

Original Article

Clinical profile of skin diseases in accident and emergency department attenders

急症室求診者皮膚病種類及其處理情況

CY Chan 陳忠勇, KL Kam 甘家樂, CA Graham 簡家簾, TH Rainer 譚偉恩, NM Luk 陸乃明

Skin problems are common among accident & emergency department attenders. This retrospective study try to evaluate the pattern of skin diseases, immediate treatment and the disposition of patients with dermatological problems attending an accident and emergency department in Hong Kong. The medical records of patients presenting with skin disorders attending the accident and emergency department of the Prince of Wales Hospital from September 2004 to March 2005 were retrieved for analysis. Out of 1,733 patients, 854 (49.3%) were males and 879 (50.7%) were females. The five most common skin disorders diagnosed by the accident and emergency doctor were cellulitis (248, 14.3%), followed by urticaria (210, 12.1%), herpes zoster (203, 11.7%), eczema (140, 8.1%) and insect bite (117, 6.8%). The overall admission rate was 14.7%. Eighty-four cases (4.8%) were referred to the dermatology clinic. It is important for accident and emergency doctors to have sufficient knowledge to recognise and manage these common skin diseases.

皮膚病是急症室求診者的常見問題。本研究旨在分析本港急症室求診者中皮膚病的種類、其即時治療及其轉介情況。以威爾斯親王醫院急症室 2004 年 9 月至 2005 年 3 月因皮膚問題而求診者的病歷作研究，1733 名病人中，854 名（49.3%）為男性及 879 名（50.7%）為女性。急症室醫生最常見的前五種皮膚問題為蜂窩性組織炎（248，14.3%），蕁麻疹（210，12.1%），帶狀疱疹（203，11.7%），濕疹（140，8.1%）及昆蟲叮咬（117，6.8%）。整體住院率為 14.7%。84 名病人（4.8%）轉介至皮膚診所。急症室醫生能有足夠知識認識和處理這些常見皮膚病十分重要。

Keywords: Accident & emergency department attenders, skin diseases

關鍵詞：急症室求診者，皮膚病

Accident & Emergency Department, Prince of Wales Hospital, Hong Kong

CY Chan, MRCS(A&E), Dip. Derm(Glasgow)
KL Kam, MRCS(A&E), Dip. Derm(Glasgow)

Accident & Emergency Medicine Academic Unit, The Chinese University of Hong Kong, Hong Kong

CA Graham, FRCSEd, FHKAM(Emergency Medicine)
TH Rainer, FRCPGlasg, FHKAM(Emergency Medicine)

Dermatology Research Centre, The Chinese University of Hong Kong, Hong Kong

NM Luk, FHKCP, FHKAM(Medicine)

Correspondence to: Dr. CY Chan

Accident & Emergency Department, Prince of Wales Hospital, Shatin, New Territories, Hong Kong.

Introduction

Patient with life threatening dermatoses, like Stevens-Johnson syndrome or erythroderma, may attend the accident and emergency department for obvious reasons, as will those with acute skin problems such as chemical burns or those scalded by hot oil. But are these the only skin problems among emergency department attenders? What are the patterns of skin diseases among these patients? What is the outcome of these patients? The purpose of this study is to look at these problems in a regional hospital. An understanding of these issues will help doctors working in accident and emergency department to better equip themselves with relevant dermatological knowledge.

Methods

This was a retrospective study conducted at the Prince of Wales Hospital in Shatin from September 2004 to March 2005. The medical records of patients with skin disorders attending the accident and emergency department of the Prince of Wales Hospital in this period were retrieved from a computerised data platform, CDARS (Clinical Data Analysis and Reporting System) for analysis. CDARS is a tool developed by the Hospital Authority, Hong Kong SAR to help users retrieve clinical information such as diagnosis, appointments and attendances information captured by the Hospital Authority Clinical Managing System (CMS) to support clinical audit, data analysis, reporting and research in the Hospital Authority.

In this study, we tried to retrieve all the cases of skin diseases from CDARS by using the diagnoses of various skin diseases, including common and rare skin diseases as listed in Table 1. Sex, age, time of attendance, clinical diagnoses made by the attending accident and emergency doctor, immediate treatment at the accident and emergency department and outcome were

recorded. Only those cases where the skin problem was the patient's chief complaint were included in this study.

Descriptive statistical analysis was carried out. Student's *t* test was used to compare the mean age (normally distributed) of males and females. *P* values <0.05 were considered statistically significant. In our study, the paediatric group was defined as age 0 to 17 years, the adult group was defined as age 18 to 65 years and the geriatric group was defined as age greater than 65 years.

Results

There were a total of 89,950 patients attending the accident and emergency department of the Prince of Wales Hospital from September 2004 to March 2005. Among them, 1,733 patients (1.9%) had a chief complaint of skin problems. The age distribution of these cases is shown in Figure 1. Out of 1,733 patients, 854 (49.3%) were males and 879 (50.7%) were females. The mean age of males was 41.7 years old and females was 44.1 years old (*P*=0.043). Half of the patients (*n*=866) attended the emergency department from 9 am to 5 pm (Figure 2). A wide range of dermatological diseases were diagnosed by the attending emergency doctors (Table 1).

The five most common skin disorders diagnosed were cellulitis (248, 14.3%), followed by urticaria (210, 12.1%), herpes zoster (203, 11.7%), eczema (140, 8.1%) and insect bite (117, 6.8%). The mode of immediate treatment given at the accident and emergency department was shown in Figure 3. The majority of patients (74%) required no immediate treatment at the accident and emergency department and were discharged home with or without medication. Eighteen percent of all patients had received antihistamine treatment at the accident and emergency department. The referral rate, admission rate and percentage of immediate treatment of skin

Table 1. Summary of clinical diagnoses, referral rate, admission rate and percentage of immediate treatment at accident and emergency department

Skin diseases	No. of cases	No. of cases refer to dermatology clinic	No. of cases admitted to hospital	No. of cases have immediate treatment AED
Infectious skin disorders	698 (40.3%)	18 (21.4%)	140 (80.1%)	63 (14.1%)
<i>Bacterial infections</i>				
Cellulitis	248 (14.3)	0 (0)	120 (48.3)	15 (6)
Erysipelas	7 (0.4)	0 (0)	2 (28.6)	0 (0)
Folliculitis	6 (0.3)	0 (0)	0 (0)	0 (0)
<i>Viral infections</i>				
Herpes zoster	203 (11.7)	0 (0)	3 (1.5)	37 (18.2)
Varicella	109 (6.3)	0 (0)	7 (6.4)	3 (2.8)
Viral rash	32 (1.8)	0 (0)	7 (21.9)	3 (9.4)
Herpes simplex	9 (0.5)	0 (0)	1 (11.1)	0 (0)
Corn	17 (1.0)	5 (29.4)	0 (0)	2 (11.8)
Wart	22 (1.3)	8 (36.4)	0 (0)	0 (0)
<i>Fungal infections</i>				
Tinea	45 (2.6)	5 (11.1)	0 (0)	3 (6.7)
Infestations	128 (7.4)	1 (8.3)	0 (0)	35 (27.3)
Insect bite	117 (6.8)	0 (0)	0 (0)	31 (7)
Scabies	11 (0.6)	1 (9)	0 (0)	4 (36.3)
Allergic skin disorders	488 (28.2)	28 (0.4)	25 (5.1)	245 (50.2)
Urticaria	210 (12.1)	8 (3.8)	2 (1)	160 (76.2)
Eczema	140 (8.1)	15 (10.7)	5 (3.6)	35 (25)
Contact dermatitis	65 (3.8)	4 (6.2)	1 (1.5)	14 (21.5)
Drug allergy	38 (2.2)	1 (2.6)	3 (7.9)	19 (50)
Food allergy	20 (1.2)	0 (0)	1 (5)	15 (75)
Erythema multiforme	11 (0.6)	0 (0)	9 (81.2)	2 (18.1)
Stevens-Johnson syndrome	4 (0.2)	0 (0)	4 (100)	0 (0)
Blistering diseases				
Bullous pemphigoid	5 (0.3)	0 (0)	5 (100)	0 (0)
Pemphigus vulgaris	8 (0.5)	0 (0)	7 (87.5)	1 (12.5)
Disorder of vasculature	98 (5.7)	1 (1.2)	62 (63.3)	2 (2)
Skin ulcer	58 (3.4)	0 (0)	30 (51.7)	0 (0)
Purpura	16 (0.9)	1 (1.2)	12 (75)	0 (0)
Erythema nodosum	6 (0.3)	0 (0)	4 (66.7)	2 (33.3)
Henoch-Schonlein purpura	13 (0.8)	0 (0)	12 (92.3)	0 (0)
Idiopathic thrombocytopenic purpura	5 (0.3)	0 (0)	4 (80)	0 (0)
Connective tissue disease				
Lupus erythematosus	4 (0.2)	0 (0)	2 (50)	0 (0)
Others				
Skin rash	104 (6.0)	15 (14.4)	3 (2.9)	39 (37.5)
Paronychia	71 (4.1)	0 (0)	4 (5.6)	34 (47.9)
No diagnosis (Unknown)	71 (4.1)	13 (18.3)	0 (0)	19 (26.8)
Pruritus	15 (0.9)	1 (6.7)	1 (6.7)	3 (20)
Dry skin	11 (0.6)	1 (9)	0 (0)	3 (27.2)
Psoriasis	10 (0.6)	3 (30)	5 (50)	2 (20)
Acne	10 (0.6)	0 (0)	0 (0)	1 (10)
Alopecia	3 (0.2)	3 (100)	0 (0)	0 (0)
Rosacea	1 (0.1)	0 (0)	0 (0)	0 (0)
Skin tumour	6 (0.3)	0 (0)	0 (0)	1 (16.7)
Sexually transmitted disease	2 (0.1)	0 (0)	0 (0)	0 (0)
Total	1733 (100%)	84 (4.8%)	254 (14.7%)	448 (25.9%)

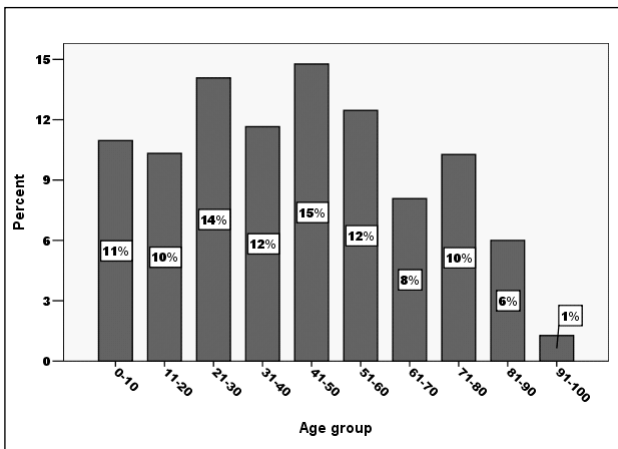


Figure 1. Age distribution of patients.

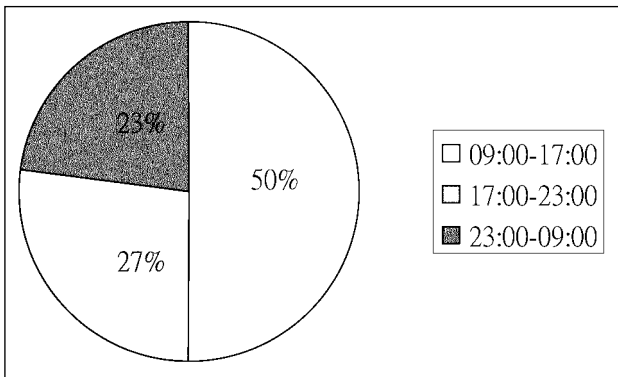


Figure 2. Attending time of patients to the emergency department.

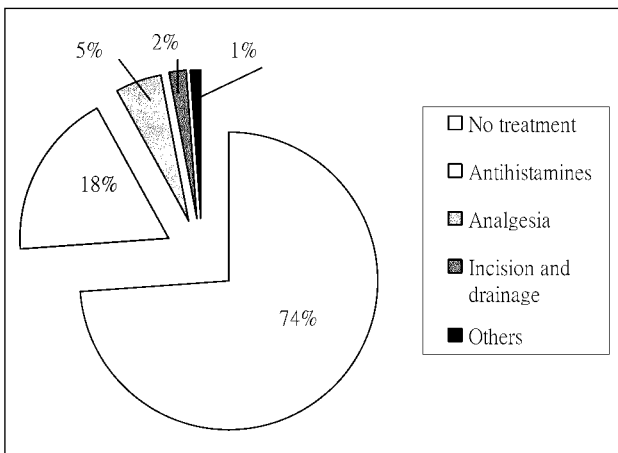


Figure 3. Treatment at emergency department.

diseases at accident and emergency department were shown in Table 1. While urticaria, cellulitis, herpes zoster, contact dermatitis and eczema were more common among the adult and the geriatric age group, insect bite and varicella were more prevalent in the paediatric age group (Figure 4).

Most of the patients (1,479 patients, 85.3%) were sent home without further follow up, 84 patients (4.8%) were referred to the dermatology clinic while 254 (14.6%) patients were admitted to hospital for further management.

Discussion

In our study, the most common skin disease group diagnosed by attending accident and emergency doctors was infectious skin disorders (698 patients, 40.3%), followed by allergic skin disorders (488 patients, 28.2%). Among the infectious skin disorders, cellulitis, herpes zoster and varicella are the most common skin diseases diagnosed by accident and emergency doctors. Among the allergic skin disorders, urticaria was the most common, seen in 210 patients, followed by eczema and contact dermatitis. Our study was compatible with Gupta's study in which infections constituted the most common dermatological presentations in an emergency setting in North India.¹ Dermatologists in outpatient skin clinics were more likely to see patients with chronic skin diseases like eczema and dermatitis, viral wart, tinea and psoriasis, according to the annual report of Department of Health in 2003.² The difference in the spectrum of skin diseases probably reflects the different clinical settings.

Most cases (1285, 74.1%) required no immediate treatment from the accident and emergency department. Urticaria had the highest immediate treatment rate (160, 35.7%) with the most frequent immediate treatment given by accident and

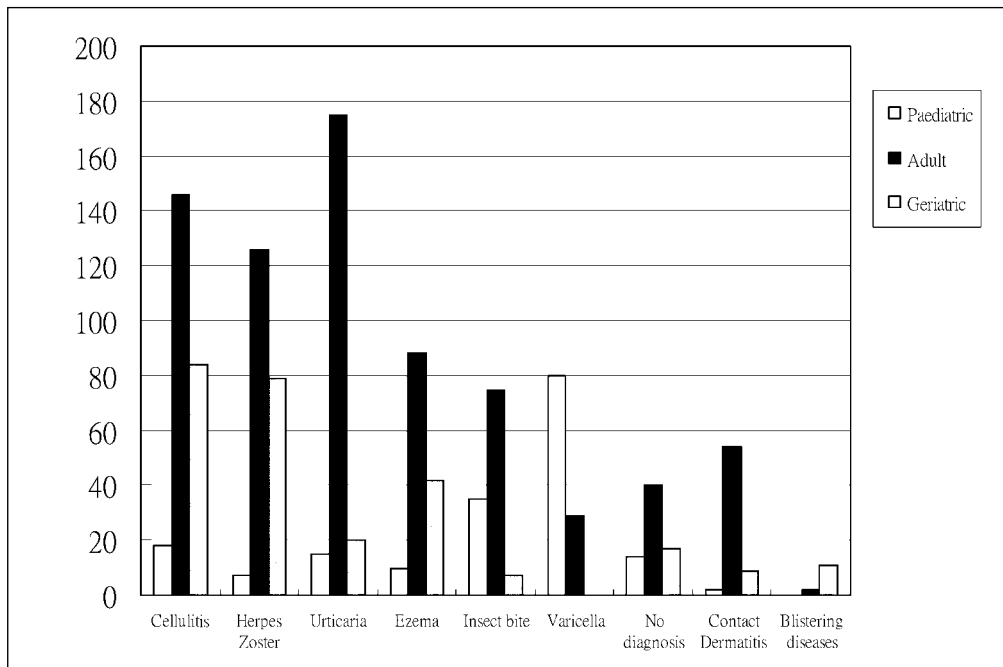


Figure 4. Distribution of age group within various skin diseases.

emergency doctors being antihistamines. It accounted for 70.5% of all treatments for the dermatological cases. Antihistamines like chlorpheniramine were widely used to treat allergic skin diseases like urticaria, drug and food allergies and insect bites and stings. As allergic skin disease was the second most common category of skin diseases presenting to the accident and emergency department, it may explain why antihistamine was so frequently used. Sometimes surgical procedures, such as incision and drainage, would be performed for patients with paronychia, accounting for 2% (Figure 3) of all immediate treatment given at our department.

In our study, the vast majority of patients were discharged home with or without medication. Fifteen percent (254/1733) of all patients required admission. Diseases with high admission rate included Stevens-Johnson syndrome (100%), Henoch-Schonlein purpura (92%), pemphigus vulgaris (87%), bullous pemphigoid (100%) and erythema multiforme (81%). Cellulitis (48%), purpura and idiopathic thrombocytopenic purpura (>70%), erythema nodosum (67%) and psoriasis (50%) also had substantial admission rates.

The overall referral rate of skin disorders to dermatology clinic was 4.8% in this study which was lower than others have previously reported. In one study by Mayer, referral to a dermatologist constituted 11% of all referrals among patients belonging to a health maintenance organisation.³ Brooke and Catherine demonstrated a referral rate of 37.5% to the dermatology clinic in their retrospective study at a general medicine clinic within the University of Miami.⁴ A reason for the low referral rate in our study might be that there were many infectious skin disorders (40.3%, 698 cases) recorded in this study. Infectious skin diseases like cellulitis, herpes zoster and varicella were usually either treated by emergency physicians or were admitted to hospital for further management. Some chronic skin diseases like alopecia, corn and wart have higher referral rates.

There are a number of reasons for doctors to refer cases to dermatologists. One reason is that the treatment modality is only available in the dermatology clinics e.g. cryotherapy for resistant warts. Another reason could be that the skin problem requires long term follow up and

management e.g. vitiligo. Other reasons may include confirming a suspected diagnosis, the failure of skin lesion to respond to treatment or a patient request for a second opinion.⁴

One point worth mentioning was that in 71 patients, 'no clinical diagnosis' was recorded in the medical records and some cases were documented as 'skin rash' (104 patients) by attending doctors. They accounted for 10.1% of all cases (175/1733). The referral rate of 'no clinical diagnosis' and 'skin rash' to dermatology clinic was 18.3% (13/71) and 14.4% (15/104) respectively. It might reflect the fact that the attending accident and emergency doctors were less confident in diagnosing complicated or uncommon skin diseases. The inability of non-dermatologists to diagnose even common dermatoses like acne and psoriasis has been highlighted previously by Ramsay.⁵

Limitations

As this is a retrospective study, some data obtained from the medical records might be missing or incomplete. Some cases may not be retrievable if the attending accident and emergency doctors did not enter the diagnostic code into the Hospital Authority Clinical Managing System. Besides, the results may not be representative of the population in Hong Kong as this study only includes patients attending the Prince of Wales Hospital.

Conclusion

In our study, the most common skin disorders diagnosed by accident and emergency doctors were cellulitis, urticaria, herpes zoster, eczema and insect bite. Therefore, it is important for accident and emergency doctors to have sufficient knowledge to recognise and manage the more common skin diseases. Moreover, it is also crucial to recognise those cases that need early referral to dermatologists for further management.

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