

THERAPEUTICS

THE MANAGEMENT OF PYODERMAS AND ECZEMATOUS DERMATOSES WITH VARIED COMBINATIONS OF NEOMYCIN BACITRACIN, SULPHACETAMIDE AND HYDROCORTISONE IN AN OINTMENT BASE

By

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INTRODUCTION

Since the introduction of cortisone, innumerable trials have been conducted with its derivatives all over the world regarding its effects when used topically on various tissue surfaces like skin, eyes, nose etc. etc. These derivatives viz. hydrocortisone, prednisolone, triamcinolone, fluroandrenolone, flucinol, and betnovaite have been all used on various allergic and ezmatous dermatoses in different bases in different concentrations. Their utility is now firmly established. Besides they have been also used topically in combination with different antibiotics viz neomycin, bacitracin, gramicidin etc. in dermatoses with secondary infection and have been found equally effective. Thus various studies and trials have been carried out to determine firstly the efect then, minimum concentration of active steroid, antibiotic and vehicle or base best suited for the purpose.

The chief aim of our present study was to compare similar proprietary preparations when used locally by the double blind technique of Sulgzberger and others. However our results are more or less duplication of those of previous workers in the field. Whatever differences were noted incidentally were not statistically significant as our series was too small for generalizations.

The present work was carried out in the Dermatology and Venereology department of the B. Y. L. Nair Hospital, at the suggestion of Messrs. Dumex Pfizer Ltd. The following ointments were supplied to us.

(a) Nebasulph containing Neomycin 0.5%; sulphacetamide 3.0%; sodium sulphacetamide 3.6% and Bacitracin 250 units per gramme of ointment.

(b) Nebacortril containing 1% Hydrocortisone, 0.5% Neomycin and 250 units of Bacitracin per gramme of ointment.

(c) Efcorlin Neomycin ointment consisting of 0.5% Hydrocortisone and 0.5% Neomycin.

This work was done mainly with the object to find out the indications for the use of these ointments and to determine their comparative effectiveness in various dermatoses.

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Material and Methods :—Patients of all age groups and both sexes were selected from those attending the Dermatology and Venereology outpatient department and most of them were admitted to the wards. However, a few had to be studied as outdoor patients. Each patient was seen every alternate day in the wards or out patients' department and all details concerning his ailment recorded on a special form prepared for this trial. As far as possible patients presenting with bilaterally symmetrical and identical lesions were selected for this study. Haemoglobin estimations, total and differential white blood cell counts and serum protein estimations were carried out in most of the cases. Material from oozing, vesicular or bullous lesions was cultured and sensitivity of the organism isolated was tested against the following drugs: Penicillin, streptomycin, chloramphenicol, oleandomycin, sulphacetamide, Tetracycline hydrochloride and furadantin. Sensitivity tests to neomycin and bacitracin could not be carried out for want of those substances.

The following dermatoses were studied.

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|---|----------|
| a) Pyodermas of various types | 15 cases |
| b) Eczematous dermatoses of varied etiology | 14 cases |
| c) Tuberculoid leprosy with ulceration | 1 case |
| d) Erythema multiforme | 1 case |

a) *Pyodermas* :—The youngest patient in this group was 11 days old and the oldest 32 yrs. The duration of disease varied from 3 days to 3 years. Hemoglobin levels were carried out in 11 cases, the lowest level recorded was 20% and the maximum 72% with an average of 55% indicating that all the patients were anaemic. White cell counts were carried out in 11 cases and the count varied from 6400 cells per cubic millimeter to a maximum of 12000 cells. Differential white cell counts showed a polymorphonuclear leucocytosis in 7 cases and lymphocytosis was observed in 3 cases. All these three were children between the ages of 7 months and 5 years. Protein estimations were carried out in 9 cases. The results are shown in table No. 1. No correlation between the haemoglobin and protein levels was found indicating that anemia was probably not due to protein deficiency.

TABLE No. 1. OF PROTEIN LEVELS IN PYODERMAS

Age.	Albumin In Gms.	Globulin In Gms.	Total Proteins In Gms.
10 Yrs	3.6	3.58	7.18
45 Yrs	3.7	1.8	5.5
32 Yrs	3.4	2.8	6.2
1½ Yrs	3.4	2.1	5.5
5 Yrs	3.74	2.1	5.84
8 Yrs	3.4	2.1	5.5
7 Mths.	4	2.3	6.3
9 Mths.	4.4	2.3	6.7
10 Yrs	3.7	2.64	6.34

Exudates were collected from the lesions of 8 cases, cultured and the sensitivity spectrum determined. *Staphylococcus aureus* alone was grown in 4 cases and in 2 other cases it was isolated along with *S. albus*. Out of these 2 cases one also showed the presence of *Streptococcus haemolyticus*. *Aerobacter aerogenes* was grown in pure culture out of the lesions of one patient and *E. coli* alone from another. Sensitivity spectrum of these organisms is shown in table No. 2.

TABLE No. 2.

No. of Cases in which it was sensitive to the drugs mentioned below.

Organism Cultured.	No of Cases From which if was Isolated	Penicillin	Streptomycin	Chloramphenicol.	Oleandomycin	Sulphacetamide	Tetracycline	Furacantin
<i>Staphylococcus aureus</i> .	6	3	4	6	6	1	4	5
<i>Staphylococcus albus</i> .	2	2	1	2	2	1	2	1
<i>Streptococcus haemolyticus</i> .	1	1	1	1	1	0	1	1
<i>E. Coli</i> .	1	0	1	1	0	0	0	1
<i>A aerogenes</i> .	1	0	0	0	0	0	0	1

From an examination of this table it appears that the drugs of choice in the management of staphylococcal and streptococcal infections in the descending order of preference are chloramphenicol and oleandomycin, furadantin, and tetracycline. The in vivo and in vitro conditions being different, these results should be regarded more as a guide to therapy rather than placing absolute reliance on them.

Ten out of the fifteen cases were treated with Nebasulph ointment. Only seven of these have been used for the present analysis as one case could not be followed up and one case received oral chloramphenicol in addition to local therapy, thus preventing adequate evaluation of the latter.

Out of these 7 cases 5 had superficial pyoderma belonging to the impetigo family. The average duration of treatment in these patients was 4.60 days, the symptoms began to subside in 1.8 days and the lesions healed without recurrence in 4.2 days. No complications due to the use of this ointment were observed.

Of the remaining 2 out of 7 cases, one had an ecthymatous ulcer with an underlying abscess (*Aerobacter aerogenes* isolated). The ulcer as well as the abscess healed in 6 days with local therapy alone. The other patient had furunculosis which became worse with treatment and continued to progress unfavourably with local therapy.

4 patients, 2 with impetigo contagiosa and 2 with folliculitis in addition to the impetigo were treated with Nebacortril ointment, for an average of 6.25 days. Lesions began to improve in an average of 2.5 days and healed in 5.25 days, without recurrence.

One patient was treated with Efcorlin neomycin ointment and Nebacortril, applied to different sites. Lesions began to subside in 2 days but the patient could not be followed up adequately. No difference in the effect of the two ointments was noticed.

From a study of the above results it would appear that superficial pyogenic infections respond better to Nebasulph ointment than to Nebacortril.

(b) Eczematous dermatoses of varied etiology. The youngest patient in the series was 11 month old and the oldest 48 years. The duration of disease varied from 2 days to 3 years. Haemoglobin levels were carried out in 12 cases. The values varied between 38% and 92% with an average of 76%. The total white cell counts ranged from 5800 cells per cubic millimeter to 14,400 cells. Differential counts were within the range of normality in all cases except the one with a count of 14,400 in whose case all the cells showed an increase. Blood protein estimations were carried out in 11 cases. Results of this are shown in table No. 3.

TABLE No. 3. OF PROTEIN LEVELS IN ECZEMAS

Age.	Albumin in Gms.	Globulin in Gms.	Total in Gms.
18 Yrs	4.1	3.7	7.8
20 Yrs	3.4	2.85	6.25
31 Yrs	2.5	2.7	5.2
2 Mths.	3.9	1.3	5.2
3 Yrs	2.9	2.1	5
48 Yrs	3.5	2.17	6.25
14 Yrs	3.68	2.58	6.26
28 Yrs	4	2.3	6.3
20 Yrs	3.7	2.6	6.3
32 Yrs	2.9	2.1	5
23 Yrs	3.7	2.7	6.4

Exudates from the lesions of 6 patients were cultured. More than one organism was grown in each case. Results of the culture and sensitivity spectrum are shown in table No. 4. A study of this table shows that the drugs of choice in the management of staphylococcal and streptococcal infections are chloramphenicol and oleandomycin.

TABLE No. 4. ECZEMAS

No of Cases from which Organism Isolated. No of Cases in which it was Sensitive to the drugs mentioned.

Organism	Isolated.	P	St.	Chlor.	OL	Sulph.	Tetra	F.
S. aureus	5	3	2	5	5	0	3	3
S. albus	2	2	2	2	1	0	2	1
S. citreus	1	1	-	1	1	0	1	1
Str. haemolytine	1	1	1	1	1	0	1	1
„ Viridans	1	1	1	1	1	1	1	1
P. aeruginosa	1	0	0	0	0	0	0	0
E. coli	1	0	1	1	0	0	0	0

6 cases were treated with Nebacortril ointment alone. Two of these were classified as eczemas of infective (bacterial) origin, and the lesions healed in one week. In one case however, a relapse was observed one week after stopping treatment. One case classified as Atopic dermatitis developed miliarial lesions at the site of application of the ointment and became worse. One case of seborrhoeic eczema of infancy showed diminution of itching and oozing but the lesions did not improve further at the end of ten days treatment. In two cases of eczematous dermatoses of undetermined etiology there was partial healing of lesions. They were treated for 1 month and 7 days respectively.

7 cases were treated with Nebacortril and Efcortin Neomycin ointments applied to different sites of lesions. Two of these were classified as eczema of infective (bacterial) origin. One was treated 7 days, healed in 4 days and recurred 7 days after stopping treatment. The other was treated for 4 days with partial subsidence of lesions. In the 5 remaining cases the etiology was not established. Two of these five cases improved within 2 days of treatment and healed in one week, without recurrence. One case (out of these five) was treated for 7 days, started improving in 2 days and continued to improve even after the treatment was stopped. The lesions healed in 14 days and recurred after one month. One patient in this group (of 5 patients) was treated for 2 months. Itching and oozing became less after 1 month but the lesions did not heal completely. One case could not be followed up.

In all these 7 cases relief of symptoms was identical with the two ointments. When a relapse occurred it involved sites treated with either ointment.

c) Tuberculoid leprosy with ulceration: The ulcer healed with Nebacortril Ointment in 8 days but the erythema and edema showed no improvement.

d) *Erythema multiforme*:—Lesions were treated with Nebacortril and Efcortin neomycin ointments applied to different sites for a period of 13 days. Erythema and Edema became less after 48 hours but the lesions continued to wax and wane.

SUMMARY

(1) The series is too small to draw any conclusions. In all 31 cases of different categories were treated.

(2) As regards the results, they conformed to the set pattern with such drugs.

(3) One case of erythematous ulcer with underlying abscess was of interest in that it healed only by topical treatment with Nebacortril ointment alone in 6 days time.

(4) It was observed that pyodermas responded better to antibiotic ointments alone and eczemas responded better to combination of antibiotic and steroid.

(5) The series however was interesting more for ancillary findings.

(i) In pyodermas (both primary and secondary) there was hypoproteinaemia.

- (ii) There was no correlation between hemoglobin and protein levels indicating that anaemia was probably not due to protein deficiency.
 - (iii) The common micro-organisms isolated were staphylococcus aureus and streptococcus viridans.
 - (iv) They were most sensitive to chloramphenicol and oleandomycin.
 - (v) It was noticed that all organisms except streptococcus viridans were insensitive to sulphonamides.
- (6) There were no side reactions.

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