Erythroderma at the Dermatology Outpatient Clinic of a Tertiary Hospital In Lagos, Nigeria

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ABSTRACT

Introduction: The term, erythroderma, refers to a non-specific dermatitis involving 90% or more of the total skin surface, characterized by generalized erythema and scaling. The major challenge in patients presenting with erythroderma is making the aetiologic diagnoses and management of complications. A detailed history is essential in making etiologic diagnoses.

Aim: This is to document the frequency and aetiology of erythroderma in patients seen at the dermatology clinic of the Lagos University Teaching Hospital (LUTH).

Methods and materials: This is a review of erythroderma cases seen at the dermatology unit over 8 years. Data was extracted from the clinic records and patients' clinic notes and analyzed using SPSS 16.

Results: Eczemas were the most common aetiologic diagnosis (40.3%), followed by papulosquamous disorders (18.9%) and drugs (8.9%). Erythroderma occurs in all age group: atopic dermatitis was the most common diagnosis in childhood; cutaneous T cell Lymphoma and cancers of the rectum and prostate were noted exclusively in males above 50 years; while herbal concoctions occurred at all age group.

Conclusion: The age of patients is helpful in the consideration of the aetiologic diagnoses. Herbal medications should be considered as precipitating and aggravating factor in the Nigerian patient.

Keywords: Erythroderma, exfoliative dermatitis, atopic dermatitis, drugs, herbal medication.

Background

THIS is a non-specific dermatitis involving 90% or more of the total skin surface and it is characterized by generalized erythema and scaling (1,2). The major challenge in patients presenting with erythroderma is making the aetiologic diagnoses and management of complications. A detailed history, including that of pre existing dermatoses and drugs is essential in making etiologic diagnoses. Pruritus is often prominent in patients with erythroderma and excoriations are also noted (2).

Clinical features of erythroderma are often similar in patients; generalized erythema with scaling. The diagnoses of erythroderma in the dark skin may require some skill as erythema in the very dark skin presents with hyperpigmentation. However, residual signs of underlying dermatoses if sought for may be a pointer to the diagnoses. These include islands of sparing in pityriasis rubra pilaris; typical scales of psoriasis; slaty grey or purplish papules or plaques and oral lesions in lichen planus; superficial blisters of pemphigus foliaceus; and erythematous papules of early drug eruptions (2). In addition, patients may present with mucosal involvement, alopecia and nail changes such as ridging, hyperkeratosis and onycholysis (2,3)

Histology is helpful in limited cases such as cutaneous T cell lymphoma and often requires multiple biopsies; otherwise findings are those of chronic non specific dermatitis. Histology was helpful in 50% of cases in a series and 13% (12/90) in another (4,5). Dermatopathic lymphadenopathy was found in many patients with erythroderma, not due to leukemia, lymphoma or malignancies. (2)

Erythroderma was estimated to be 0.9 per 100,000 inhabitants in Netherlands; and 6% of patients seen at their University hospitals (6). Several reports revealed a male predominance. (2,3,5-7). Common causes of erythroderma include atopic dermatitis, seborrhoeic dermatitis, contact dermatitis, lymphoma, leukemia and drugs (2). With increased use of herbal medications and plants, erythroderma has been document secondary to these (8).

This study aimed to document the frequency and aetiology of erythroderma in patients seen at the dermatology clinic of the Lagos University Teaching Hospital (LUTH), Nigeria between January 2004 and December 2011.

Methodology

This is a retrospective study to review cases of erythroderma seen at the Dermatology unit of LUTH between January 2004 and December 2011. The Dermatology clinic of LUTH is a tertiary referral centre with patients sent from primary and secondary health care facilities, private hospitals and company clinics.

Histology is helpful in limited cases such as cutaneous T cell lymphoma and often requires multiple biopsies; otherwise findings are those of chronic non specific dermatitis. Histology was helpful in 50% of cases in a series and 13% in another.

Data was extracted from the clinic records and patients' clinic notes. Erythroderma was defined as erythematous, variable scaly eruptions covering 90% or more of the total body surface. Other data extracted include duration of eruptions, recurrences, previous dermatoses, drug and herbal medication use, past medical history, onset of eruptions; and examination findings which include extent and type of eruptions with reference to signs indicative of the primary dermatoses. The following routine tests are carried out for all patients with erythroderma: full blood count, erythrocyte sedimentation rate, serum proteins, electrolytes, urea, creatinine, stool for occult blood, HIV, hepatitis B and C serology. Other specific investigations such as skin biopsy for histology, bone marrow biopsy, lymph node biopsy, patch test, chest X-ray and abdominopelvic ultra sound scan were done as indicated by the history with the view to aetiologic diagnosis.

Data was analyzed using SPSS 16 and data displayed using tables and diagrams.

Results

There were 16,160 new dermatology consultations during the 8 year period and of these, two hundred and one patients (1.24%) presented with erythroderma. There was a slight male preponderance with 105 males (52.2%) and 96 females (47.8%) and a male to female ratio of 1.09:1. Mean age at onset of erythroderma was 35.27 years, age range 3 weeks to 85 years. The youngest patient, a 3 week old baby presented with erythroderma secondary to irritant contact dermatitis following the use of an indigenous skin care product, which is cheap and readily procured over the counter without a prescription. The oldest patient was an 85 year old man with a two-month history of erythroderma secondary to bullous pemphigoid. Use of herbs as initial treatment prior to presentation was noted in 79 (39.3%) of patients leading to worsening of eruptions. All patients seen were dark skinned Nigerians from different parts of Nigeria. Pruritus, of varying severity was noted in almost 100% of the patients; a third of the patients (29.9%) complained of pruritus which altered their quality of life, preventing sleep and impairing activities at work.

Eczemas were the commonest predisposing dermatoses to erythroderma in 81 patients (40.3%), followed by papulosquamous eruptions in 30 patients (14.9%) and drugs in 18 patients (8.9%). The commonest precipitating dermatoses was atopic dermatitis in 38 patients (18.9%) followed by irritant contact dermatitis secondary to use of herbal concoction in 22 patients (10.9%). Papulosquamous eruptions were noted to predispose to erythroderma in 30 patients. Psoriasis was the commonest papulosquamous eruption predisposing to erythroderma (14 patients 7.0%), others were lichen planus (6 patients, 3%), pityriasis rosea (7 patients, 3.5 %), pityriasis lichenoides chronica (2 patients, 1%) and pityriasis rubra pilaris (1 patient, 0.5%).

Drugs implicated in the aetiology of erythroderma include antiretrovirals such as efavirenz and nevirapine (non-nucleoside reverse transcriptase inhibitors); anti-epileptics such as phenytoin (epanutin) and carbamazepine; antibiotics such as cotrimoxazole and ampicillin, oral hypoglycaemic agents such as glibenclamide (daonil); antifungals (griseofulvin), antimalarials (artesunate-amodiaquine combination) and diethylcarbamazine.

Erythroderma secondary to extensive superficial dermatophyte infection was documented in a 45 year old female on the background of chronic use of steroid containing skin lightening cosmetics. HIV infection (14; 6.9%) was the commonest systemic disorder associated with erythroderma; followed by diabetes mellitus (6;

3%) and seizures (3; 1.5%). Patients with seizure disorder developed erythroderma with the use of epanutin and carbamazepine. The causes of erythroderma in HIV positive patients were drugs in 7 patients, psoriasis in 3 patients, cutaneous T cell lymphoma in 1 patient, herbs in 1 and the aetiology was unknown in 2 patients.

Table 1: Age distribution of patients who presented with erythroderma

AGE (YEARS)	FREQUENCY	PERCENT (%)
0-9	36	17.9
10-19	23	11.4
20-29	30	14.9
30-39	23	11.4
40-49	30	14.9
50-59	20	10.0
60-69	24	11.9
70-79	10	5.0
80-89	5	2.5
TOTAL	**201**	**100.0**

Table 2: Skin disorders predisposing to erythroderma

Dermatoses	Male	Female	Total	Percentage
Atopic dermatitis	21	17	38	18.9
Irritant contact dermatitis from herbal medication	12	10	22	10.9
Irritant contact dermatitis (other)	4	5	9	4.5
Drugs	9	9	18	8.9
Psoriasis	7	7	14	7.0
Immunobullous eruptions	6	2	8	4.0
Pityriasis Rosea	2	5	7	3.5
Allergic contact dermatitis	3	3	6	3.0
Lichen planus	5	1	6	3.0
Seborrhoiec dermatitis	2	3	5	2.5
Cutaneous T cell lymphoma	4	1	5	2.5
Cancer of the prostate and rectum	4	0	4	2.0
Xerosis	1	3	4	2.0
Ichthyosis	3	1	4	2.0
Acute cutaneous lupus erythematosus	1	1	2	1.0
Pityriasis lichenoides chronic	2	0	2	1.0
Onchodermatitis	0	1	1	0.5
Tinea corporis	0	1	1	0.5
Pityriasis rubra pilaris	1	0	1	0.5
Dyshydrotic eczema	0	1	1	0.5
Undetermined	18	25	43	21.4
Total	**105**	**96**	**201**	**100**

Table 3: Eczematous dermatoses causing erythroderma in patients

Dermatoses	Number of patients	Percentage
Atopic dermatitis	38	18.9
Irritant from Herbal concoction use	22	10.9
Other Irritant contact dermatitis	9	4.5
Allergic contact dermatitis	6	3.0
Seborrhoiec dermatitis	5	2.5
Dyshydrotic eczema	1	0.5

Table 4: Age distribution of aetiology of erythroderma

Aetiology	0-9yrs	10-19yrs	20-29yrs	30-39yrs	40-49yrs	50-59yrs	60yrs & above	Total
Atopic dermatitis	22	6	3	5	2	0	0	38
ICD from herbal medication	0	2	8	4	4	2	2	22
Irritant contact dermatitis (others)	2	1	3	0	2	0	1	9
Drugs	0	3	2	4	4	3	2	18
Psoriasis	2	2	1	2	1	1	5	14
Immunobullous eruptions	0	1	0	0	1	2	4	8
Pityriasis Rosea	0	2	4	1	0	0	0	7
Allergic contact dermatitis	1	0	1	3	0	1	0	6
Lichen planus	0	1	1	1	2	0	1	6
Seborrhoiec dermatitis	2	0	1	1	0	0	1	5
Cutaneous T cell lymphoma	0	0	0	0	0	1	4	5
Cancer of the prostate and rectum	0	0	0	0	0	0	4	4
Xerosis	0	1	0	0	0	0	3	4
Ichthyosis	4	0	0	0	0	0	0	4
Acute cutaneous lupus erythematosus	0	0	0	0	2	0	0	2
Pityriasis lichenoides chronic	0	1	1	0	0	0	0	2
Onchodermatitis	0	0	0	0	0	0	1	1
Tinea corporis	0	0	0	0	1	0	0	1
Pityriasis rubra pilaris	0	0	0	0	0	1	0	1
Dyshydrotic eczema	0	0	0	0	0	0	1	1
Undetermined	0	3	5	2	11	9	13	43

Discussion

The incidence or prevalence of erythroderma in Nigeria is yet to be determined, but it cannot be said to be uncommon as it represented 1.24% of cases seen within this study period. Previous documentation of dermatoses in Nigerian tertiary hospitals did not specifically document the frequency of erythroderma seen. (9-11) In the Netherlands, erythroderma was found in 1 to 2 per 100,000 inhabitants and 6% of patients attending university hospitals. (6)

Making an aetiologic diagnosis is the major challenge in the management of erythroderma. However, knowledge of possible predisposing conditions will be essential in the management plan for the patients. Aetiologic diagnoses of erythroderma noted in this study are similar to findings in other parts of the world, although the frequency of various diseases differs. (3) Overall, eczematous dermatitis was the commonest predisposing dermatoses to erythroderma (Table 3). Causes of erythroderma found in this study include:

atopic dermatitis, use of herbal medications, drugs, psoriasis, bullous eruptions, cutaneous T cell lymphoma and irritant contact dermatitis. Studies carried out in predominantly dark skinned and Indian populations in South Africa revealed atopic dermatitis as the most prevalent (similar to this study) followed by Psoriasis and drugs in the non HIV population while drugs were the most common cause of erythroderma in the HIV population in that study (12). Psoriasis was the most frequent in Iran (7) and India (13). In the study from the US, drugs followed by Psoriasis were the commonest aetiologic factor. (14) In Tunisia, Psoriasis was the commonest in the adult population, while Ichthyosis was the commonest cause in pediatric patients. (15)

In the evaluation of patients to determine the predisposing factor, the age of the patient can aid in the determination of investigations that will be necessary. In this study, the mean age of presentation was in the 4th decade, as opposed to findings from other parts of the world where the mean age of presentation was in the 5th and 6th decades of life. (6,7,13,14) Table 4 revealed that psoriasis, drugs and irritant contact dermatitis were found in all age groups and should be looked out for in the history, examination and investigation of all cases of erythroderma. All cases of ichthyosis were documented in the first decade of life (specifically in the neonatal period). In view of the unavailability of diagnostic facilities and funds, it was not possible to decipher the specific causes of the neonatal ichthyosiform erythroderma that we documented. Possible causes of ichthyosiform erythroderma in the neonatal period are Harlequin fetus, bullous Ichthyosis, lamellar Ichthyosis, and congenital ichthyosiform erythroderma (CIE). (16,17)

Other causes of erythroderma in the pediatric age group vary and include cutaneous disorders such as atopic dermatitis, psoriasis vulgaris, diffuse cutaneous mastocytosis, toxic epidermal necrolysis, pityriasis rubra pilaris, seborrhoeic dermatitis and Norwegian Scabies; immunologic disorders like Omenn's syndrome, Graft versus host disease and DiGeorge's syndrome; Metabolic/nutrition disorders such as Kwashiorkor, Renal failure, Acrodermatitis enteropathica; Infections such as staphylococcal scalded skin syndrome, Scarlet fever, Neonatal candidosis and toxic shock syndrome; Drug-induced erythroderma/exfoliative dermatitis, Part component of various syndrome(s), such as Netherton's syndrome, Sjogren Larssen syndrome, Keratitisichthyosisdeafness syndrome and ectodermal dysplasias. (16)

Atopic dermatitis was found predominantly in the first decade of life (58%) Factors found to cause exacerbation of atopic dermatitis and subsequent erythroderma include secondary bacterial infections, dust mite allergens, fungal infections, irritants such as soaps and detergents, environmental exposure, stress (physical and psychological) and immunodeficiency syndromes. (18-21)Severity of atopic dermatitis has been correlated with staphylococcal toxins. (22)

Similar to findings from previous studies, there was a slight male preponderance in patients that presented with erythroderma. (12-15) In the process of screening older men for the aetiologic diagnosis of erythroderma, it is essential to always keep in view the possibility of internal malignancies, and screen for cancers of the prostate and rectum; cutaneous T cell lymphoma (CTCL) and immunobullous disorders. In this study, we recorded cancer of the prostate and rectum, CTCL and immunobullous disorders affected males predominantly.

Making an aetiologic diagnosis is the major challenge in the management of erythroderma. However, knowledge of possible predisposing conditions will be essential in the management plan for the patients.

The high frequency of irritant contact dermatitis secondary to herbs is peculiar to the African population. (8) This is corroborated by a study carried out in South Africa. (12) Erythroderma from herbal concoction use has been reported in Nigerians. (8) In the assessment of erythroderma in Nigerian patients, use of herbal medications should always be evaluated either as the primary cause or as an aggravating factor in perpetuating the inflammatory process. The high frequency of erythroderma secondary to irritant contact dermatitis from use of herbal medications may be a reflection of the cultural practice of a large percentage of Nigerians from all cadres of life who have preference for the traditional African healers who use herbs predominantly. (8,23) It is noteworthy that another 39.3% of the patients had other dermatoses that became worsened by use of herbal medications. Irritant contact dermatitis, allergic contact dermatitis and photosensitive dermatitis have been reported from use of herbal concoctions. (8,23-25). Herbal solutions are made from leaves, roots, barks, stumps and peels of plants and fruits. Coumarins and furocoumarines are photosensitizers found in peels of fruits of the citrus family (orange, tangerine, lime and lemon) and are common ingredients in many herbal concoctions. (23,24)

The use of steroid containing skin lightening agent was noted to be associated with erythroderma secondary to widespread superficial fungal infections of the skin. This is not unexpected in view of the widespread use of lightening agents that contain high potent steroids. (26)

HIV infection was the commonest systemic disorder associated with erythroderma (6.9% of patients). Drugs were notably the most common aetiologic factor, followed by psoriasis in HIV patients similar to the findings in the South African series comparing erythroderma in HIV and non-HIV positive patients. (12) In the management of HIV positive individuals, the clinician should be aware of the possibility of erythroderma with the use of drugs such as ethambutol (anti tuberculosis drug), nevirapine and efavirenz. (12,) Erythrodermic psoriasis with HIV has been associated with a poor prognosis because of infection. (27,28)

The high frequency of undermined aetiology (rather than unknown) noted in this study may be a reflection of inadequacy of investigations as our patients are often not able to afford investigations. Though this study is a retrospective analysis, it gives a baseline on possible aetiology of erythroderma in this environment and will serve as a guide for clinicians in eliciting causes in the specific patients they see.

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