

CONTACT HYPERSENSITIVITY TO TOPICAL ANTIMICROBIAL AND ANTIFUNGAL AGENTS

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Summary

To find out the incidence of hypersensitivity to antimicrobial drugs patch tests with various commercially available antimicrobial agents were carried out in 112 patients suspected of contact sensitivity to these substances. Eighty eight patients showed positive reaction to one or more drugs. High incidence of contact sensitivity was observed with neomycin (48%), nitrofurazone (46%) and bromsalicyl-chloranilide (45%), while gentian violet, gentamicin and povidone iodine were found to be the least sensitizers (5%, 6% and 7% respectively). Multiple hypersensitivity (four or more drugs) was observed in 25 patients and a large number of them had ulcers at the time of study or in the past.

KEY WORDS: Contact Dermatitis Antimicrobials Antifungal.

Introduction

Topical antimicrobial and antifungal agents are known to produce hypersensitivity leading to initiation and perpetuation of dermatitis. In dermatology practice these substances are often used in conjunction with corticosteroids making it difficult for an unsuspecting physician to know the cause of persistence and worsening of the disease process as well as to know the exact incidence of contact hypersensitivity to various drugs. The present study was aimed at finding out the incidence of contact sensitivity to various antibacterial and antifungal agents among patients attending dermatology outpatient department of MLN Medical College, Allahabad.

Materials and Methods

The study material was mainly composed of patients suspected to have

contact dermatitis due to local antimicrobial and or antifungal agents. Some patients having dermatitis of more than 3 years' duration with no definite history suggestive of contact dermatitis were also included in the study. Patch tests were carried out with the following commercially available medicines: Furacin ointment (nitrofurazone 0.2%), neomycin ointment (neomycin sulphate 0.35%), Soframycin cream (framycetin sulphate 1%), Terramycin ointment (oxytetracycline hydrochloride 3%), Genticyn cream (gentamicin sulphate 0.1%), Betadine ointment (povidone iodine 5%), Cibazole ointment (Sulphathiazole 5%), chlorhexidine powder, acriflavin 0.1% aqueous, mercurochrome 2% aqueous, gentian violet 1% aqueous, Vioform ointment (quiniodochlor 3%), Jadit ointment (buclamide 10%), Mycoid ointment (clotrimazole 1%), Tinaderm solution (tolnaftate 1%), Zole ointment (miconazole nitrate 2%), Multifungin ointment (5-bromsalicyl-4-chloranilide 2%) and Tineafax ointment.

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In six patients nitrofurazone was used in the form of powder as well as 0.2% ointment. In four patients clotrimazole 1% was tested both in ointment and solution forms.

Results

The patch tests were conducted in 112 cases but all of them could not be tested with all the drugs. Twenty four patients did not show hypersensitivity to any of the drugs. In the remaining 88 patients contact sensitivity to one or more drugs was observed. The commonest sensitizers were neomycin, nitrofurazone and bromsalicyl-chloranilide, while the least sensitizers were gentian violet, gentamicin sulphate and povidone iodine (Table 1).

TABLE 1
Incidence of positive patch tests with various antimicrobial agents

Drug	Number of patients		
	Tested	Positive	%
Neomycin	87	42	48
Furacin	87	40	46
Multifungin	42	19	45
Mycocid	85	20	24
Soframycin	87	19	22
Jadit	87	19	22
Cibazole	81	17	21
Vioform	85	16	19
Acriflavin	82	11	13
Zole	78	9	12
Terramycin	87	9	10
Mercurochrome	82	8	9
Tinaderm	80	7	9
Chlorhexidine	38	7	8
Tineafax	42	3	7
Betadine	81	6	7
Genticyn	82	5	6
Gentian violet	22	1	5

Twenty five patients were allergic to four or more drugs, out of whom four were allergic to seven or more drugs. The provisional clinical diagnoses of patients with multiple hypersensitivity are shown in Table 2. Large number of the patients had ulcers, while a few had past history of delayed healing ulcers.

TABLE 2
Provisional clinical diagnosis of patients with multiple drug hypersensitivity

Clinical diagnosis	No.	%
Ulcers	12	48
Infectious eczematoid dermatitis	4	16
Contact dermatitis	4	16
Stasis dermatitis	2	8
Miscellaneous	3	12

In six patients tested with nitrofurazone powder and 0.2% ointment no difference was observed. Among four patients tested with 1% clotrimazole solution as well as ointment positive reactions were observed with both in three.

Discussion

Hypersensitivity to a drug depends upon its allergenic potential, and frequency of usage. Thus the incidence of contact sensitivity to various drugs varies from place to place and time to time depending upon the prescription habits of the physicians of a particular era and place¹. Sometime back, penicillin and sulphonamides were the common sensitizers but with the introduction and extensive use of neomycin, this drug has become the commonest sensitizer^{2,6}. Nitrofurazone is another common sensitizer as illustrated by various studies^{7,8}. Pasricha and Guru⁹ have also demonstrated these two drugs as the commonest sensitizers in their study group and these observations are amply supported by the present study. The frequent sensitization by these drugs is likely to be due to their extensive use but that alone cannot explain such a high incidence. The other possible explanation can be that they are potentially allergenic drugs.

The high rate of contact sensitivity to bromsalicyl-chloranilide is possibly due to its antigenic potential as this drug is not commonly used. The relatively frequent sensitization due to clotrimazole in this series is difficult

to explain as this drug has only been recently introduced into the market in this part of the country.

Hypersensitivity to the base or vehicle cannot be discounted altogether but it does not seem to play more than a minor role in the light of our limited observations.

Multiple hypersensitivity has been fairly frequent in our series and it was more common in patients with ulcers or past history of ulcers. This observation clearly brings out the role of break in the epiderm as an important factor in production of hypersensitivity.

Lastly, it cannot be overemphasized that battery of antimicrobial agents should be used for patch testing in suspected cases of contact dermatitis due to these drugs.

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