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Review Article

Cross-Sectional Review of Prescription Practices of Triple Action Creams Amongst Doctors in South-East Nigeria

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Abstract

Background: Topical corticosteroids have had an immense impact in the treatment of skin diseases since their advent and are important in the management of corticosteroid-responsive dermatoses. Triple action creams (TAC) on the other hand are a combination of antibiotics, antifungals and corticosteroids in one cream, in an unspecific bid to target infected dermatoses. The use of TAC has constituted a source of corticosteroid misuse and abuse. This study aims to determine the knowledge, attitude, and prescription practices of TACs among doctors in South-Eastern Nigeria.

Methodology: A section of doctors in the five South Eastern states of Nigeria participated in this study. Data was collected using printed or e-copies of pre-tested questionnaires. Information about sociodemographic, steroid classification, the role of TAC, steroid side effects, duration of prescription of TAC, were sought. Statistical analysis was carried out using the statistical package for social sciences version 20. Good knowledge of TAC was set at >65% and poor knowledge <65%.

Results: Two hundred and six doctors participated, 59.2% (122) males and 40.8% (84) females. Respondents were distributed as follows: Enugu 28.2% (58), Abia 25.2% (52) Imo 18.4 % (38), Ebonyi 17.5% (36), and Anambra 10.7 % (22). One hundred and seventy-eight (86.4%) work in a tertiary facility while 13.6 % (28) work in primary/secondary facilities. About forty-eight per cent (99) had good knowledge while 51.9 % (107) had poor knowledge. Twenty-five per cent (52) knew that TAC is not useful in managing skin disorders while 66% (136) prescribed TAC as first-line therapy.

Conclusion: This study has helped uncover the magnitude of poor knowledge and prescription practice of TAC amongst doctors. To curb topical steroid misuse in a given population, doctors should be re-trained.

Keywords: Triple Action Creams; Doctors; Prescription; Practice.

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Introduction

Topical corticosteroids have been in use for treating skin diseases since the introduction of 'compound F' or hydrocortisone (cortisol) in 1952.[1] In addition to becoming the mainstay of treatment in eczematous dermatoses, they are used either regularly or occasionally in the management of most inflammatory skin diseases.[2]

Triple action creams, on the other hand, are a topical combination of steroids of varying potencies with antibiotics and antifungals, introduced in a bid to treat suspected or confirmed super-infected corticosteroid-responsive inflammatory conditions.[3] This has constituted a major source of steroid misuse and abuse, in which some medical practitioners prescribe them for misdiagnosed skin conditions as well as for steroid irresponsive disorders. Similarly, people easily procure these triple-action creams over the counter for various uses including skin disorders, skin lightening and routine body creams. [1,4,5] The quick amelioration of symptoms of many skin disorders by application of topical corticosteroids may lead to a late referral to the dermatologist often when the patient may have developed side effects. [1,6]

A review of the literature shows that topical corticosteroid creams are commonly prescribed in outpatient clinics for a wide range of dermatoses by dermatologists and non-dermatologists alike.[7,8,9] However, while dermatologists were more likely to prescribe formulations containing single agents like corticosteroids, a greater percentage of general practitioners were more likely to prescribe combination creams with anti-infective agents.[1,7,10] This may reflect the likelihood of non-diagnosis of skin disease before treatment hence a one-serves-all approach to skin diseases mostly by non-dermatologists.[11,12,13]

There are considerations before prescription of topical corticosteroids necessary for their rational use which includes whether the deronchronosis [orticosteroid sensitive or not,[14] potencies of the topical corticosteroids, vehicles in which topical corticosteroids are formulated, as these may influence the drug potency;[15,16] the anatomical location involved, age of the patient, mode, frequency and duration of application of the drug.[17,18] Local adverse effects of topical corticosteroids include atrophy, striae, telangiectasia, purpura, hypo-pigmentation, acneiform eruptions, allergic contact dermatitis, rosacea-like perioral and periorbital dermatitis, hypertrichosis, poor wound healing, fishy odour, non-uniform skin colouration, and exogenous onchronosis[19,20,21] Systemic adverse effects though rare, can arise from the application of high potency topical corticosteroids which can be absorbed, leading to hypothalamic-pituitary-adrenal suppression, glaucoma, hyperglycaemia and hypertension.[22,23]

In addition, indiscriminate use of topical corticosteroid compounds especially triple-action creams causes masking of symptoms leading to difficulty in diagnosis of dermatoses, [21,24] and proliferation of resistant microorganism strains.[25]

A Fixed-dose combination of topical corticosteroids with antibacterial and antifungal agents are among the top-selling topical corticosteroids formulations in Nigeria.[26] There is, however, a dearth of studies in South-Eastern Nigeria assessing the magnitude of prescription practices of triple action creams among doctors; this research would serve as a preliminary study.

This study aims to determine the knowledge of triple action creams among doctors in South-Eastern Nigeria, assess their attitude towards triple-action creams and determine the practice of triple action cream prescriptions.

Materials And Methods

Study Area

This study was carried out in South-Eastern Nigeria, one of the six geopolitical zones of the country, made up of five states: Abia, Anambra, Ebonyi, Enugu and Imo. There are at least one tertiary hospital and college of medicine in each of the states, thus consultants, senior registrars, registrars, house officers, medical officers are found in the various institutions.

The non-tertiary hospitals such as secondary health care, primary health care, and private centres have medical officers, chief medical officers, and principal medical officers primarily offering healthcare services including the management of dermatological conditions.

Study Population

This multi-centre cross-sectional study had various cadres of doctors working in the aforementioned health facilities of the five South-Eastern states participating.

Study Design

This study is based on a descriptive cross-sectional study design. Inclusion criteria were consenting doctors currently practising in any of the five south-eastern states of Nigeria. Dermatologists and doctors practising outside the southeast of Nigeria were excluded from the study.

Data collection

Printed copies of the structured questionnaire were pre-tested on a group of thirty doctors after which an electronic goggle document version was sent to the WhatsApp and email addresses of some participants while printed copies of questionnaires

were distributed to others based on individual preference. The self-administered questionnaire included 22 questions. The first part covered demographic characteristics (age, sex, designation, and years of practice, hospital type, and state/city of practice). The second part contained six multiple-choice questions (MCQs) assessing knowledge of triple action creams (steroid potency, definition of TACS, brands of TAC, side effects, and indications for use). The third part elicited the attitude of doctors towards prescribing TACs (1 item, 5-point Likert scale). The remaining part had seven questions that assessed prescription practice (duration of prescription, readiness to prescribe, referral to dermatologists, 5-point Likert scale).

Duly completed questionnaires were then collated in goggle document format and Microsoft excel sheet. Data from the pre-tested questionnaires were not included in the final analysis. This study was carried out from August- September 2019.

Data Analysis

Data analysis was done with the aid of a statistical package for social sciences (SPSS, IBM v20.0), whereby descriptive analysis of variables was summarized as percentages, means and represented using tables and charts.

Chi-square and T-test were used to test for association between variables which in this case is the prescription practice of triple action creams among the various cadres of doctors in tertiary versus non-tertiary hospitals. P-value <0.05 was considered significant. Knowledge and practice were considered appropriate when 65% or more of the questions were correctly answered.

Ethical considerations

Ethical approval for this study was obtained from the research and ethics committee of the University of Nigeria Teaching Hospital Ituku-Ozala, Enugu. (NHREC/05/01/2008B-FWA00002458-1RB00002323) There was no personal identifying data obtained from the respondents.

Results

Sociodemographic characteristics

A total of two hundred and six (206) medical doctors participated in the study, a greater percentage (59.2%) of whom were males. House officers, junior registrars, and senior registrars, all grouped as "resident doctors" made up 70.9% of the respondents. Most of the participants (34.5%) in this study had been in medical practice for six to ten years, with a good degree of exposure to clinical management of various cases. [Table 1].

Table 1: Sociodemographic characteristics of the respondents

Variables	Frequency (%)
Age (years)	
...	167 (81.1)
>40	39 (18.9)
Gender	
Male	122 (59.2)
Female	84 (40.8)
Designation	
Medical officer	34 (16.5)
Resident	146 (70.9)
Consultant	26 (12.6)
Speciality	
Family medicine	54 (26.2)
Internal medicine	59 (28.6)
Obstetrics and gynaecology	28 (13.6)
Paediatrics	24 (11.7)
Surgery	41 (19.9)
Duration of practice (years)	
<1	27 (13.1)
1 – 5	50 (24.3)
6 – 10	71 (34.5)
11 – 15	40 (19.4)
>15	18 (8.7)
Facility of practice	
Primary/Secondary care	28 (13.6)
Tertiary care	178 (86.4)
State	
Abia	52 (25.2)
Anambara	22 (10.7)
Ebonyi	36 (17.5)
Enugu	58 (28.2)
Imo	38 (18.4)

A total of two hundred and two (98.1%) doctors correctly defined triple-action creams as a combination of steroids, antibiotics, and antifungals. A hundred and thirteen doctors (54.9%) knew the correct classification of steroid potency, but only 40.8 % (84) of the total respondents knew that very potent steroids are components of triple action creams. [Table 2].

Triple action creams were seen by 25.2% (52) respondents not to be useful in the treatment of common dermatological disorders, while others noted the creams to be relevant in the treatment of atopic dermatitis, acne vulgaris, and seborrhoeic dermatitis. P-values were however not significant in the knowledge-based assessment.

In practice, 54.9% (113) respondents less readily prescribed triple-action creams while about half of the total respondents were less likely to prescribe these as first-line topical therapy. (P=0.001) [Table 2]

In our study, we noted only a small percentage (14.6%) of respondents regularly updated their knowledge on the management of skin disorders. [Table 2]

The majority of respondents opined that triple action cream use should be strictly regulated in Nigeria. Referral of patients with skin lesions to the dermatologist is practiced by a large number of respondents, 85% (175); although after prescribing triple-action creams for use in a week or less. [Table 2]
Total percentage scores based on responses to all questions asked was considered good for participants who answered sixty-five per cent (65%) and above correctly, and poor for those who answered less than 65% correctly.

Table 2: Respondents knowledge, perception, and practices regarding triple-action creams

Variable	n (%) correct Total	n (%) correct Male	n (%) correct Female	*P-value
Overall	206	122	84	
Knowledge				
Knew that triple action cream contains steroids, antibiotics & antifungals	202 (98.1)	120 (98.4)	82 (97.6)	0.71*
Knew at least three common brands of triple action cream	106 (51.5)	61 (50.0)	45 (53.6)	0.61
Knew that topical steroids have varying potency	113 (54.9)	67 (54.9)	46 (54.8)	0.98
Knew that very potent steroids are components of triple action creams	84 (40.8)	49 (40.2)	35 (41.7)	0.83
Knew at least three side effects of triple action creams	137 (66.5)	76 (62.3)	61 (72.6)	0.12
Knew that triple-action creams are not useful for common dermatological problems	52 (25.2)	26 (21.3)	26 (31.0)	0.12
Practices				
Have not- / less-readily prescribed triple action creams for patients	113 (54.9)	55 (45.1)	58 (69.0)	0.001
Not-/less-likely to use triple action creams as first-line topical prescription	104 (50.5)	50 (41.0)	54 (64.3)	0.001
Checks the constituents of triple creams before prescribing	123 (59.7)	73 (59.8)	50 (59.5)	0.96
Regularly updates his/her knowledge on the management of skin diseases	30 (14.6)	19 (15.6)	11 (13.1)	0.62
Believes triple action cream use should be strictly regulated in Nigeria	156 (75.7)	88 (72.1)	68 (81.0)	0.15
Refer patients with skin disorders to the dermatologist	175 (85.0)	100 (82.0)	75 (89.3)	0.15
Prescribes triple action cream for a week or less (if necessary), then refers to a dermatologist for review	69 (33.5)	39 (32.0)	30 (35.7)	0.58

* P-value based on Fisher's exact (or Mid-P exact) test

In this study, we noted that 51.9 % (107) had poor knowledge of triple action creams, 54.1% (66) of whom were males. On the other hand, the practice was also poor, as 66% (136) of respondents had a score less than 65%. A total of 34 % (70) participants had a good practice and 54.8% of these were females. P-values of practice were significant. (P=0.026 and 0.005) [Table 3]

Table 3: Distribution of knowledge of, and prescription practices of triple action creams among doctors according to their gender (N = 206)

Variable	Total n (%)	Male n (%)	Female n (%)	P-value
Total	206	122	84	
% knowledge score				0.656
-	19 (9.2)	11 (9.0)	8 (9.5)	
31 – 50	88 (42.7)	55 (45.2)	33 (39.3)	
51 – 70	56 (27.2)	34 (27.9)	22 (26.2)	
> 70	43 (20.9)	22 (18.0)	21 (25.0)	
				0.455
Good knowledge (>65%)	99 (48.1)	56 (45.9)	41 (48.8)	
Poor Knowledge (≤65%)	107 (51.9)	66 (54.1)	43 (51.2)	
% Practice score				0.026
≤ 30	47 (22.8)	33 (27.0)	14 (16.7)	
31 – 50	39 (18.9)	27 (22.1)	12 (14.3)	
51 – 70	50 (24.3)	30 (24.6)	20 (23.8)	
> 70	70 (34.0)	32 (26.2)	38 (45.2)	
				0.005
Appropriate Practice (>65%)	70 (34.0)	32 (26.2)	46 (54.8)	
Poor Practice (≤65%)	136 (66.0)	90 (73.8)	38 (45.2)	

The relationship between the sociodemographic of respondents and knowledge of triple action creams are shown in Table 4.

It is interesting to note that respondents more than 40years old, had good knowledge compared to those less than 40 years. Although a large number of resident doctors, 45.9 % (67) had good knowledge, 53.8% of consultants who took part in the study also showed good knowledge. Of the total number of obstetricians and surgeons who participated in our study, 67.9 % (19) and 65.9 % (19) had poor knowledge respectively. Knowledge assessment was comparatively better in other specialties and P-values were significant. (P=0.036) [Table 4]

The percentages of those with poor knowledge reduced proportionally to the number of years of their clinical practice. 85.2% in those with less than one year of post-graduate clinical practice and 38.9% in those with 15years of practice. The P-value (0.002) was statistically significant.
The respondents from Imo State had the highest percentage of good knowledge.

Table 4: Relationship between characteristics of the respondents and knowledge of triple action creams

Variables	Poor knowledge n (%)	Good knowledge n (%)	X^2	P-value
Age (years)			0.20	0.65
≤40	88 (52.7)	79 (47.3)		
>40	19 (48.7)	20 (51.3)		
Gender			0.56	0.46
Male	66 (54.1)	56 (45.9)		
Female	41 (48.8)	43 (51.2)		
Designation			0.95	0.62
Medical officer	16 (47.1)	18 (52.9)		
Resident	79 (54.1)	67 (45.9)		
Consultant	12 (46.2)	14 (53.8)		
Speciality			10.1	0.036
Family medicine	23 (42.6)	31 (57.4)		
Internal medicine	29 (49.2)	30 (50.8)		
Obstetrics and gynaecology	19 (67.9)	9 (32.1)		
Paediatrics	9 (37.5)	15 (62.5)		
Surgery	27 (65.9)	14 (34.1)		
Duration of practice (years)			17.55	0.002
<1	23 (85.2)	4 (14.8)		
1 – 5	29 (58.0)	21 (42.0)		
6 – 10	32 (45.1)	39 (54.9)		
11 – 15	16 (40.0)	24 (60.0)		
>15	7 (38.9)	11 (611)		
Facility of practice			0.05	0.83
Primary/Secondary care	14 (50.0)	14 (50.0)		
Tertiary care	93 (52.2)	85 (47.8)		
State			4.88	0.30
Abia	32 (61.5)	20 (38.5)		
Anambra	13 (59.1)	9 (40.9)		
Ebonyi	18 (50.0)	18 (50.0)		
Enugu	29 (50.0)	29 (50.0)		
Imo	15 (39.5)	23 (60.5)		

The highest percentage of respondents with the good practice were females, with a percentage of 45.2. Family medicine and surgery specialties had the most percentages of poor practice (77.8 and 73.2 respectively) while their counterparts in internal medicine and paediatrics had the highest percentages of good practice (45.8% each). [Table 5]

We observed an indirectly proportional relationship between the number of years of post-graduate clinical practice and prescription practice of triple action creams. Doctors with >15years duration of clinical practice had the least percentage of poor practice (44.4%) and the highest level of good practice (55.6%) unlike their junior colleagues. (P: 0.06) [Table 5]

Only 2.9% of respondents strongly disagreed with the usefulness of triple action creams in clinical practice.
Table 5: Relationship between characteristics of the respondents and their practices concerning use of triple action creams.

Variables	Poor practice n (%)	Good practice n (%)	X^2	P-value
Age (years)			0.09	0.92
≤40	110 (65.9)	57 (34.1)		
>40	26 (55.7)	13 (33.3)		
Gender			8.01	0.005
Male	90 (73.8)	32 (26.2)		
Female	46 (54.8)	38 (45.2)		
Designation			4.50	0.11
Medical officer	27 (79.4)	7 (20.6)		
Resident	95 (65.1)	51 (34.9)		
Consultant	14 (53.8)	12 (46.2)		
Specialty			9.46	0.05
Family medicine	42 (77.8)	12 (22.2)		
Internal medicine	32 (54.2)	27 (45.8)		
Obstetrics and gynaecology	19 (67.9)	9 (32.1)		
Paediatrics	13 (54.2)	11 (45.8)		
Surgery	30 (73.2)	11 (26.8)		
Duration of practice (years)			8.90	0.06
<1	22 (81.5)	5 (18.5)		
1 – 5	37 (74.0)	13 (26.0)		
6 – 10	45 (63.4)	26 (36.6)		
11 – 15	24 (60.0)	16 (40.0)		
>15	8 (44.4)	10 (55.6)		
Facility of practice			1.17	0.28
Primary/Secondary care	21 (75.0)	7 (25.0)		
Tertiary care	115 (64.6)	63 (35.4)		
State			10.23	0.037
Abia	41 (78.8)	11 (21.2)		
Anambra	16 (72.7)	6 (27.3)		
Ebonyi	23 (63.9)	13 (36.1)		
Enugu	38 (65.5)	20 (34.5)		
Imo	18 (47.4)	20 (52.6)		

Those who had worked for more than 15years in clinical practice had higher odds of having good knowledge (Adjusted OR=13.9, 95%CI= 2.4 to 79.2). However, this was not significantly associated with higher odds of good practice of triple action cream prescription (Adjusted OR=5.9, 95% CI=1.0 to 38.2, Adjusted P-value= 0.06) [Table 6]

Table 6: Multivariable logistic regression analysis of factors predicting good knowledge and practice.

Variable	**Adjusted OR (95% C.I.)**	**Adjusted P-value**
Knowledge		
Duration of practice (years)		
<1	1	
1 – 5	3.5 (0.9 – 14.2)	0.08
6 – 10	6.8 (1.9 – 24.8)	0.003
11 – 15	9.9 (2.4 – 40.9)	0.002
>15	13.9 (2.4 – 79.2)	0.003

Practices		
Gender		
Male	1	
Female	2.5 (1.2 – 5.1)	0.011
Duration of practice (years)		
<1	1	
1 – 5	0.9 (0.2 – 3.9)	0.87
6 – 10	1.1 (0.3 – 4.3)	0.86
11 – 15	1.9 (0.4 – 8.4)	0.40
>15	5.9 (1.0 – 38.2)	0.06
State		
Abia	1	
Anambara	1.3 (0.3 – 5.1)	0.71
Ebonyi	1.6 (0.5 – 5.6)	0.44
Enugu	1.4 (0.5 – 4.4)	0.55
Imo	3.86 (1.2 – 12.2)	0.02
Respondents knowledge		
Good	3.5 (1.7 – 7.3)	0.001
Poor	1	

*CI: Confidence Interval OR: Odds Ratio

Discussion

In this study, we have shown that the various tiers of health care clinicians had good knowledge of the composition of triple action creams but had a huge deficit in the general knowledge of triple action creams. In addition, the surveyed clinicians had poor knowledge of the very potent steroids as a major constituent of the triple action creams. We also have shown that most of the medical practitioners studied knew about the possible side effects that occurred with prolonged use and misuse of these creams. However, the majority were naïve about the non-usefulness of triple action creams in the management of common dermatological disorders.

We found practice regarding the prescription, duration of prescription and update of participants' knowledge on the management of skin diseases to be grossly poor.

Socio-demographic characteristics, job designation, and facility of practice were not associated with their knowledge of triple action creams. However, a longer duration of clinical practice and specialty had a significant impact on the level of knowledge of triple action creams. A previous study had reported inappropriate recommendations and misuse of topical steroids by general practitioners.[27] The results from Nagesh et al is similar to the findings in our study whereby the practice of prescription of triple action creams by family physicians (general practitioners) was poor despite having good knowledge.

The clinicians surveyed revealed some knowledge gaps that should inform the need for regular, comprehensive training as well as the development of management protocol and referral system for common dermatological diseases. This was also observed in an Iraqi hospital-based study, where knowledge and practice shortfalls were noted to be shortcomings of the efficient continuing medical education programme.[28]

Although in general, the clinician's study had poor practice about the use of triple action creams, they were found to strongly recommend the need for strict regulation of the purchase and use of triple action creams in Nigeria.

The attitude of the surveyed clinicians towards the usefulness of triple action creams in clinical practice x-rayed the disconnection between application of knowledge acquired and practice. This exposed the poor practice of evidence-based medicine which could lead to more patients presenting with severe dermatological and systemic complications from the use of triple action creams. [1,4, 29]

This study has also identified substantial gaps in knowledge and practices regarding the use and prescription of triple action creams. Thus, focused training, re-training and other participatory problem-solving programmes on dermatological disorders should be put in place to ensure that lessons learnt would easily be translated to practice.

This study did not access the average number of patients seen at a specified interval with dermatological problems by the surveyed clinicians. It did not document or study the percentage of referrals to dermatologists. This study did ascertain if the surveyed physician had encountered patients with complications from the use of triple action creams.

Conclusion

This study has helped uncover the magnitude of poor knowledge and prescription practice of triple action creams amongst doctors. To curb topical steroid misuse amongst a given population, doctors should be re-trained.

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