammatory skin diseases	**3 (4.6)**
Psoriasis	2 (3.1)
Lichen planus	1 (1.5)
Benign melanocytic and keratinocytic lesions	**3 (4.6)**
Melanocytic nevus	2 (3.0)
Solar lentigo	1 (1.5)
Malign cutaneous neoplasia	**2 (3.1)**
Squamous cell carcinoma	1 (1.5)
Cutaneous T-cell lymphoma	1 (1.5)
Nail disorders	**2 (3.1)**
Total lekonychia	1 (1.5)
Half and half nail	1 (1.5)
Miscellaneous (keloid, anetoderma, dermatosis papulosa nigra, chronic urticaria, pyoderma gangrenosum, callus)	**10 (15.4)**

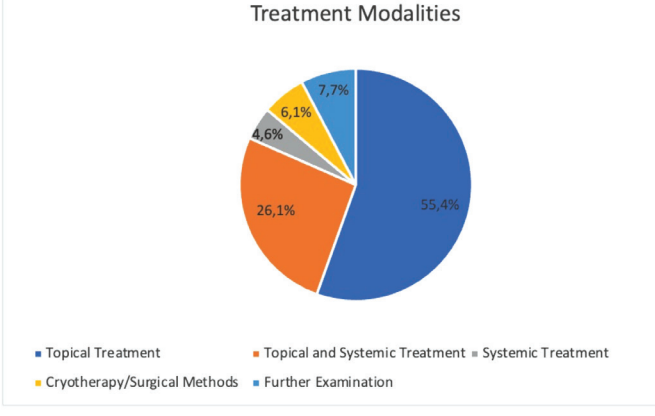
The distribution of the most common dermatological diagnoses in male and female patients is shown in Figure 3. While acne was the most common diagnosis in 20% of female patients, infections, dermatitis, and acne were observed with equal frequency in male patients, with 16.6%. Comorbidities were found in 18 (27.7%) patients in total, and the most common comorbidities were hypothyroidism (4.6%, n=3), gastritis (4.6%, n=3), diabetes mellitus (3.1%, n=2), and iron deficiency anemia (3.1%, n=2). Additionally, one patient each had tuberculosis, chronic hepatitis B infection, celiac disease, reflex sympathetic dystrophy, umbilical hernia, chronic kidney disease, dementia, meningioma, hyperlipidemia, juvenile idiopathic arthritis, rheumatoid arthritis, and muscular dystrophy (1.5%). The treatment modalities used in the management of the patients are shown in Table 3.

Discussion

Few studies have examined the epidemiology of dermatological diseases in patients with Fitzpatrick skin types 5-6. Acne (21.5%), dermatitis (12.3%), pigmentation disorders (9.2%), and alopecia (6.1%), which are common diagnoses in our study, are consistent with the diagnoses reported most frequently in the literature in patients with Fitzpatrick skin types 5-6. In the study conducted by Alexis et al.[4] in New York with 1,412 patients, acne (28.4%), pigmentation disorders (19.9%), dermatitis (9.1%), and alopecia (8.3%) were the most common diagnoses. Similarly, in the study conducted by Halder et al.[5] in

Table 3. Treatment modalities used in the management of the patients





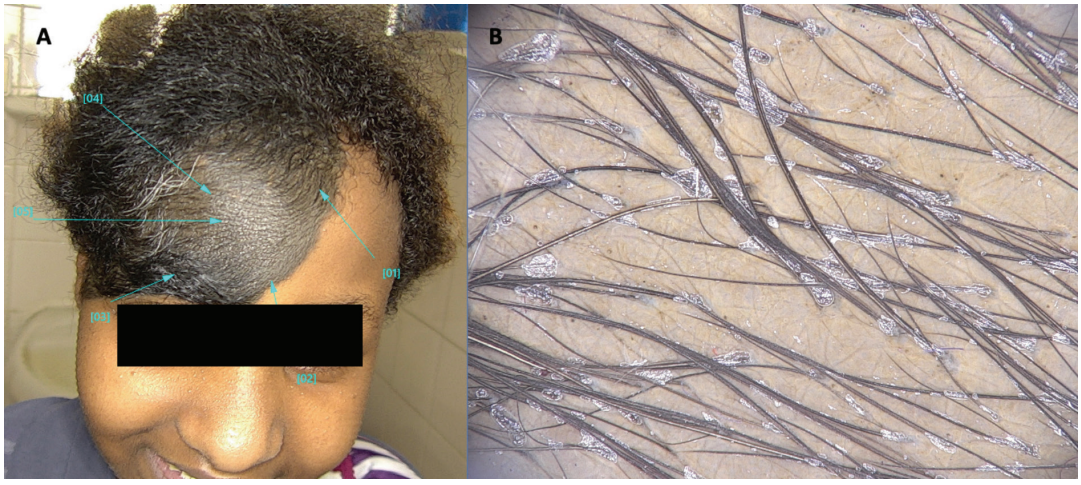


Figure 1. Fourteen years-old male patient, (A) congenital nevus on forehead, (B) dermatoscopic view, homogeneous diffuse brown pigmentation

Figure 2. Dermatological findings of different patients, (A) facial acne and post-inflammatory hyperpigmentation, (B) leukonychia, (C) depigmented patch in the abdomen

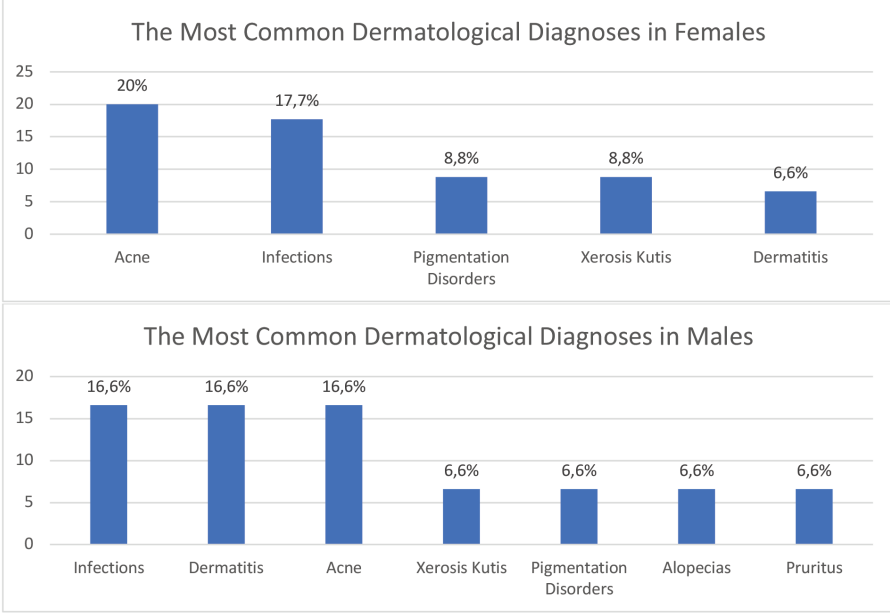


Figure 3. The most common diagnosis in female and male patients

Washington with 2,000 patients, acne, eczema, pigmentation disorders, seborrheic dermatitis, and alopecia were the most common diagnoses. In the study conducted by Dunwell and Rose[6] with 1000 Afro-Caribbean patients in Jamaica, the most common dermatological diseases were acne vulgaris (29.21%), seborrheic dermatitis (22.02%), pigmentary disorders (16.56%), and atopic dermatitis (6.1%). Regardless of skin type, acne is the most common reason for dermatology visits in many studies[7]. However, the finding that infections (20.0%) were among the most common diagnoses in our study may be related to the difficult living conditions of this patient population in our country as they are immigrants. Currently, approximately 82.4 million people worldwide are forcibly displaced because of war, violence, persecution, and human rights violations, and this number is expected to increase with ecological migration in the future. Main source countries of migrants and refugees worldwide include Syria, Afghanistan, Venezuela, and Africa, and 73% of the refugees were hosted in neighboring countries. Major hosting countries are Turkey, Colombia, Pakistan, Uganda, and Germany[8]. Considering that Turkey is one of the countries receiving the most immigrants, the ongoing migration waves are expected to increase the demand for healthcare, particularly dermatological care. Nearly 20% of all diagnoses made among recent migrants in Malta and Sicily were of dermatological diseases[9], which demonstrates the importance of dermatological care in improving the health of migrants. Recently, Inci et al.[10] examined dermatological diseases in Syrian immigrants in Turkey, and the most common diagnoses were parasitic diseases (20%), bacterial diseases (13.2%), viral diseases (13.3%), inflammatory dermatoses (11%), acneiform dermatoses (10.2%), eczemas (7%), and skin appendage disorders (6.5%). The frequency of infectious diseases was higher than our rate (46.5% vs. 20.0%) because all the participants in the mentioned study were hosted in tent cities and refugee camps. In addition, the most common disease in the study of Inci et al.[10] was cutaneous leishmaniasis because Syria is a highly endemic region for cutaneous leishmaniasis.

To our knowledge, this study is the first in Turkey to examine the dermatological diseases of migrants with Fitzpatrick skin types 5-6. Research on this patient population is essential for two reasons: 1) Skin diseases in patients with SoC are not very well recognized in our community and 2) dermatological care in migrants differ because of diversities in socioeconomic levels among societies, genetic factors, geographical and climatic conditions, stressful living conditions, and reduced access to healthcare[10,11]. In a study examining the clinical and epidemiological characteristics of migrants in Malta, which receives an influx of migrants from Africa via the Mediterranean route, the vast majority (70.1%) of the migrants were from Somalia[12]. Consistent with this result, more than half of the patients (58.5%) were from Somalia in our study. In a study from Italy, Somalis together with Eritreans and Nigerians accounted for the biggest share of the Mediterranean flow[13]. The prevalence of skin diseases in immigrants is high and varies between 18.7% and 96.2% in different studies. However, only a few studies have focused on the epidemiology of dermatological diseases in migrants[12-15]. Specifically, scabies, bacterial infections, fungal infections, cutaneous leishmaniasis, cutaneous tuberculosis, measles, and chickenpox are common infections in refugees and migrants[14]. Similarly, scabies (n=1), lupus vulgaris (n=1), tinea capitis superficialis (n=1), tinea corporis (n=1), and candidal infections (n=2) are some of the infections observed in our study. The continuing migration from subSaharan Africa through the Mediterranean route has increased the number of patients with neglected tropical diseases (NTDs) in Mediterranean countries[14]. NTDs include leishmaniasis and scabies, which are relatively common in Turkey, but schistosomiasis, strongyloidiasis, cystic echinococcosis, Chagas disease, cysticercosis, and filariasis are less common[16]. Accordingly, Castelli and Sulis[17] emphasized the importance of skin health screening programs upon arrival of the migrants and refugees in the host country for early detection and prevention of transmission of infections such as scabies, pediculosis, and fungal infections.

In a recent retrospective, observational study conducted by the authors of this study with 815 outpatients with Fitzpatrick skin types 1-4 between March 2020 and May 2020 at the same clinic, the most common diagnoses were acne and acneiform dermatoses (17.5%), infections and infestations (16.1%), dermatitis (15.0%), urticaria/angioedema/drug eruptions (12.5%), and inflammatory diseases (12.3%)[18]. Acne and infections were more common in patients with SoC (21.5% vs 14.2%, 20.0% vs 16.1%, respectively), whereas dermatitis was less common (12.3% vs 15.0%). Pigmentary disorders (1.6%) and xerosis cutis (2.0%) were less common in the mentioned study than in our patients with Fitzpatrick skin types 5-6 (pigmentary disorders, 9.2%; xerosis cutis, 9.2%) because people with SoC are more prone to pigmentation disorders and had significantly higher baseline transepidermal water loss measurements[3,19]. The higher incidence of pigmentary disorders in patients with SoC could be explained by the greater melanin synthesis in dark-skinned individuals and the abnormal distribution and transfer of melanin to keratinocytes in response to cytokines and inflammatory mediators[4]. The increased lability of the melanocytes also contributes to post-inflammatory pigmentation in patients with SoC, and the release of melanin in response to trauma and inflammation promotes melanogenesis[3,20,21]. This leads to an increased incidence of post-inflammatory hyperpigmentation in patients with acne, which is the most common diagnosis in this patient group[21]. On the contrary, the higher incidence of xerosis cutis in our patients with SoC could be attributed to the misdiagnosis of some of the cases because of difficulties related to the perception of erythema in patients with SoC, and the diagnosis of some inflammatory and eczematous diseases may be missed. Another point that causes difficulty in diagnosis is the relatively unique diseases for SoC such as dermatosis papulosa nigra (DPN)[21]. DPN is a benign condition, a probable variant of seborrheic keratosis, which is characterized by multiple hyperpigmented 1-5 mm papules mainly on the face and malar eminences. It is mainly seen in patients with SoC and most commonly in patients of African descent[21,22]. In our study, one of the patients from Ethiopia was diagnosed with DNP. Besides DNP, pseudofolliculitis barbae, acne keloidalis nuchae, keloids, and hair disorders require special consideration in the dermatological examination of patients with SoC because they are more common in ethnic skin[22].

Study Limitations

This study has some limitations. First, this retrospective study was based on electronic medical records. Second, our study was conducted in a single center with a relatively small number of patients. Finally, a linguistic barrier was encountered in some patients during clinical examination because of different native languages.

Conclusion

Dermatologists should recognize common dermatological diseases in individuals with SoC. Skin disorders, especially infectious diseases, have major effects on the overall health of displaced populations. Since the number of patients with Fitzpatrick skin types 5 and 6 is expected to increase in Turkey due to immigration, the results of our study may guide further studies in determining the medical needs of this patient group and planning appropriate dermatological care.

Ethics

Ethics Committee Approval: This single-center cross-sectional retrospective study was approved by the Gazi University Faculty of Medicine Local Ethical Committee (approval number: 44, date: 01.11.2021).

Informed Consent: Informed consent from the patients with clinical photographs was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: E.A.Y., Y.C.E., E.A., Concept: E.A.Y., Y.C.E., E.A., Design: E.A.Y., Y.C.E., E.A., Data Collection or Processing: E.A.Y., Y.C.E., E.A., Analysis or Interpretation: E.A.Y., Y.C.E., E.A., Literature Search: E.A.Y., Y.C.E., E.A., Writing: E.A.Y., Y.C.E., E.A.

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