

EPIDEMIOLOGY OF SKIN DISEASES IN UNIVERSITY OF NIGERIA TEACHING HOSPITAL, ITUKU-OZALLA, ENUGU STATE

¹Onyekonwu C.L, ¹Ojinmah U.R, ¹Ozoh G.A.O, ²Okoh N.U, ¹Uche-Ejekwu J.B, ³Onyekonwu C.G

¹Sub-Department of Dermatology, College of Medicine, University of Nigeria, Ituku-Ozalla, Enugu

²Department of Medicine, Federal Teaching Hospital, Abakaliki, Ebonyi State

³Department of Ophthalmology, College of Medicine, University of Nigeria, Ituku-Ozalla, Enugu

ABSTRACT

BACKGROUND: Several studies have been carried out to determine the patterns of skin diseases across Nigeria and results have shown changing patterns with the trend reflecting a higher tendency for allergic dermatoses in a majority of these studies. This study was carried out to evaluate the current clinical picture of patients presenting to our clinic.

MATERIALS AND METHODS: A prospective study of new patients seen in the skin clinic of University of Nigeria Teaching Hospital (UNTH), Ituku-Ozalla, between November 2013 and August 2014 was carried out. A total of 387 patients' data was analysed. Data collected on patients' sociodemographic status and diagnosis were entered into SPSS Version 17 and analyzed. Diagnosis was based on clinical findings, laboratory diagnosis including biopsy and histopathology were requested when necessary to make a diagnosis.

RESULTS: There were more females 245 (63%) than males 142 (37%). Most of the patients (81.9%) were aged above 16 years and the commonest skin disease was infections (29.5%) followed by allergic skin diseases (13.6%). There was a significant difference in levels of income of study participants across gender and females who were engaged in unskilled labour were more likely to earn lower than males.

CONCLUSION: Comparing the study findings with an earlier one from the same center, there is a change in pattern with infections being the most common skin disease. These are largely preventable; public enlightenment campaigns and policies to discourage over the counter purchase of prescription strength corticosteroid creams are highly desirable.

KEYWORDS: Epidemiology, Skin diseases, Prevention, Public enlightenment

NigerJMed2016: 315-324

Copyright © 2016. Nigerian Journal of Medicine

INTRODUCTION

Skin diseases occur worldwide but patterns of presentations may be different in developed and developing countries. The pattern is influenced by genetic constitution, climate, socioeconomic status, occupations, education, hygiene standards, customs, and quality of medical care¹. In developed countries, they account for 7–15% of visits to family practitioners and 5% of consultations with internists^{2, 3}. In tropical countries, skin problems are generally among the most common diseases seen in primary care settings⁴.

Globally, skin conditions were the fourth leading cause of nonfatal disease burden and 2nd to 11th leading cause of years lived with disability at the country level⁵. Mortality from certain skin diseases with the exception of malignant melanoma and a few other conditions has been found to be greater in developing countries than those in developed countries⁶. In fact, the World Health Organization report of 2001 on the global burden of skin diseases showed that skin diseases were associated with mortality rates of 20,000 in Sub-Saharan Africa in 2001, a burden comparable to mortality rates attributed to meningitis, hepatitis B, obstructed labor, and rheumatic heart disease in the same region⁷. These findings underscore the importance of early detection and treatment of skin diseases.

Patterns of skin disease are changing in resource constrained settings as the disease profile shifts from

Corresponding Author: Dr Onyekonwu Chinwe L
Sub-Department of Dermatology, College of Medicine, University of Nigeria, Ituku-Ozalla, Enugu

Email address: chinwe.onyekonwu@unn.edu.ng

one of primarily infectious to one of non-infectious disease⁸. Recent epidemiological data from local studies in Nigeria have shown that the pattern of presentation has shifted markedly to non-infectious aetiology especially dermatitis and eczemas as opposed to earlier findings of infections and infestations^{8,11}. In the University of Nigeria Teaching Hospital, Ituku-Ozalla, increasing patient data base from hundreds/year in the 70's to thousands per year since the turn of the millennium and uptake of dermatological services is creating a more viable field for research activities, especially since it is a tertiary center and have patients accessing care from distant states of the country including Lagos State and the Federal Capital Territory.

It is important to evaluate current spectrum of disease in skin clinics where previous studies depicted a specific pattern and this has given rise to the need for this study.

MATERIALS AND METHODS

This study was conducted at University of Nigeria Teaching Hospital (UNTH), Ituku-Ozalla, Enugu State, Nigeria, a tertiary health institution located about 25km South of Enugu in South-East Nigeria. The hospital occupies a size of about 500 hectares. The dermatology clinic of the hospital is a referral center for skin diseases from within the state and surrounding cities.

Patients seen between November 2013 and August 2014 were enrolled in this prospective study. Only patients who gave informed consent were involved in the study. Those who declined participation were seen and treated as per the regular clinic policy. Diagnosis was made based on history and physical examination. Baseline investigations consisting of full blood count and differentials and urinalysis were carried out on all patients. Specific dermatologic investigations for example skin scraping for potassium hydroxide microscopy and culture in Sabouraud's medium for fungal studies, slit-skin smear for Hansen's disease, retroviral screening test and skin snip for onchocerciasis; patch testing and skin biopsy for histopathological studies were performed where indicated.

Generated data was entered into SPSS for Windows Version 17.0 (SPSS, Inc., Chicago, IL, USA) and the diseases were categorized, tabulated and percentages calculated.

Results

A total of two thousand, two hundred and twenty four (2,224) new patients presented to the clinic during

the study period. Three hundred and ninety-three patients (393) consented to the study and of these, six had incomplete data so only 387 patients' data were analysed.

Patients aged between 16 and 90 years accounted for the majority of the study population (81.9%); Male: Female ratio was 1:1.7 and thirty-six participants (9.3%) had more than one skin disorder. Mean age of patients was 29.53 years (± 17.46). There was no statistically significant difference in mean age of patients across gender (p-value 0.963, 95% Confidence Interval -3.54 to 3.71).

The most common skin diseases were infections/inflammations (29.5%). Out of 114 participants who were diagnosed with infections/infestations, 84 (21.7%) had fungal infection making it the most common infection prevalent in this study. Among the patients with more than one disorder, 18 (5%) had background atopic dermatitis. Thus, the cumulative frequency of atopic dermatitis in study participants was 11.5% and that of dermatitis 13.6% making it the second most common skin disorder among the study participants followed by follicular disorders (10.6%).

Only thirty-seven participants (9.7%) presented for treatment within one month of skin lesions while 163 participants (43%) presented after one year of symptom onset.

Males who engaged in unskilled labour earned higher than the females (60% of females earned less than ten thousand naira while 30% of male participants who were unskilled laborers earned less than ten thousand naira). There was a statistically significant difference in income across gender (p value 0.03).

In all the skin diseases, females accounted for higher cases than males.

Tables 1-3 show different sociodemographic characteristics of study participants, and disease distribution according to age and gender. Table 4 shows the breakdown of fungal infections according to pattern of presentation and age.

Figs 1 and 2 shows the frequency of infections and Papulosquamous disorders respectively while Fig. 3 is a chart showing the frequency of the mixed skin diseases.

Table 1: Sociodemographic characteristics of study participants

Age Range	Gender		Total
	No of Males (%)	No of Females (%)	N (%)
5-15 years	30(7.7)	40(10.4)	70(18.1)
16-90 years	112(29.0)	205(52.9)	317(81.9)
Total	142(36.7)	245(63.3)	387(100)

Level of Education		
	Frequency N (%)	Cumulative frequency N (%)
No formal Education	26 (6.7)	26 (6.7)
Nursery/Day Care	22 (5.7)	48 (12.4)
Primary School	52 (13.4)	100 (25.8)
Did not complete Secondary	4 (1.0)	104 (26.8)
Secondary School	102 (26.4)	206 (53.2)
Undergraduate Student	62 (16.0)	268 (69.0)
Completed	108 (27.9)	376 (97.1)
University/Polytechnic		
Postgraduate	6 (1.6)	382 (98.7)
No Response	5 (1.3)	387 (100.0)

Employment Status		
Pupil/Student	179 (46.2)	179 (46.2)
Unemployed	17 (4.4)	196 (50.6)
Unskilled labour	82 (21.2)	278 (71.8)
Skilled labour	23 (5.9)	301 (77.7)
Clergy	8 (2.1)	309 (79.8)
Professional	70 (18.1)	379 (97.9)
Retired	8 (2.1)	387 (100.0)

Marital Status		
Single	261 (67.4)	261 (67.4)
Married	114 (29.5)	375 (96.9)
Widowed	11 (2.8)	386 (99.7)
Separated	1 (0.3)	387 (100.0)

Table 2: Distribution of skin diseases by gender

Skin Disease	Gender		Total(%)
	Male	Female	
Dermatitis			
Atopic Dermatitis	14	11	25(6.5)
Nipple Eczema	0	2	2(0.5)
Allergic Contact Dermatitis	1	5	6 (1.6)
Infections /Infestations	45	69	114 (29.5)
Papulosquamous disorders	16	16	32 (8.3)
Follicular disorders			
Acne vulgaris/Acneiform eruptions	7	20	27 (7.0)
Pseudofolliculitis	10	4	14 (3.6)
Pigmentary abnormality	7	15	22 (5.7)
Papular Urticaria	1	9	10 (2.6)
Drug Eruptions	5	8	13 (3.4)
Pruritus/Urticaria	5	16	21 (5.4)
Alopecia	3	2	5 (1.3)
Keloids /benign tumours	4	11	15(3.9)
Disorders of keratinization	3	2	5 (1.3)
Lymphoedema	0	3	3 (0.8)
Connective Tissue Disease	3	4	7 (1.8)
Post steroid dermatoses	0	4	4 (1.0)
Kaposi Sarcoma	1	2	3 (0.8)
Adnexal tumors/Neurocutaneous syndrome	1	7	8 (2.0)
Vascular/ harmatarmous tumours	2	6	8 (2.0)
Nail Disorders	0	1	1 (0.2)
Genital discharge	1	0	1 (0.2)
Mixed disorders	11	25	36 (9.3)
Others	2	3	5 (1.3)
Total	142	245	387 (100)

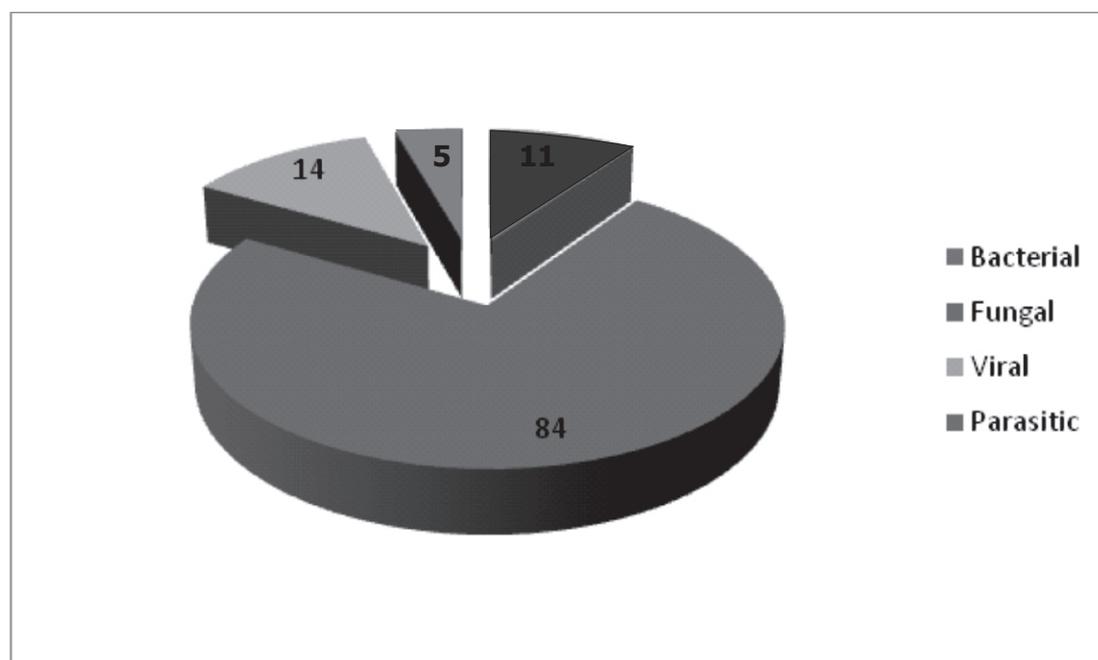


Fig. 1: Frequency distribution of Infections among study participants(N=114)

Table 3: Distribution of skin diseases by age

Skin Disease	Age(years)					Total
	0-15	16-30	31-45	46-60	>60	
Dermatitis						
Atopic Dermatitis	13	7	2	2	1	25
Nipple Eczema	0	1	1	0	0	2
Allergic Contact Dermatitis	0	5	0	1	0	6
Infections /Infestations	20	46	26	17	5	114
Papulosquamous disorders	3	10	11	5	3	32
Follicular disorders						
Acne vulgaris/Acneiform eruptions	3	23	1	0	0	27
Pseudofolliculitis	0	9	4	1	0	14
Pigmentary abnormality	5	7	3	5	2	22
Papular Urticaria	5	5	0	0	0	10
Drug Eruptions	2	6	4	1	0	13
Pruritus/Urticaria	0	3	8	9	1	21
Alopecia	0	4	1	0	0	5
Keloids /benign tumours	0	6	5	1	3	15
Disorders of keratinization	1	4	0	0	0	5
Lymphoedema	0	1	1	1	0	3
Connective Tissue Disease	0	1	3	1	2	7
Post steroid dermatoses	0	3	0	1	0	4
Kaposi Sarcoma	0	0	2	1	0	3
Adnexal tumors/Neurocutaneous syndrome	0	6	2	0	0	8
Vascular/harmatarmous tumours	5	3	0	0	0	8
Nail Disorders	0	1	0	0	0	1
Genital discharge	0	1	0	0	0	1
Mixed disorders	12	12	7	3	2	36
Others	1	2	0	0	2	5
Total	70	166	81	49	21	387

Table 4: Age and Sex Distribution of Patients based on Fungal Infection Type

Age(years)	Type			Total
		Male	Female	
0-15	Tinea Corporis	3	0	3
	Tinea Cruris	0	1	1
	Tinea Capitis	3	1	4
	Tinea Pedes	0	1	1
	Onychomycosis/Tinea Unguim	0	1	1
	Tinea Manuum	0	1	1
	Tinea Pedes et Manuum	0	1	1
	Tinea Capitis/Corporis	1	0	1
Total		7	6	13
16-30	Tinea Corporis	3	7	10
	Pityriasis versicolor	3	4	7
	Tinea Faciei	0	1	1
	Tinea Pedes	1	2	3
	Onychomycosis/Tinea Unguim	0	2	2
	Cutaneous Candidiasis	0	2	2
	Tinea Pedes et Manuum	0	3	3
	Tinea Intertrigo/Incognito	0	2	2
	Tinea Capitis/Corporis	0	1	1
	Chronic Paronychia	0	4	4
Total		7	28	35
31-45	Tinea Corporis	1	1	2
	Pityriasis versicolor	1	0	1
	Tinea Cruris	2	2	4
	Tinea Pedes	0	2	2
	Onychomycosis/Tinea Unguim	1	3	4
	Tinea Manuum	1	0	1
	Tinea Pedes et Manuum	1	0	1
	Tinea Intertrigo/Incognito	0	3	3
	Sporotrichosis	1	0	1
Total		8	11	19
46-60	Tinea Corporis	4	2	6
	Cutaneous Candidiasis	0	1	1
	Tinea Pedes	0	1	1
	Tinea Pedes et Manuum	1	2	3
	Tinea Intertrigo/Incognito	0	2	2
	Chronic Paronychia	1	0	1
	Total		6	8
Above 60	Tinea Cruris	0	1	1
	Tinea Pedes	1	1	2
Total		1	2	3

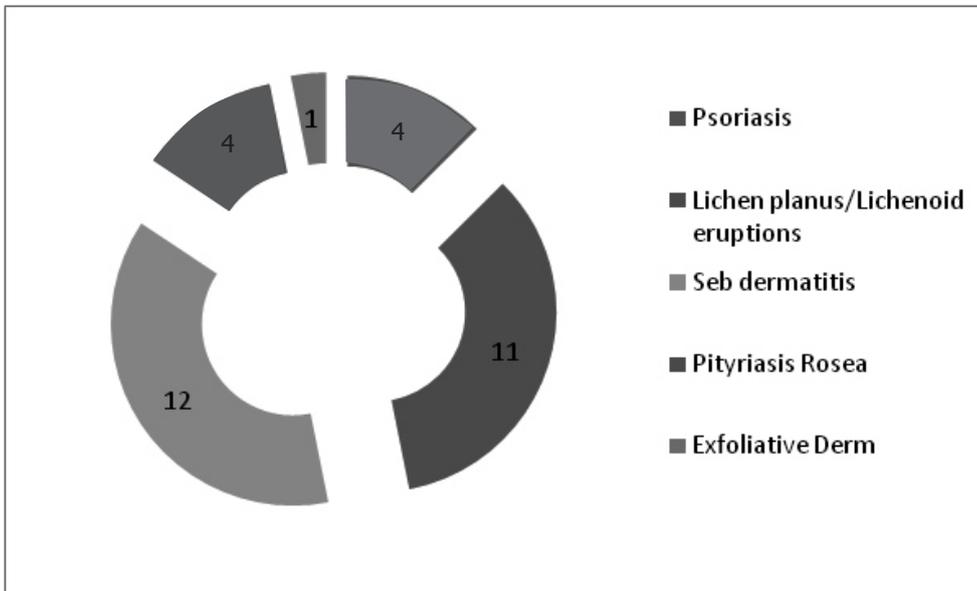


Fig. 2: Frequency distribution of Papulosquamous diseases among study participants (N=32)

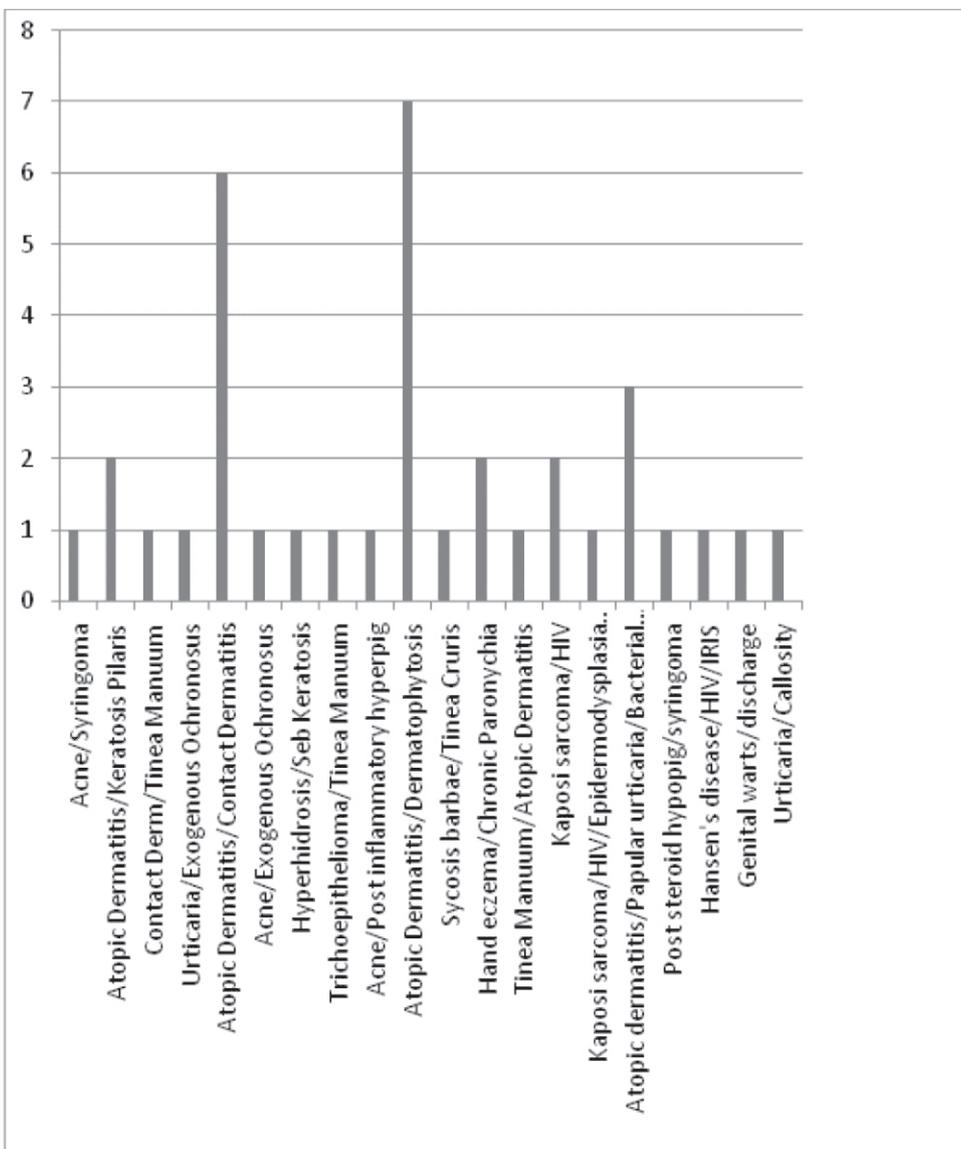


Fig. 3: Distribution of Mixed Skin Disorder

DISCUSSION

Pattern of skin diseases are usually determined by a variety of factors including socioeconomic and ecological factors¹². The commonest skin diseases found in this study were infections/infestations with fungal infections topping the list of fungal infections. Although this finding differs from an earlier study from this center and some other studies in Nigeria⁸⁻¹¹ where allergic skin diseases were found to be the most common skin disease, in cases where infections occurred, fungal infections were the commonest skin infections as in previous studies.

The reason is not far-fetched. Nigeria is a tropical country with high humidity and fungal organisms are ubiquitous in such climes. Moreso, presence of certain commensals on the skin give room for competitive inhibition. Abuse of antibiotics and other topical triple combination creams containing super potent steroids and antibiotics as frequently occurs in Nigeria where drug procurement is unregulated may contribute to the resurgence of infectious skin diseases. One finding of this study is that patients present late for treatment, many had used over the counter steroid creams and were likely to have suppressed the skin immunity. This may explain the reversal of the earlier pattern seen. Nevertheless, the lower sample size of this study compared with the earlier study from this center may also contribute to this difference.

Few studies from centers within and outside Nigeria, however, show the same findings as this study¹³⁻¹⁵ where infections were also the commonest skin diseases.

Allergic diseases still contribute to the burden of skin diseases not only in this study but also in other studies in Nigeria^{8-11,13&16} especially atopic dermatitis which had a cumulative prevalence of 11.5% where 5% of patients with atopic dermatitis had other associated conditions. While the incidence of atopic dermatitis appears to be on the decline in developed countries, the reverse is the case in developing countries¹⁷. Over 50% of patients with atopic dermatitis in this study were in the 0-15year age range. This persistent rise in atopic dermatitis may be due to urbanization and environmental factors such as use of harsh cleansing products which could disrupt the skin barrier leading to low grade skin inflammation and enhanced allergen penetration.

There were more females than males in this study. This pattern has been seen repeatedly in other studies in this country and may be explained by the fact that females may be more concerned about their external appearance than males^{10, 13,18&19}. It was also observed that across most diseases, females were more affected.

Since the most common skin diseases observed in this study were infections and allergies, it may be explained that females are more likely to abuse steroid creams and therefore end up with infections. They also experiment with different cosmetic products which may alter the skin barrier and predispose them to allergies.

Papulosquamous diseases ranked the third most common skin diseases seen in the study and were common in patients between ages 16 and 45years. Seborrhoeic dermatitis, classified under papulosquamous skin diseases accounted for 3% of study participants, a finding similar to the earlier study in this center by Nnoruka where it accounted for 3.3% of all cases and other studies within and outside Nigeria²⁰⁻²². Prevalence, therefore, has remained stable and although the initial increase in the past was feared to be due to an increase in HIV21, this was not the case in this study.

The prevalence of lichen planus and lichenoid eruptions was 2.8%, a reduction from 4.8% seen in the earlier study from this center¹¹. This may be explained by the fact that most patients who develop pruritic skin diseases first seek care from patent medicine dealers, pharmacy shops and general medical practitioners who prescribe steroids creams and also give prednisolone tablets. These medications usually relieve the itch and so patients may not present to tertiary levels of healthcare.

Acne vulgaris remains the most common follicular lesion and has increased above earlier prevalence figures seen in similar studies^{10,11,13,21,22} with 7% prevalence but similar to the finding of Yahya⁹. It was more common in females than in males. This finding may be as a result of increasing use of steroid containing creams as bleaching creams not only in females but also in males as use of these products lead to steroid-induced acne vulgaris.

Fixed drug eruptions accounted for the majority of drug eruptions (81.8%) and this has consistently being the pattern in previous studies, in this center and elsewhere^{10, 11, 13}. This may be explained by the high prevalence of over the counter use of such commonly implicated drugs as sulphonamides, antibiotics, antimalarials and anticonvulsants, among others. Poor drug policy in the country is also a culprit. There have also been recent media campaigns against the use of such drugs due to increase in incidences of Stevens-Johnson and it is expected that these measures may reduce the burden of fixed drug eruptions.

Several skin diseases remain uncommon not only in this center but across Nigeria as a whole. Prevalence of keratinization disorders was 1.3% and this figure compares with that of other studies carried out in Nigeria^{8, 10, 13, 22}. Vitiligo is still the most common pigmentary disorder in this study and in Nigeria as studies from other centers have shown (71.4% of pigmentary disorders and 3.9% of skin diseases seen). The prevalence of 3.9% found in this study falls within the range documented previously^{9-11, 13, 23}. Prevalence of connective tissue diseases has also remained low but this may be due to the fact that many centers in Nigeria, including our center, now offer Rheumatology Clinics and most patients with connective tissue diseases are referred to these clinics. By 2014, it was estimated that there were 22 Rheumatologists in Nigeria²⁴ and it is expected that this number has increased.

Post steroid dermatosis (striae distensae, post steroid hypopigmentation and tinea incognita) was seen in four patients and they were all female.

Keloids, notably common in Africans, was present in 3.9% of the study population, essentially the same prevalence as the earlier finding of 3.7%¹¹, squamous cell carcinoma was only seen in one patient with albinism while the prevalence of Kaposi sarcoma, reported earlier to be about 0.3% has not changed markedly (0.8% in this study). Hansen's disease was seen in only one patient who was retroviral disease positive. Nutritional disorders and vesicobullous diseases did not present during the study period.

CONCLUSION

One study limitation was the sample size which is much lower than that used in the previous study from this center. However, our study provides an update of current epidemiology of skin diseases from our center and forms a logical basis to plan future larger scale studies to accurately map out the epidemiology of skin diseases in our center.

There was a reversal of the pattern of dermatosis seen in this study when compared with an earlier study from this center over a decade ago. Infectious skin diseases were the most common dermatoses followed by allergic dermatoses and papulosquamous disorders. This emphasizes the importance of health education and public enlightenment programs to discourage people from the current prevalent practice of topical steroid and antibiotic abuse. There is an urgent need to strengthen primary health care in the country to improve access to care while also expanding health insurance to cover a wider population. These measures will discourage people from patronizing quacks and untrained drug vendors.

Finally, strict government policies on drug use and enforcing punitive measures on defaulters are vital steps necessary in the battle against use of un prescribed drugs.

REFERENCES

1. El-Khateeb EA, Imam AA, Sallam MA Pattern of skin diseases in Cairo, Egypt International Journal of Dermatology 2011, 50, 844–853
2. Fleischer AB Jr, Feldman SR, McConnell RC. The most common dermatologic problems identified by family physicians, 1990-1994. Fam Med 1997; 29:648–652.
3. Britt H, Miller GC, Knox S, et al. General practice activity in Australia 2003–04. AIHW Cat. No. GEP 16. Canberra: Australian Institute of Health and Welfare, General Practice Series No. 16.
4. Hay R, Bendeck SE, Chen S, Estrada R, Haddix A, McLeod T et al In Jamison DT, Breman JG, Measham AR, Alleyne G, Claeson M, Evans DB et al (eds) Disease Control Priorities in Developing Countries 2nd edition Disease Control Priorities Project Washington (DC): World Bank; 2006. ISBN-10: 0-8213-6179-1
5. Hay RJ, Johns NE, Williams HC, Bolliger IW, Dellavalle RP, Margolis DJ et al The global burden of disease in 2010: an analysis of the prevalence and impact of skin conditions J Invest Dermatol. 2014 Jun; 134(6):1527-34. doi: 10.1038/jid.2013.446. Epub 2013 Oct 28
6. Boyers LN, Karimkhani C, Naghavi M, Sherwood D, Margolis DJ, Hay RJ et al Global mortality from conditions with skin manifestations J AM ACAD DERMATOL 2014; 71: 1137-43
7. Mathers, C. D., Lopez, A. D., and C. J. L. Murray. 2006. "The Burden of Disease and Mortality by Condition: Data, Methods, and Results for 2001." In Global Burden of Disease and Risk Factors, eds. A. D. Lopez, C. D. Mathers, M. Ezzati, D. T. Jamison, and C. J. L. Murray. New York: Oxford University Press. [PubMed]
8. Akinboro AO, Mejiuni AD, Akinlade MO, Audu BM, Ayodele OE Spectrum of skin diseases presented at LAUTECH Teaching Hospital, Osogbo, Southwest Nigeria Int J Dermatol 2015, 54, 443–450
9. Yahya H Change in pattern of skin disease in Kaduna, north-central Nigeria Int J Dermatol 2007, 46: 936–943
10. Henshaw GB, Olosode OA Skin diseases in Nigeria: the Calabar experience Int J

- Dermatol2015,54:319-326
11. Nnoruka EN Skin diseases in south-east Nigeria: A current perspective Int J Dermatol2005,44,29-33
 12. Child FJ, Fuller LC, Higgins EM, Du Vivier AW. A study of the spectrum of skin disease occurring in black population in south-east London. Br J Dermatol 1999;141:512-7
 13. Altraide DD, Akpa MR, George IO The pattern of skin disorders in Nigerian tertiary hospital Journal of Public Health and Epidemiology 2011;3(4):177-181
 14. Bari A. Pattern of skin infections in black Africans of Sierra Leone (West Africa). Indian J Dermatol 2007;52:30-4
 15. Bissek AZ, Tabah EN, Kouotou E, Sini V, Yepnjio FN et al BMC Dermatol. 2012; 12: 7. Published online 2012 June 21. doi: 10.1186/1471-5945-12-7PMCID: PMC3445843
 16. Onunu AN, Eze EU, Kubeyinje EP Clinical Profile of Atopic Dermatitis in Benin City, Nigeria Nigerian Journal of Clinical Practice 2007;10(4):326-329
 17. Williams H, Stewart A, Von Mutius E, et al Is dermatitis really on the increase worldwide? J Allergy Clin Immunol 2008;121:947-954
 18. Hartshorne ST. Dermatological disorders in Johannesburg, South Africa. Clin Exp Dermatol2003;28:661-665.
 19. El-Khateeb EA, Imam AA, Sallam MA. Pattern of skin diseases in Cairo, Egypt. Int J Dermatol2011;50:844-853.
 20. Dlova NC, Mankahla A, Madala N, Grobler A, Tsoka-Gwegweni J, Hift RJ The spectrum of skin diseases in a black population in Durban, KwaZulu-Natal, South Africa Int J Dermatol2015;54(3):279-285
 21. Ogunbiyi AO, Daramola OOM Prevalence of skin diseases in Ibadan, Nigeria Int J Dermatol2004,43(1):31-36
 22. Onayemi O, Isezuo SA, Njoku CH Prevalence of different skin conditions in an outpatients' setting in north-western Nigeria Int J Dermatol2005,44(1):7-11
 23. Ukonu BA, Eze EU. Pattern of skin diseases at University of Benin Teaching Hospital, Benin City, Edo State, South-South Nigeria: a 12-month prospective study. Glob J Health Sci2012;3:148-156
 24. Maini MA, Adelowo F, Saleh JA, Weshahi YA, Burmester G, Cutolo M et al The global challenges and opportunities in the practice of rheumatology: White paper by the World Forum on Rheumatic and Musculoskeletal Diseases Clin Rheumatol DOI 10.1007/s10067-014-2841-6 Available online at: reumatologia.it [Accessed 27th July, 2016]