

Demographic Characteristics of Patients with Dermatological Complaints in Emergency Departments: A 3-Year Retrospective Study

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Abstract

Aim: Data on the characteristics and outcomes of patients presenting to the emergency department with dermatological complaints are limited. This study aimed to provide an overview of the general characteristics and outcomes of emergency department patients with dermatological conditions.

Materials and Methods: A retrospective analysis was conducted on all emergency department visits related to dermatological conditions extracted from the hospital database of a tertiary adult care center. The preliminary and final diagnoses were reviewed, and demographic and clinical data, including sex, age, diagnosis, and patient outcomes, were collected. Our article was previously presented as an oral presentation at the 11th Intercontinental Emergency Medicine Congress on 16-20 May 2024.

Results: Over a 3-year period, 14,956 patients (0.89% of all admissions) presented with dermatological complaints. The mean age of patients was 42 years (range: 19-82 years), and 54.9% (n=8,221) were female. The most common dermatological diagnoses were anaphylaxis, urticaria, cellulitis, and eczema/dermatitis. The overall hospitalization rate was 3.7%. Dermatology-related emergency department presentations were more frequent during evening hours or weekends, accounting for 72.1% (n=10,783) of cases. Notably, only 5.7% (n=852) of the patients required dermatology consultation.

Conclusion: The proportion of patients with dermatological issues presenting to the emergency department was relatively low. Despite the predominantly non-urgent nature of these conditions, emergency physicians are typically able to manage them effectively without the need for specialized dermatological consultation.

Keywords: Emergency department, dermatology-related symptoms, urgent dermatology

Introduction

Although dermatological emergencies are relatively rare, existing reports indicate that approximately 4-8% of all emergency department (ED) visits are related to skin diseases (1,2). Despite the limited occurrence of urgent or life-threatening conditions associated with dermatological symptoms, the high frequency of ED visits for skin complaints may be attributed to a combination of factors, including geographical disparities, socioeconomic influences, healthcare system dynamics, and cultural considerations (3). Emergency medicine (EM) physicians should promptly identify patients who require immediate care. Rapid assessment of the urgency of dermatological complaints, initiating appropriate treatment, and referring non-urgent cases to outpatient services are essential both for the care of patients

presenting to the ED and for the overall efficiency and workflow of the department. This approach enhances work efficiency and improves patient satisfaction. Although most dermatological conditions are not urgent or life-threatening, prompt management of dermatological emergencies is critical to prevent high mortality and morbidity (4). Understanding common dermatological presentations in the ED can aid clinicians in educating patients on when to appropriately seek ED care for skin conditions and plays a key role in guiding the training of ED clinicians.

The literature contains limited data regarding the general characteristics and outcomes of ED patients with dermatological complaints. This study aimed to report the general characteristics and outcomes of patients with ED who presented with dermatological conditions at a tertiary care center in Turkey.



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Materials and Methods

Study Group

This retrospective study was conducted in the adult ED from October 2020 to October 2023. The analysis involved a thorough examination and screening of all ED visits to identify dermatological-related conditions, using the comprehensive hospital database of our adult tertiary care center. Subsequently, both pre- and post-diagnoses documented in the patient records were meticulously reviewed. The final dataset included demographic variables, such as sex and age, as well as detailed information on diagnoses and patient outcomes. The hospital is the largest tertiary referral hospital in the city and serves a population of more than 3 million people. Emergency care is provided by EM specialists and residents, general practitioners, and dermatology services on-call for 24 hours. Ethics approval for the study was obtained from the Konya City Hospital Ethics Committee (decision no: 34028104-799, date: 07.03.2024).

Statistical Analysis

The retrospective data of the study were subjected to descriptive statistical analysis, and the descriptive statistics were calculated as a percentage by taking averages. Descriptive statistics were provided for all variables. All statistical analysis was performed using SPSS statistics 21 (IBM Solutions).

Results

In this study period of 3 years, approximately 1 million six hundred and eighty thousand (1,680,000) patients were admitted to the adult ED. Among those, 14956 patients (0.89%) were admitted with dermatology-related symptoms (Table 1). The mean age of patients in the dermatology group was 42 years (range: 19-82 years), and approximately 54.9% were female (n=8.221).

The most common diseases that presented to the ED with dermatological issues were anaphylaxis, urticaria, cellulitis, and eczema/dermatitis. Among the admissions, necrotizing fasciitis and Fournier's gangrene patients were hospitalized. A total of 428 patients (31.9%) with cellulitis were hospitalized, and the highest rate of hospitalization was related to cellulitis. The number of hospitalized patients was 52 (0.76%) with anaphylaxis, 29 (0.44%) with urticaria, 47 (57.3%) in angioedema patients, and 2 (0.73%) in patients diagnosed with varicella zoster infection. The overall hospitalization rate was 3.7%. Dermatology patients most frequently presented during evening hours or weekends (72.1%, n=10.783). Dermatology consultations were required in 5.7% (n=852) of all dermatology-related admissions.

Table 1. Distribution of diseases admitted to the ED with dermatology-related symptoms

Disease	No patients		
	Female	Male	Total
Anaphylaxis	3441	3360	6801
Urticaria	3543	2461	6004
Cellulitis	674	665	1339
Eczema/dermatitis	329	122	451
Varicella zoster infections	173	99	272
Angioedema	56	26	82
Necrotizan faciit	4	1	5
Fournier gangren	1	1	2

ED: Emergency department

Discussion

Epidemiological data on the number of patients presenting to the ED with dermatological symptoms may be influenced by sociocultural factors and can vary across countries. However, in our country, data on dermatological presentations to the ED are limited. In this study, we found that dermatology-related admissions accounted for less than 1% of the total hospital admissions, with a slight predominance of female patients and a mean age of 42 years. The most common presentations were allergic skin reactions and cellulitis. Generally, the admissions were in evening hours or weekends, and approximately 3.7% of patients were hospitalized with these symptoms. In comparison with previous studies, the proportion of dermatology-related admissions to the ED in this study was lower. A study conducted at a tertiary care hospital in Australia reported that 3.9% of patients presented to the ED with primary dermatological complaints (5). Similarly, research from Northern Cyprus found that 1.8% of ED visits over an 18-month period were attributed to dermatological conditions, with the most common causes being urticaria/angioedema, drug reactions, insect bites, and cellulitis (6). Notably, during the study period, the COVID-19 pandemic was ongoing, and patients were likely hesitant to visit hospitals unless for very urgent medical emergencies. This finding could explain the lower rates of dermatology-related ED admissions observed in this study. In our center, there was a slight predominance of women (55%) among ED admissions related to dermatological conditions. This finding is consistent with previous studies in the literature (7,8). A recent study conducted in our country analyzed patients presenting with dermatological complaints to the ED of a university hospital over a two-year period and found that 57.1% of those presenting were female. This consistent trend suggests that women are more likely to seek emergency care for dermatological issues

than men. However, in contrast to our results, dermatitis was the most common cause of ED admissions in this study (9). Dermatological presentations accounted for 4.7% of presentations in another study from Australia. Of those presenting with dermatological conditions, 41.5% were female, and the mean age was 47. Cellulitis, abscesses, unspecified rash, and ulcers are also the most common dermatological presentations (10). We did not analyze the gender distribution of general admissions to the ED; this female dominance may be related to general admissions to the hospital. The most common dermatological conditions presenting to EDs in this study were anaphylaxis (food, drug, or insect bite), urticaria, cellulitis, and eczema/dermatitis. In a previous study in our country, the most common skin diseases were also similar to our findings, acute urticaria-angioedema, contact dermatitis, and insect bites in emergency patients (11). Similarly, in another study conducted in our country, the most common disease groups were urticaria-angioedema, followed by infectious diseases in patients presenting to the ED with dermatological problems (12). In another study conducted in Australia, one of the most commonly observed conditions was cellulite, skin involvement with allergies, boils/furuncles/pilonidal sinuses, eczema/dermatitis, and varicella-zoster infection (5). In another study conducted in the United States, the three most common skin presentations to the ED were cellulitis plus abscess, rash plus other non-specific skin eruptions, and dermatophytosis of the nail (13).

Our results align with those of the existing literature, indicating that dermatological complaints categorized as non-urgent were more prevalent in the ED than emergent cases. Among these admissions, the hospitalization rate was approximately 3.7%. This is also similar to previous studies (7,8). In our study, most dermatology patients (72.1%) presented during evening hours or on weekends. This finding is in contrast with another study from our country, in which the majority of patients were admitted to the ED between 8:00 am and 4:59 pm (14). Dermatology patients are often categorized as “greenfield” cases, meaning their conditions are typically non-urgent. It is possible that patients tend to postpone or overlook symptoms that arise during the day, only seeking emergency care when their condition worsens or becomes more bothersome in the evening or on weekends. This may be because our dermatology outpatient clinics are open during working hours, and it is not difficult to find an appointment in these outpatient clinics. In our study, consultation with a dermatologist was required in only 5.7% of the dermatology-related admissions. This is consistent with another study conducted in our country, which reported that 59.5% of patients admitted to the ED with dermatological complaints

were female, with the most frequent diagnosis being urticaria, including drug-induced urticaria. In this study, dermatology consultation was required in 6.4% of the patients, and the hospitalization rate was 2.2% (13). A recent study from Korea, which analyzed >20,000 patients admitted to the ED with dermatological complaints, found that 19.5% were referred to dermatologists. Overall, these findings suggest that the majority of patients presenting to the ED with dermatological issues can be effectively managed by emergency physicians, with specialist consultation being necessary in only a small proportion of cases.

Study Limitations

First, this was a retrospective study and may not represent all dermatological problems observed in the ED. Second, the study date covers the pandemic period. It would be useful to compare these data with the pre-pandemic period.

Conclusion

The proportion of patients presenting to the ED with dermatological problems was relatively low. Although these conditions are typically non-urgent, they are generally well managed by emergency physicians. Therefore, it is essential to incorporate the identification and management of common skin conditions and diagnoses into emergency physician training programs. This will enhance their ability to provide appropriate care and improve patient outcomes in emergency settings.

Ethics

Ethics Committee Approval: Konya City Hospital Ethics Committee (decision no: 34028104-799, date: 07.03.2024).

Informed Consent: Retrospective study.

Footnotes

Authorship Contributions

Surgical and Medical Practices: D.A., O.L.D., Concept: D.A., O.L.D., E.F.V., Design: D.A., E.F.V., Data Collection or Processing: D.A., E.F.V., Analysis or Interpretation: O.L.D., E.F.V., Literature Search: D.A., O.L.D., Writing: D.A., E.F.V.

Conflict of Interest: The authors declare that they have no conflict of interest.

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