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ORIGINAL ARTICLE

Pattern of Skin diseases in Black Africans of Sierra Leone, West Africa

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ABSTRACT

Background: Skin disorders are seen in all ethnic groups with varying frequency. This differential prevalence points towards some social, cultural, and environmental factors in addition to genetic factors in causation of these disorders.

Aim of the Study: The purpose of the study was to see the patterns of skin diseases in Eastern province of Sierra Leone and to observe the role of ethnicity in causation of these disorders.

Place and Duration of the Study: The study was carried out in Eastern province of Sierra Leone (Kenema) between November 2004 and September 2005.

Type of Study: It was an observational study.

Patients and Methods: Local black patients of all age groups having one or more skin disorders were included. After clinical history and physical examination, patients (lesions) were photographed. Laboratory investigations (macroscopic fungal examination, X-rays, USG, haematological profiles, STS, etc.) were also carried out when indicated. Non-black settlers in the area and UN troops were not included in the study. Data were recorded and analysed by Microsoft Excel.

Results: A total of 2877 patients belonging to different local tribes having a variety of skin disorders were seen during the study period. Patients were of all ages, ranging from 1 month to 73 years, and of both sexes. Sex ratio was almost equal. Vast majority were from very low socioeconomic group. The most prevalent disorders seen were fungal infections (42.3%), followed by hair disorders (9.7%), sexually transmitted infections (9.2%), acne/folliculitis (7%), parasitic infections (6.6%), scars/keloidal disorders (5%), and pigmentary disorders (4.5%). Bacteria and viral infections were rare and so was the scabies. Onchodermatitis with all kinds of skin manifestations was seen in appreciable number of patients (>6%).

Conclusion: Pattern of skin disorders in black Africans of Sierra Leone is different from other regions, and these differences may significantly be attributed to unique environmental and cultural factors prevailing there.

Key Words: Ethnic skin disorders, Racial dermatoses, Ethnic dermatology, African blacks.

Introduction

Socially, when we use the term race or ethnicity, it often means a group of people who share language, culture, and a vague historical background. Eighty per cent of the world's population consist of individuals with pigmented skin, and, for the purpose of simplicity, "ethnic skin" may be defined as non-Caucasian darker

skin types IV, V, and VI [1],[2]. People with skin of colour constitute a wide range of racial and ethnic groups—including Africans, African Americans, African Caribbeans, Chinese and Japanese, Hispanics, and certain groups of fair-skinned persons (e.g., Indians, Pakistanis, and Arabs) [1]. The skin phototype (SPT) system, developed by Fitzpatrick, is predicated on the

reactions or vulnerability of various types of skin to sunlight and ultraviolet radiation (UVR) [2]. It is widely accepted in the dermatologic community that an individual with an olive skin tone, also characterised as beige or lightly tanned, is classified as having type IV skin, those with brown skin as type V, and black skin as type VI. These skin types rarely or never burn on sun exposure and tan readily. These skin types include individuals of many racial and ethnic backgrounds (Africans, African Americans, Caribbeans, Hispanics, and Asians). Even fair-skinned persons (e.g. Arabs, Pakistanis, and Indians) have also been classified as having types IV and V skin [1],[2]. Darker skin differs from Caucasian skin in its reactivity and disease presentation. Ethnic differences in skin properties may explain racial disparities seen in dermatologic disorders and provide insight into appropriate differences in the management of these disorders. However, these differences have not been widely investigated by objective methods, and the data are often contradictory. On the basis of available literature so far, few definitive conclusions can, however, be made about racial and ethnic differences in skin structure, physiology, and dermatologic disorders. These include differences in epidermal melanin content, melanosome dispersion, hair structure, fibroblast and mast cell size, and structure in people of colour, compared with fair-skinned persons [3–6]. These differences could, at least in part, account for the lower incidence of skin cancer and a lower incidence and different presentation of photo-aging in certain people of colour, compared with fair-skinned persons [7–9]. On the other hand, a higher incidence of pigmentation disorders and certain types of alopecia in people with skin of colour compared with those of other ancestry may also be explained logically [10–12]. Medical and surgical therapies for diseases of skin and hair may be different in ethnic populations than in

Caucasian populations. Newer treatment modalities such as lasers require knowledge of proper parameters, as well as knowledge of adverse reactions on darker skin [3],[13]. Although some research to enhance understanding of ethnic skin has been undertaken, significant work remains to be performed in this area of ethnic skin disorders. The purpose of the study was to see the patterns of skin diseases in the Eastern province of Sierra Leone and to observe the role of environmental/cultural factors in causation of dermatological disorders. Sierra Leone is located at the west most corner of West Africa along costal line of Atlantic Ocean.

Table/Fig 1
Frequency of occurrence of various disease categories

NO	Diseases (Categories)	Patients	%
1	Fungal Infections	1217	42.3
2	Bacterial Infections	78	2.7
3	Viral Infections	23	0.8
4	Parasitic Infections	190	6.6
5	Acne/ Folliculitis	201	7.0
6	Hair disorders	279	9.7
7	Nail disorders	52	1.8
8	Papulosquamous disorders	28	1.0
9	Sexually transmitted Infections	265	9.2
10	Eczematous disorders	151	5.2
11	Pigmentary disorders	129	4.5
12	Keloids/Scars & related disorders	145	5
13	Connective Tissue disorders	3	0.1
14	Autoimmune bullous disorders	3	0.1
15	Malignant disorders	3	0.1
16	Ulcers	48	1.7
17	Drug Reactions	25	0.8
18	Reaction Patterns	32	1.1
19	Miscellaneous	10	0.3

Patients and Methods

Local black patients of all age groups belonging to eastern province (Kenema) of Sierra Leone presenting with any skin disorder were included. Non-black settlers in the area and UN troops

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were not included in the study. Majority reported from vicinity of Kenema city in routine outdoor, and a significant number was also encountered from some distant towns of the district in four free medical camps. A thorough clinical history was taken from each patient, with special emphasis on social customs and cultural practices being followed by the individual. After detailed physical examination, patients (lesions) were photographed. Laboratory investigations (macroscopic fungal examination, X-rays, USG, haematological profiles, serological tests for syphilis, etc.) were also carried out when indicated. Diagnosis of each skin disorder was made on the basis of clinical knowledge and appropriate laboratory support, and it was properly recorded for each patient along with the name, age, occupation, social background, and other relevant clinical, personal, and family history. Patients were managed and followed up accordingly. Data were recorded and analysed by Microsoft Excel. Results were later compared with similar studies in populations of other races.

Results

A total of 2877 patients belonging to different local tribes having a variety of skin disorders were seen during the study period. Out of total 2877 patients, 2077 were seen in routine outdoor and 800 were encountered in four free medical camps. Patients belonged to all ages, ranging from 1 month to 73 years, and both sexes. Sex ratio was almost equal (48.7% males and 51.3% females). Vast majority were from very low socioeconomic group (96%). The most prevalent disorders seen were fungal infections (42.3%), followed by hair disorders (9.7%), STIs (9.2%), acne/folliculitis (7%), parasitic infections (6.6%), scars/keloidal disorders (5%), and pigmentary disorders (4.5%). Fungal infections were predominantly of superficial type, and only five cases (0.4%) of deep mycosis (three of chromoblastomycosis and two of sporotrichosis) were seen. Bacteria and viral infections were rare and so was the scabies. Important to note was quite common occurrence of onchodermatitis (>6%) with all kinds of skin manifestations. Different categories of skin disorders along with frequency of their occurrence are shown in [Table/Fig 1], while composition of individual groups is given in [Table/Fig 2],[Table/Fig 3]. Comparative frequency of disorders in various ethnic populations is shown in [Table/Fig 4]. Some of

the peculiar and interesting diseases have also been shown in [Table/Figs 5–15].

Table/Fig 2
Composition of various common disease categories

No	Disease Categories	Composition
1	Fungal infections	Tinea Versicolor Tinea corporis Tinea Cruris Tinea Capitis Tinea in cognito Candidiasis Intertrigo Onychomycosis Deep mycosis (Chromoblastomycosis, Sporotrichosis)
2	Bacterial infections	Impetigo contagiosa Bullous Impetigo Cellulitis Infected wounds
3	Infestations	Scabies Myiasis Onchodermatitis Acute papular Chronic papular Lichenified Swoda Onchocercoma Hanging groins Lizard Skin Leopard Skin
4	Sexually transmitted infections	Syphilis Gonorrhoea Non specific urethritis HIV
5	Acne/Folliculitis	Pomade Acne Pseudofolliculitis Acne keloidalis nuchae
6	Hair & Nail disorders	Traction Alopecia Frontal receding Traumatic nails Onychomycosis
7	Keloids & Hypertrophic Scars	Post traumatic Idiopathic cultural
8	Pigmentary disorders	Melasma Vitiligo Albinism Post inflammatory hyperpigmentation Post inflammatory hypopigmentation

Table/Fig 3
Composition of various less common disease categories

No	Diseases / Categories	Composition
1	Viral infections	Herpes Zoster Viral exanthem Viral Warts Molluscum contagiosum
2	Papulosquamous disorders	Psoriasis Psoriasiform Dermatitis Lichen planus
3	Eczematous disorders	Atopic dermatitis Seborrheic dermatitis Contact Dermatitis
4	Connective Tissue disorders	DLE Subacute LE
5	Autoimmune bullous disorders	Pemphigus vulgaris
6	Malignant disorders	Squamous cell carcinoma
7	Ulcers	Traumatic Infective Neuropathic
8	Drug Reactions	Fixed drug eruption Bullous drug eruption Pityrisiform rash Psoriasiform rash
9	Reaction Patterns	Erythema multiforme Toxic erythema
10	Miscellaneous	Dermatosis papulosa nigra Sebaceous cysts Carotienemia Glossitis Gingival hyperplasia

Discussion

Black skin (people from Africa, Native Australians, African Americans, Caribbeans, and people from other Islands) is darker than northern European and Asian skin because of the increased amount of melanin in the skin. Melanin protects the skin from sunlight, slows down the aging process, and keeps black people look younger than white-skinned people. Lower incidence of all skin cancers and less pronounced photo-aging in blacks are attributed to increased melanin content and melanosome distribution [1] [2], [3], [7], [8], [9]. If on one hand, dark skin is considered a blessing as it relates to sun damage and aging, on the other hand it can become greatly problematic by triggering excess melanin (resulting in dark patches) or excess collagen production (resulting

in keloids/hypertrophic scars) in reaction to skin damage as minor as a scratch or a pimple. Moreover, burns or other skin trauma may also leave hypo-pigmented or depigmentation areas as unwelcome reminders. In black races, cultural practices in addition to biologic predispositions (lability of melanocytes) also contribute significantly to the increased incidence of pigmentary disorders, and these disproportionately affect individuals with darker skin pigmentation [12],[17],[18],[19]. Post-inflammatory hypo-pigmentation is a common complication seen from numerous inflammatory diseases such as seborrheic dermatitis, pityriasis alba, atopic dermatitis, secondary syphilis, tinea versicolor, diaper dermatitis, and discoid lupus. It has also been described from contact with phenolic detergents [10],[18],[20]. Acne and eczema along with pigmentary disorders are generally most common disorders in dark populations, followed by alopecia and fungal infections. Alopecia is largely attributed to cultural hair-grooming techniques, and increased frequency of fungal infections is possibly the result of hot and humid environment [10],[14],[15], [16],[20],[21].

Our study supported common occurrence of these disorders, but some of our findings were strikingly different from earlier studies [14],[15],[20]. We observed that fungal infections (42%) outrightly surpassed all other disorders. The reason for this extreme prevalence could be hot and humid weather during most periods of the year in Sierra Leone (9–10 months in a year). Although we encountered almost all types of superficial fungal infections, most common of all was tinea versicolor, as expected in a tropical and humid place like Sierra Leone. Another striking difference was high prevalence of sexually transmitted infections and onchodermatitis. Sexually transmitted infections are frequent in all poverty-driven countries of Africa, but more significant number in our study was expected because the target population belonged to an area that was affected by a decade-long brutal civil war. Onchodermatitis constitutes a spectrum of dermatological manifestations of onchocerciasis (a filarial disease due to *Onchocerca volvulus*) and is found endemic in whole West African region [22]. Increased prevalence of this parasitic disease in our study was not a big surprise. Surprisingly, we found significantly less number of bacterial, viral, and

parasitic (except onchodermatitis) infections, when we compared with other studies [14–16],[20]. High prevalence of these infections was initially expected due to extreme poverty, overcrowded living, and very low socioeconomic and hygienic conditions. The explanation of this significantly less frequent infection rate may be the existence of some naturally occurring anti-infective agent in their diet, secretion of some potent antiseptic/anti-infective agent in their sweat, or the existence of some genetic factors contributing to the resistance against infections. This needs to be investigated on a wider scale. A variety of cultural practices are observed in different ethnic groups throughout the world. In our study population, we also looked for the cultural practices being followed and found various hair-grooming techniques (as a cause of traction alopecia), especially designed cut marks on face, arms, or back (cause of scar and keloid formation), for tribal identification and use of pomade (cause of pomade acne). Post-inflammatory hyper- and hypo-pigmentation and

scar formation were also observed secondary to coin rubbing, cupping, moxibustion, and female circumcision [16],[23–25]. Tribal identification scars and female circumcisions and finding whole clinical spectrum of onchodermatitis were seen peculiar in our study population. These differences in prevalence of various skin disorders point towards significant contribution of environmental factors and cultural practices, in addition to biologic or genetic factors in causation of skin diseases [1],[6].

Conclusion

Pattern of dermatological disorders in black Africans of Sierra Leone is different from other regions, and these racial or ethnic differences may significantly be attributed to unique geopolitical environment and prevailing cultural practices, in addition to established biological and genetic differences in causation of certain skin diseases in blacks.

Table-4
Common skin disorders in various ethnic populations. (In descending order of prevalence) [19-21]

African Blacks of Sierra Leone	American Blacks	American Hispanics	Asians
Fungal Infections	Acne vulgaris	Acne vulgaris	Xerosis
Hair disorders	Eczema	Eczema	Pruritis
Sexually transmitted infections	Pigmentary disorders	Photoaging	Discoid Eczema
Acne/Folliculitis	Seborrheic Dermatitis	Fungal infections	Dyshidrosis
Parasitic infections	Alopecia	Viral infections	Atopic Dermatitis
Eczemas	Fungal infections	Seborrheic keratosis	Melasma
Keloids	Warts	Achrochordons	Photodermatitis
Pigmentary disorders	Keloids	Seborrheic Dermatitis	Psoriasis
Bacterial infections	Pityriasis rosea	Alopecia	Vitiligo
Nail disorders	Urticaria	Psoriasis	Nevi

Table/Fig 5



Bilateral vertical facial scars made in childhood as a tribal identification marks

Table/Fig 8



Female circumcision: a common cultural practice in adolescent girls and obligatory in some local tribes (where clitoris and sometimes part of labia majora is shaved off).

Table/Fig 6



Linear identification scar marks on deltoid and pectoral regions along with three iatrogenic post-burn round scars (produced in early childhood as a myth to enhance body resistance).

Table/Fig 9



Carotienemia: (due to excessive use of local oranges and vegetables)

Table/Fig 7



Keloid (a frequent occurrence in blacks after a trivial trauma or skin infection).

Table/Fig 10



Traction alopecia (due to cultural hair-grooming techniques).

Table/Fig 11



Albinism: a socially unwelcome disorder (Albino girl standing with her normal mother).

Table/Fig 14



Squamous cell carcinoma groin (an unusual site).

Table/Fig 12



Pseudofolliculitis: another skin disorder more frequently seen in blacks than in any other race.

Table/Fig 15



Chronic lichenified onchodermatitis (one of the cutaneous manifestations of onchocerciasis).

Table/Fig 13



Dermatosis papulosa nigra (another peculiar disorder in blacks).

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