

CLINICO-PATHOLOGICAL STUDY OF INFECTIVE AND ALLERGIC DERMATOSES*

H. J. SHROFF,† B. M. AMIN ‡ AND P. K. BHATIA ||

Summary

Clinical trial with 1% neomycin cream and a combination of 1% neomycin with 0.5% hydrocortisone ointment was carried out respectively in infective and infective-cum-steroid-responsive dermatoses. A total of 183 cases were studied - 87 in the former and 96 in the latter group. Follow-up was done weekly for three weeks.

Bacteriological study of 10 cases was done by taking culture initially and after ten days. Common pathogens, in this group, were *Staphylococcus aureus* (coagulase-positive), beta *Streptococcus haemolyticus* and *Bacillus diphtheriae* (K.L.B). *Achromobacter anitratus* was found in one case.

Overall results were good to excellent in 74.71% in neomycin and 82.29% in neomycin-hydrocortisone treated group. In our study, we find that neomycin is particularly effective in cases of impetigo contagiosa, infected ulcers and sycosis barbae and neomycin-hydrocortisone combination in cases of contact dermatitis, infantile eczema, discoid eczema and infective eczematoid dermatitis

Side effect was not reported in a single case.

Pruritic dermatoses are usually associated with mild to moderate degree of secondary skin infection. The bacterial flora on the surface of the healthy human skin is non-pathogenic, however, when tissue injury occurs - the word

'injury' is used here in a broad sense to connote change in dermal pathology - due to endogenous or exogenous factors, infective or otherwise, the micro-organisms gain foothold in the skin, multiply and become pathogenic.

* Paper presented at International Symposium on Pigmentary disorders and workshop on communicable dermatoses and Fourth Annual Conference of Indian Association of Dermatologists, Venereologists and Leprologists February 26 to 29, 1976

† Assistant Honorary Professor of Dermato-venereology, Grant Medical College and G.T. Hospital, Bombay

‡ Chief Pathologist
Bombay Hospital, Bombay

|| House-Physician
Skin and V.D. Department
G.T. Hospital, Bombay

Received for Publication on 29-3-1976

Topical therapy plays a very vital role in the treatment of infective and allergic dermatoses. When correctly used, it is less hazardous, less expensive and more satisfying.

Main aim of this study is to assess the efficacy of topically used 1% neomycin cream (Framygen@) in bacterial skin infections and a combination of 1% neomycin with 0.5% hydrocortisone ointment (Framycort@) in infective cum steroid-responsive dermatoses.

Material and Methods

Patients selected for the study were among those attending the out-patient department of the dermatological section of G.T. Hospital, Bombay, during the period between May '75 and January '76. Of the total 204 cases there were 21 drop-outs, as these patients just failed to turn up. Out of the remaining 183 cases, topical neomycin and neomycin-hydrocortisone therapy was received by 87 cases and 96 cases respectively. Clinical history with description of the cutaneous lesions was recorded. Each patient was initially supplied with three to five tubes (depending on the surface area involved) of 5 gm. ointment, instructed to apply it liberally over the affected areas three times a day and asked to come for follow-up examination once a week for three weeks. No other medication, systemic or topical, was permitted during the trial period. Findings of the follow-up visits were recorded as also the side-effects, if any.

Ten cases were studied bacteriologically by taking the swab initially and after ten days of topical neomycin therapy.

Collection

The lesion was cleaned with sterile normal saline only. No spirit or other antiseptic was used. It was dried with sterile lint and the material collected on sterile cotton swab.

Method

The material on swab was inoculated in nutrient broth and also on :

- (a) Nutrient agar,
- (b) Blood agar plate and
- (c) MacConkey plate.

Smears were also made on microscopic slides and stained by

1. Gram's stain
2. Ziehl-Neelsen stain

and examined microscopically for organisms.

All the media were inoculated at 37°C overnight. Next morning the plates were observed for haemolytic colonies and various organisms grown, were isolated and identified.

1. *Streptococcus haemolyticus* was confirmed by haemolysis on blood agar plate and by Gram's staining of the smears made from the colonies.
2. *Staphylococcus aureus* was confirmed by Gram's staining of the smear made from the colonies, colour and coagulase test.
3. B. D. (KLB) was confirmed by Gram's stain, Albert's stain for metachromatic granules, and on Tellurite medium.
4. *Achromobacter anitratus* - was confirmed by colony appearance, Gram's staining and biochemical tests, viz :
 - (i) Sella's medium
 - (ii) Glucose
 - (iii) Citrate medium.

Clinical assessment of the results was based on the following criteria :

- Excellent — when the cutaneous lesions healed completely or more than 75%
- Good — healing of the lesions from 50 - 75%
- Fair — healing of the lesions from 25 - 50% and
- Poor — when less than 25% healing occurred.

Results

The age group of the patients ranged between 9 months and 62 years. Male to female ratio was 3 : 1. Sex incidence with split up of the cases in each group is shown in Table - 1.

TABLE 1
Sex Incidence

Sex	Framygen ^R	Framycort ^R
Male	68	69
Female	19	27
Total	87	96

In neomycin treated group, there were 35 cases of impetigo contagiosa, 14 of folliculitis, 11 of infected ulcer, 8 of sycosis barbae and others as shown in Table-2. Therapeutic results were good to excellent in over 90% of impetigo contagiosa, infected ulcer and sycosis barbae cases and 70% of the folliculitis cases, and satisfactory in conditions like bacterial eczema, genital sore, furunculosis, ecthyma and infected acne. Overall response was good to excellent in 75% (approx.) whereas it was poor to fair in 25% cases.

In neomycin-hydrocortisone treated group, there were 96 cases. Various dermatoses with split up of the cases and therapeutic response in different group is shown in Table-3. As can be seen from this table, best results were obtained in cases of infantile eczema (4/4), contact dermatitis (23/25), discoid eczema (6/7) and infective eczematoid dermatitis (29/35). Response was poor in the last group i.e., varicose eczema and others (seborrhoeic eczema, atopic eczema). Overall results in this group were good to excellent in 82% cases.

Table-4 shows bacterial flora in ten cases of various skin infections. Staphylococcus aureus was present in all the ten cases. Streptococcus hemolyticus in eight cases, Bacillus diphtheriae (KLB) in three cases and Achromobacter anitratus only in one case.

TABLE 2
Topical Neomycin Therapy Therapeutic Response

Dermatosis	No. of Cases	Therapeutic Response			
		Excellent	Good	Fair	Poor
Impetigo Contagiosa	35	22	11	2	—
Folliculitis	14	4	6	2	2
Infected Ulcer	11	6	4	—	1
Sycosis Barbae	8	4	4	—	—
Bacterial Eczema	5	1	1	1	2
Genital Sore	6	—	—	3	3
Furunculosis	3	—	1	—	1
Ecthyma	3	—	1	2	—
Infected Acne	2	—	—	1	1
Total	87	37	28	12	10
		(42.53%)	(32.18%)	(13.79%)	(11.49%)

TABLE 3
Topical Neomycin-Hydrocortisone Therapy

Dermatosis	No. of cases	Therapeutic Response			
		Excellent	Good	Fair	Poor
Infective Eczematoid Dermatitis	35	9	20	4	2
Contact Dermatitis	25	12	11	2	—
Neurodermatitis	21	—	15	4	2
Infantile Eczema	4	2	2	—	—
Discoid Eczema	7	2	4	1	—
Varicose Eczema and others	4	1	1	2	—
Total	96	26	53	13	4
		(27.08%)	(55.21%)	(13.54%)	(4.17%)

79 17

TABLE 4
Bacterial flora in ten cases of skin infections

Diagnosis	Staph. Aureus	Strep. Haem.	B.D. (K.L.B.)	Achrom. Anitratus
Folliculitis	+	+	—	—
Folliculitis	+	+	+	—
Impetigo Contagiosa	+	+	+	—
Folliculitis	+	—	—	—
Infected Ulcer	+	+	—	—
Bacterial Eczema	+	+	—	—
Sycosis Barbae	+	—	—	—
Folliculitis	+	+	—	—
Bacterial Eczema	+	+	—	—
Impetigo Contagiosa	+	+	+	+

TABLE 5
Bacterial combination in different cases

2 cases	Staph. aureus*			
5 cases	Staph. aureus	+ Strep. Haemolyticus		
3 cases	Staph. aureus	+ Strep. Haemolyticus	+ B.D. (K.L.B.)	
1 case	Staph. aureus	+ Strep. Haemolyticus	+ B.D. (K.L.B.)	
			+ Achrom. anitratus	

* Pure growth of Staph. aureus only

TABLE 6
Clinical response to neomycin in Bacteriologically studied cases

Dermatosis	Excellent	Good	Fair	Poor	Total cases
Folliculitis	1	3	—	—	4
Impetigo Contagiosa	2	—	—	—	2
Sycosis Barbae	—	1	—	—	1
Infected Ulcer	—	1	—	—	1
Bacterial Eczema	—	1	1	—	2
				Total	10

Bacterial combination in the number of cases is shown in Table-5.

Clinical response to neomycin in bacteriologically studied cases is shown in Table-6.

Discussion

Neomycin has been widely used for topical application in a variety of skin infections including burns, wounds, ulcers and infected dermatoses¹. It is very effective against Gram-positive organisms like Staph. aureus, B. anthracis and tubercle bacillus². In the present study, 1% neomycin cream was

very effective in cases of impetigo contagiosa, infected ulcers, sycosis barbae and folliculitis. Bacteriological study showed it to be effective even against Strep. haemolyticus, B. diphtheriae (KLB) and Achrom. anitratus. Staph. aureus was noticed to be still present, though in a reduced growth, at the end of the 10th day. This, perhaps, is of no pathogenic significance as clinically the lesions fully healed. The most potent steroids for use on the skin are fluorinated compounds e.g. Triamcinolone, Fluocinolone and Betamethasone which are best reserved for resistant cases. Hydrocortisone 0.25 - 1% is suitable

for use in most eczemas³. Advantage of combining neomycin with hydrocortisone is that it takes care of the secondary infection. We did not encounter any case of skin sensitization due to neomycin in our study. Neomycin-hydrocortisone combination was very effective in contact dermatitis, infantile eczema, discoid eczema and infective eczematoid dermatitis.

Acknowledgment

We thank Dr. B. N. Vaidya, Superintendent, G. T. Hospital for allowing us to conduct this

clinical trial and for his permission to publish the paper. Our thanks are due also to Messrs. Rallis India Limited, Bombay, for the generous supply of drugs.

REFERENCES

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2. Scott : Price's Textbook of the Practice of Medicine 11th edition, 1973, p-19.
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Announcements...

NEXT CONFERENCE

The Fifth Annual Conference of Indian Association of Dermatologists, Venereologists and Leprologists will be held at Ahmedabad (Gujarat) on 8th and 9th January 1977.

International Congress of Dermatology

The XV International Congress of Dermatology will be held from October 16-22, 1977 in Mexico City with Scientific Programme, Social Programme and Exhibitions.

Scientific Programme — Themes of Topics of Current Interest :

Diagnosis and Management of Ichthyotic Conditions
 Hystocompatibility in Skin Diseases
 Immunotherapy
 New Eczematogenes
 Prostaglandins
 The Pre-Lymphomas
 Dermatologic Aspects of Hyperlipoproteinemias
 Antiandrogens in Dermatology
 IgE & Rast Test in Dermatology
 Immune Complexes in Skin Diseases

(Contd. at Page No. 252)