

COMPARATIVE STUDY OF ECONAZOLE AND POVIDONE-IODINE (BETADINE) IN MANAGEMENT OF DERMATOPHYTOSIS

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Summary

Econazole, a synthetic imidazole derivative has been compared for its curative effect with povidone-iodine (Betadine) by an open trial on 35 cases of dermatophytosis. In 30 patients Econazole or povidone-iodine was applied twice a day after carrying out a KOH test and fungal culture. Econazole nitrate (1% cream) was found to bring about rapid recovery from the disease as compared to povidone-iodine which was used in 5% strength. 2 patients who developed local allergic reaction in the form of pruritus, redness and oedema after Econazole were found to give positive patch test reaction to both Econazole and Miconazole. Econazole was found to be a very potent drug in the management of dermatophytosis.

KEY WORDS: Econazole, Povidone-iodine, Dermatophytosis Cream, Patch Test.

Introduction

Econazole, a synthetic imidazole is a potent antifungal and antibacterial drug. Its antifungal activity covers all human pathogenic fungi. It is also effective against Gram positive bacteria¹. Betadine is povidone-iodine which has been used in treatment of all types of inflammatory conditions of the skin including dermatophytosis².

The aim of the present study was to compare the efficacy of Econazole 1% cream with povidone-iodine (Betadine) 5% by an open trial, since it was difficult to match both the formulations in colour.

Methods

The study was divided into two parts. In the first part, 30 patients (Group 1)

with dermatophytosis were given one of the two drugs after making the clinical diagnosis. The patients showing the typical clinical picture were subjected to microscopic examination of the scraping using KOH mount and those showing the presence of fungal hyphae were included in the trial. Simultaneously the scrapings of the lesions were put up on Sabouraud's dextrose agar media and culture isolates were identified and species labelled according to conventional criteria.

In the second part, 10 cases (Group 2) with bilateral lesions were subjected to application of Econazole on the right sided lesions and povidone-iodine on the left sided lesions twice a day after carrying out clinical and laboratory diagnosis as mentioned above.

The patients were treated as outdoor patients. No other treatment was permitted. Weekly follow up was carried out till cure was achieved or a total period of 4 weeks was over. 3

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Results

The distribution of the patients in the first group according to age and sex is shown in Table 1, while the duration of the disease before starting the treatment is shown in Table 2. Table 3 shows the distribution of cases by the clinical type. The laboratory diagnosis of all the 30 patients in this group is shown in Table 4. The results of the treatment with either Econazole or povidone-iodine is shown in Table 5.

TABLE 1
Distribution of cases by age and sex in group 1

Econazole			Povidone-Iodine		
Sex Distribution :					
Male	Female	Total	Male	Female	Total
12	3	15	12	3	15
Age Distribution :					
Years		No.	No.		
11-20 yrs.		1	2		
21-30 yrs		10	9		
31-40 yrs.		3	2		
Above 40 yrs.		1	2		
Total		15	15		

TABLE 2
Distribution of cases by duration of disease in group 1

Duration in weeks	Econazole	Povidone-Iodine
2-4 weeks	2	5
5-12 weeks	0	4
13-24 weeks.	3	0
Above 24 weeks	10	6
Total	15	15

TABLE 3
Distribution of cases by Clinical type and Therapeutic agents in group 1

Diagnosis	Econazole	Povidone-Iodine
T. corporis	0	1
T. cruris	3	2
T. manuum	0	1
Mixed	12	11
Total	15	15

It is evident from table 5 that out of the 15 patients treated with Econazole, 13 cases were cured of the disease within one to three weeks after starting the treatment. 2 patients treated with Econazole, developed local allergic reaction in the form of pruritus, redness and oedema. These two patients gave positive patch test reaction with both Econazole and Miconazole and on inquiry they gave history of similar reaction with Miconazole in the past. The reaction in these patients responded to local steroids. They were not given any further treatment with Econazole. Out of the 13 cases which were completely cured with Econazole, in 4 cases the lesions disappeared within 1 week, in 7 cases it took 2 weeks for complete disappearance of lesions; and in 2 cases, it required treatment for 3 weeks. Out of the 15 patients treated with povidone-iodine (Table 5) no patient was cured within 2 weeks. Only 4 patients were cured at the end of 3 weeks; while majority of patients i.e. 11 patients required 4 weeks treatment.

In the second part of the study which involved application of Econazole on the right sided lesions and povidone-iodine on the left sided lesions, it was difficult to carry out the treatment in all the 10 patients, because 5 patients dropped out of the trial and did not cooperate due to different treatment given for the same disease. However, 5 cases completed this study, the results of which are shown in Table 4. It is clearly seen from Table 4 that in all the 5 patients who completed the trial, the lesions on the right side which were treated with Econazole got cured within 2 to 3 weeks; whereas lesions on the left side of the body took 3 to 4 weeks to get clear after application of povidone-iodine. One patient was not cured even at the end of 4 weeks.

TABLE 4
Fungal isolates of cases included in group 1

Fungi isolated	Econazole	Povidone-iodine
T. rubrum	9	9
T. mentagrophytes	1	2
T. schoenleini	1	1
E. floccosum	0	1
No growth	4	2
Total	15	15

The results of this study brings out the superiority of Econazole treatment over povidone-iodine treatment in the management of dermatophytosis. The total duration of treatment with Econazole as compared to povidone-iodine is markedly less. This can be attributed to the powerful fungicidal effect of Econazole as compared to povidone-iodine and also due to possible depot action³.

TABLE 5
Table showing the duration of treatment with either econazole or Povidone-Iodine to obtain cure in patients of group 1

Total No. of patients	Drug	Duration of Treatment in weeks				Remarks
		1st	2nd	3rd	4th	
15	Econazole	4	7	2	—	Two patients discontinued treatment because of contact allergy.
15	Povidone iodine	—	—	4	11	No side effects.

TABLE 6
Comparison between econazole and Povidone-Iodine in group 2

Total No. of Patients	Age (yrs)	M	F	KOH test		Diagnosis	Duration of treatment with		Culture	Remarks
				+ve	-ve		Econazole	Povidone iodine		
5	32-50	4	1	5	—	Tineaasis	2-3 weeks	3-4 weeks	T. rubrum T. manum	Povidone-iodine was not effective in one case even at the end of 4 weeks.

Discussion

Dermatophytosis is a very common infection of the skin, occurring all over the world but more in tropical countries. It shows a high incidence in summer and rainy seasons. Econazole has been reported to be a very powerful antifungal drug against human infections and found to bring cure in about 93 percent of cases of dermatomycosis³.

The results of the study, where Econazole and povidone-iodine were applied in the same patients also showed superiority of Econazole over povidone-iodine. In fact the non-cooperation of the patients and dropping out of the patients in this group was due to better results obtained on the lesions of the right side of the body as against the lesions on the left side of the body where povidone-iodine

was applied. This created a sense of decreased confidence in the patients to come back for further treatment. One may argue that this could have been avoided by giving indoor treatment to all the patients included in this trial. This was not feasible since the patients with only dermatophytosis can not afford to remain indoor for couple of weeks.

The development of hypersensitivity reaction in 2 patients treated with Econazole demonstrates the importance of cross sensitivity amongst the imidazole antifungal drugs, since the same patients showed positive patch test reaction to Miconazole and also gave history of having used Miconazole topically.

One may conclude, therefore, that Econazole is a better drug compared to povidone - iodine in management of

dermatophytosis since the duration of treatment is markedly reduced.

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