Dermatological emergencies: a prospective study in a tertiary care hospital, Gujarat, India

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ABSTRACT
BACKGROUND: There are many emergencies that require rapid dermatologic consultation for early diagnosis and appropriate therapy to prevent high mortality or severe disabling complications. Dermatologist plays a crucial role in such conditions. The study was carried out to evaluate the clinical pattern of various dermatological emergencies and to identify true and pseudo dermatological emergencies. MATERIALS AND METHOD: A prospective observational study was carried out in dermatology department of a tertiary care hospital. Patients of more than 12 years of age presenting with dermatological emergencies were studied with their clinical and investigative profile and managed accordingly. Data was analyzed using Epi-info software version 7. RESULTS: Data regarding demographic details, clinical features, treatment and complications was recorded. 100 patients were included out of which 59 were males and 41 females. The highest incidence (75%) was noted in 21-50 years of age group. 68% cases had true emergency while 32% had pseudo dermatological emergency. 59% of cases showed mucosal involvement. 19 different conditions were observed with commonest being acute urticaria (29%), erythroderma (13%), lepra reactions (13%), pemphigus vulgaris with/without septicemia (9%) and SJS-TEN (13%). 41% cases were of drug reaction. The drugs involved were non-steroidal anti-inflammatory drugs, amoxicillin, ciprofloxacin, antiretroviral drugs and sulphonamides. Mortality was seen in 4% of cases which included pemphigus vulgaris with septicemia, anaphylaxis after blood transfusion and purpura fulminans due to meningococcemia. CONCLUSIONS: Diagnosis and management of common dermatological emergency conditions should be stressed during the training of physicians in emergency medicine.

Keywords: Dermatological emergencies, Mortality, Pseudo emergency

INTRODUCTION
Many physicians and patients do not believe that dermatology involves life-threatening diseases. However, there are many emergencies that require rapid dermatologic consultation for early diagnosis and appropriate therapy to prevent high mortality or severe disabling complications. It has been reported that approximately 5% to 8% of all emergency department (ED) visits are due to skin complaints. Hence a dermatologist forms a crucial link in identifying these conditions, stabilising the patient and choosing the vital interventions for the management of patient.

Any dermatological disease or other systemic disease which involves extensive area of the skin and/or mucous membrane, which endangers the life of a patient, makes the patient apprehensive to consult dermatologist urgently, and may necessitate rapid diagnosis, hospitalization and intervention should be identified as a dermatological emergencies. Certain conditions present with acute onset of skin lesions with/ without systemic symptoms makes patient apprehensive and to consult dermatologist urgently. These conditions are not true emergencies but because of the acute fearing presentation of the sign and symptoms, many patients are seen at
emergency department at any time. These conditions are labelled as pseudo dermatological emergencies. Since there are very few studies, especially from India (2) attempted to characterize dermatological emergencies, this study was conducted to know various presentations of dermatological emergencies and evaluate mortality in such cases. The purpose of the study was to provide a useful information guide for identifying common and life threatening skin diseases which need to be recognized at the earliest at the primary care level so that patients can receive prompt and accurate initial treatment with timely referrals. So, the study was carried out to evaluate the clinical pattern of various skin diseases presenting as dermatological emergencies as well as to identify true and pseudo dermatological emergencies.

MATERIALS AND METHOD
A prospective observational study was carried out over a period of one year from April 2011 to March 2012 in department of dermatology of a tertiary care teaching hospital in Gujarat, India. Institutional ethical clearance was obtained before the start of the study. Pre designed and pretested proforma was filled after taking informed consent. Privacy and confidentiality was maintained. All patients of more than 12 years of age attending emergency department or indoor patients having skin lesion/mucosal lesion with/without systemic complaints, requiring urgent interventions, investigation or hospitalization were included. Patients having factitious complaints or patient visiting emergency department with casual skin lesions/mucosal lesion with/without systemic complaints were excluded from the study.

A detailed history regarding cutaneous as well as systemic manifestations of all the patients was taken and recorded as per a structured questionnaire. In case of a suspected drug reaction, name of the drug, incubation period and past history of similar episode were noted. Clinical examination was done with particular emphasis on type and extent of skin and mucous membrane lesions. Diagnosis was done mainly on clinical basis. SCORTEN (severity-of-illness score for Toxic Epidermal Necrolysis (TEN)) in case of patients with Stevens Johnson syndrome and Toxic epidermal necrolysis (SJS-TEN) was noted in the first 24 Hours of hospital admission. Routine investigations were carried out in all and specific investigations were done as and when required. Informed written consent was taken from all patients or patient’s relatives before including them into the study group. Clinical photographs were taken as and when needed. Patients were treated accordingly. All patients were followed up as per the requirement.

Data was entered into the computer and analysed by using Epi-info software version

RESULTS

Table: 1 Pseudo Dermatological emergencies

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>No. of cases(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acne fulminans</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>Acute generalised pustular psoriasis</td>
<td>2 (6.3)</td>
</tr>
<tr>
<td>Balanoposthitis with phimosis</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>Chancroid with paraphimosis</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>Extensive maculopapular rash</td>
<td>6 (18.8)</td>
</tr>
<tr>
<td>Dapsone hypersensitivity syndrome</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>Henoch schonlein purpura</td>
<td>2 (6.3)</td>
</tr>
<tr>
<td>Herpes zoster</td>
<td>3 (9.4)</td>
</tr>
<tr>
<td>Lepra reaction</td>
<td>13(40.6)</td>
</tr>
<tr>
<td>Phagedenic chancroid</td>
<td>2 (6.3)</td>
</tr>
<tr>
<td>Total</td>
<td>32 (100)</td>
</tr>
</tbody>
</table>

Of the 100 patients studied, 59 (59%) were males and 41 (41%) females. Age ranged from 12-70 years. Maximum cases (75%) were in the age group of 21-50 years with decreasing frequency towards the extremes of age. 83% were pertaining to dermatology cases while 13% and 4% were of leprosy and Sexually Transmitted Diseases (STDs) respectively. 68% cases were of true dermatological emergencies while 32% were of pseudo dermatological emergencies. (Table 1) 59% of dermatological emergency cases were having mucosal involvement either single or multiple (oral, eye, genital, nasal, and anal). Oral cavity (78%) and eye (77%) involvement was more common than the genital lesions (32%). In multiple mucosal involvements, combination of eye/ oral and eye/ oral/genital were more common.
Total 19 different conditions were observed during the study. (Figure 1) The commonest presenting conditions were acute urticaria with or without angioedema (29%) (Figure 2) followed by acute erythrodema (13%), SJS-TEN (13%), (Figure 3) lepra reactions (13%), and pemphigus vulgaris with/without septicemia (9%). (Figure 4, 5)

Table 2 Drugs causing dermatological emergencies

<table>
<thead>
<tr>
<th>Urticaria and angioedema</th>
<th>SJS 9 (21.95%)</th>
<th>SJS/TEN 1 (2.43%)</th>
<th>TEN 3 (7.32%)</th>
<th>Extensive maculopapular rash 4 (9.75%)</th>
<th>Erythrodema 3/7.32%</th>
<th>Dapsone hypersensitivity syndrome 1/2.43%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug</td>
<td>%</td>
<td>Drugs</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>19</td>
<td>Nevirapine</td>
<td>53.8</td>
<td>Co-trimoxazole</td>
<td>Amoxicillin</td>
<td>Paracetamol</td>
</tr>
<tr>
<td>NSAIDS</td>
<td>38.1</td>
<td>Sulphonamide</td>
<td>15.4</td>
<td>Phenyo tin</td>
<td>Deriphylline</td>
<td>Thiazide</td>
</tr>
<tr>
<td>Metronidazole</td>
<td>4.8</td>
<td>NSAIDS</td>
<td>23.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aminoglycosides</td>
<td>4.8</td>
<td>Amoxicillin</td>
<td>7.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>19</td>
<td>Co-trimoxazole</td>
<td>4.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chloroquine</td>
<td>9.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-trimoxazole</td>
<td>4.8</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Out of 13 cases of acute erythrodema, psoriasis (30.8%) and pemphigus foliaceous (30.8%) were more common than drug induced (23%) and idiopathic cases (15.40%).

Out of 13 cases of SJS-TEN, nine cases were of SJS, three of TEN and one was of SJS-TEN overlap. Seven cases were HIV positive, on antiretroviral therapy. CD4 cell count was variable ranging from 55-440 cells/mm<sup>3</sup> in these cases. So, there was no significant correlation between CD4 cell count and the drug reaction. Average SCORTEN was 2.3 in patients of TEN and 0. 78 in SJS and SJS-TEN overlap syndrome.

Amongst 13 patients with leprosy, frequency of Type 2 lepra reaction (76.9%) was much greater than Type 1 lepra reaction (23.1%).

The conditions presenting with Sexually Transmitted Diseases (STDs) were phagedenic chancroid (50%), balanoposthitis with phimosis (25%) and chancre with paraphimosis (25%).

Out of 100 cases, 41% cases were of drug reaction. Most common drug reaction presenting as an emergency was acute urticaria with or without angioedema (48.8%), SJS-TEN (31.7%) and extensive maculopapular rash (9.8%). Non-steroidal anti-inflammatory drugs were the commonest drugs (38.1%) causing acute urticarial reactions, followed by amoxicillin and ciprofloxacin. Common drugs causing SJS and TEN were antiretroviral drugs (Nevirapine) in seven cases followed by Non-steroidal anti-inflammatory drugs and sulphonamides. (Table 2)

Mortality was seen in 4% of cases. Two were female patients having pemphigus vulgaris with septicemia, one case was a female with anaphylaxis after blood transfusion and the other was male patient with purpura fulminans due to meningococccemia.

**DISCUSSION**

Certain dermatological conditions can be sudden in their onset and distressing to the patient. The appearance of a rash or any unfamiliar symptom on one’s skin is often enough reason for one to seek medical attention.

The mean age in this study was 36 years which correlates with the studies of M.L. Martínez-Martínez et al and Gonzalez Ruiz et al. (3, 4) Higher frequency in this age group shows concern for their appearance. Slight lower preponderance in females (41%) is observed in the study. This can be considered as an indicator of the health seeking behaviour in females, as they tend to rely more on self-medication with household therapies and avoid visiting the physician unless they have aggravation of the disease.
Dermatological emergencies Contributors

The incidence of pseudo-dermatological emergencies (32%) is lower than that seen in the studies done by Gupta et al (79%) and Mirkamali A et al (51% in 2010 and 57 % in 2000). (2, 5) They were found to be less common in present study as the out-patient department working hours (6 hours/day and 6 days/Week) in our hospital are more. Also, patients can walk in freely without requiring any prior appointments. Majority of the patients in the study region were industrial workers who could work in shift hour duties (with option of adjusting duty hours), they could visit the hospital during routine hours which might be the reason for decreased frequency of pseudo-dermatological emergencies.

Mainly leprosy, STDs and Herpes zoster (21%) were found with infective causes while urticaria and drug reactions were the major contributory factors in non infective causes.

As acute urticaria with or without angioedema is very common in the population, and that fact is also strongly supported by the findings of the present study accounting for the 29% cases compared to Wang E et al series reporting 11.40%. (6) Even it was most common in study of 68.1% done by Kim JY et al. (7) Acute urticaria has varied aetiology e.g. drug reaction, food allergy, insect bite, infection, blood transfusion and rapid onset of wheals with itching, fast progression, oedema of eyes and lips, many a times difficulty in breathing, necessitate the patient to report to doctor, and this may be the reason for high frequency of reporting of acute urticaria with or without angioedema in the emergency department. In acute urticaria patients, drug reaction cases were most common (68.96%) followed by food allergy (20.68%). This high frequency of drug reaction may be due to easily available over the counter drugs and their inadvertent use. Urticaria due to food is more of chronic type, but acute presentations were seen in six cases in this study. Fish was the main culprit in four of them.

Acute erythroderma was another common dermatological emergency which accounted for 13% of total cases. Out of total 13 cases, 30.8% cases were of psoriatic origin with same frequency of 30.8% in pemphigus foliaceous. These patients had history of skin lesions specific for the disease, but because of lack of treatment or inappropriate treatment it rapidly converted to erythroderma. Other common causes were drug reaction culminating into erythroderma, and rest was idiopathic.

SJS-TEN was observed in 13% of cases comparable to the study done by Alexander et al (22%). (8) Higher frequency of SJS-TEN with nevirapine in HIV positive cases in the present might be because of high prevalence of HIV in the city and nearby areas. Those HIV positive patients have inherently high risk of SCAR (Severe cutaneous drug reaction) e.g. SJS-TEN explaining high frequency (13%) in present study, while in Wang E et al series frequency of SJS – TEN was only 0.60%. (6) According to previous data, risk of nevirapine induced hepatotoxicity and other side effects are increased if the CD4 cell count are >250/mm^3 in females and >400/mm^3 in males. (9) Although number of patients was very few in the study, an attempt was made to correlate the CD4 cell count and occurrence of SJS-TEN. Data showed that the CD4 cell counts ranges from 55 to 440 in patients with SJS-TEN and no significant correlation was found. Ours is one of the cities having high incidence and prevalence of HIV which provides free of cost Anti retroviral therapy (ART) to needy patients. SCORTEN was found 0.78 to 2.3 with statistical mortality risk of 3.2 to 35.8% in of SJS & SJS-TEN overlap syndrome. (10) No mortality was reported in this study with SJS & SJS-TEN overlap syndrome.

Frequency of drug reaction as dermatological emergency cases was seen in 41% in present study, while in Wang E et al series, it was 10.29%. (6) Common drug reactions were acute urticaria with or without angioedema (48.8%), SJS-TEN (31.7%), extensive maculopapular rash (9.8%). Other less common drug reactions were three cases of acute erythroderma and one of Dapsone hyper sensitivity syndrome. As stated above high frequency...
of SJS-TEN in present study may be because of high prevalence of HIV in the city and nearby areas.

High frequency of lepra reactions (13%) may be justified by the fact that there is a high prevalence of leprosy in the city and areas periphery to the city. Ours is a rapidly developing city with large textile market and lots of other industries, there is a large migrant population from the states with high leprosy prevalence. Most of the leprosy patients reported in the leprosy clinic are migrant population. Like ART in case of AIDS, anti leprosy treatment (ALT) is being provided free of cost to the needed leprosy patients by many government centres, there are more number of leprosy patients attending this hospital. As in Type - 2 lepra reaction systemic signs and symptoms are more severe than in Type – 1 lepra reaction, Type – 2 reaction is more frequently reported in the emergency department as in the present study (76.9%).

Pemphigus vulgaris was seen in nine cases (9%) in the present study while in Wang E et al series frequency of Immunobullous disease was 0.80%. Patients with Pemphigus Vulgaris with septicemia are mostly from the lower socioeconomic class, illiterate and belonging to the rural areas. Most patient present late (1-2 months) after the onset of disease, and do not take any treatment during this period, predisposing themselves towards septicemia. Patient presented with high grade fever, wide spread flaccid bulla, erosions and crusting with significant mucosal involvement and typical mousy odour.

Emergency conditions associated with STDs, reported in the present study were two cases of phagedenic chancreoid, and one each of chancroid with phimosis and balanoposthitis with paraphimosis. Phagedenic chancreoid is a complication of chancreoid mainly due to neglect of chancoidal ulcer over penis, getting infected with Vincent’s fusospirochetes and other gram negative bacteria, resulting in acute necrotic lesions with foul smelling discharge, may cause destruction of genitalia. Similarly phimosis and paraphimosis may complicate genital ulcer disease or balanoposthitis.

Four cases (4%) were fatal in the present study. Two cases were of female patients having pemphigus vulgaris with septicemia, one each case was of a female with anaphylaxis after blood transfusion and a male of purpura fulminans due to meningococcemia. Pemphigus vulgaris was noted to be the commonest cause of mortality. It is consisted with the study conducted by Nair et al. (11) Frequency of death was higher in females (75%). As previously said, this might be due the tendency of the females to visit the hospital only in advanced stage of the disease. It was reported that nursing care was one of most important factors in the survival of patients in cases of SJS-TEN and pemphigus vulgaris with septicemia patients in addition to the fluid management and antibiotic coverage.

Conclusion: In most of the hospitals, the patient presenting with a dermatological condition to the emergency department (ED) is evaluated by the emergency resident physician, and not by the dermatologist. This means that in a considerable percentage of cases the patient does not receive a diagnosis and a specific treatment and is subsequently referred for dermatology consultation. So, diagnosis and management of common dermatological emergency conditions should be stressed during the training of physicians in emergency medicine.

Limitations: As the study was carried out only at only one centre and many patients taking treatment from other city hospitals were not included in the study, the true incidence of dermatological emergencies is difficult to determine. This study did not include consultations performed for the paediatric emergencies. So, our findings do not apply to the paediatric population.

REFERENCES


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