

Original Article

Keratolytic soaps versus topical azoles in the treatment of pityriasis versicolor

Fawad Muzaffar*, Mohammad Ilyas**, Majid Suhail*, Amer Ejaz*, Simeen Ber Rehman***, Zafar Iqbal***

* Consultant Dermatologist, Combined Military Hospital, Kharian Cantonment, Pakistan.

** Department of Medicine, Military Hospital, Rawalpindi, Pakistan

*** Department of Dermatology, Military Hospital, Rawalpindi, Pakistan.

Abstract *Background* Pityriasis versicolor is a benign affliction of the skin by the yeast *P. orbicularis* that can become pathogenic in hot and humid weather and is very common in countries like Pakistan.

Objective Anti-fungals are considered the therapy of choice in this disease. It was planned to compare these drugs with a 10% sulphur - 3% salicylic acid keratolytic soaps in the treatment of this disorder.

Patients and methods This was an open ended comparative clinical trial involving 40 patients. Group 1 comprised patients treated with 10% sulphur and 3% salicylic acid soap applied for 5 minutes daily for a period of 6 weeks. Patients were assessed initially at presentation and then at 2 weekly intervals up to six weeks. Group 2 comprised patients treated with 1% clotrimazole lotion twice daily for 2 weeks. These patients were assessed at presentation and then after 2 weeks.

Results Cure rate (taken as negative skin scrapings for fungal hyphae) determined on the completion of each individual course was as follows: Group 1: 62% and group 2: 100%.

Conclusion Therefore, it was concluded that topical anti-fungals are better than sulphur-salicylic acid keratolytic soaps in treating pityriasis versicolor.

Key words

Clotrimazole, sulphur-salicylic acid, pityriasis versicolor, keratolytic soaps.

Introduction

Pityriasis versicolor is disease caused by an overgrowth of the fungus called *Pityrosporum orbiculare*. It is especially common during the summer season in our country because excessive sweating coupled with an increased sebum production makes it easier for the fungus to penetrate the skin.¹⁻³ The topical modalities of treatment for this disease

include certain non-specific therapies and specific antifungal agents. The non-specific agents are the older and cheaper treatments. They are so-called because they do not have activity directly against the fungus. They act by physically and/or chemically removing infected dead tissue in the stratum corneum and/or affecting cell turnover rates. These include selenium sulphide, propylene glycol and sulphur-salicylic acid combination.^{4,5} Specific topical antifungal agents include haloprogin, zinc pyrithione, tolclate, ciclopirox olamine and azoles⁴ including clotrimazole.^{7,8,9} These are the newer agents which cause cell wall alterations in

Address for correspondence

Dr. Fawad Muzaffar,
Consultant Dermatologist,
Combined Military Hospital,
Kharian Cantonment, Pakistan.
Ph #: 0092 333 550 3214, 0092 537 59 6154
E mail: fuad_muzaffar@hotmail.com

the fungus resulting from inhibited ergosterol synthesis.⁵

There was no study in Pakistan determining the efficacy of various topical products in treating this condition. Since topical anti-fungals are the established first line of therapy in treating this disease; it was sought to compare the results of keratolytic soaps versus anti-fungals in treating this ailment.

Patients and methods

Objective The objective was to compare the efficacy among two topical regimens for pityriasis versicolor.

Study design This was an open ended comparative clinical trial involving 40 patients carried out at the Military Hospital, Rawalpindi, a tertiary care setting. The study was carried out over a seventeen months period extending from March 2000 till August 2001.

Inclusion criteria Patients from all age groups and both sexes who fulfilled all three criteria namely: clinically, positive on Wood's Lamp examination and positive for skin scrapings revealing a 'spaghetti and meat ball appearance' were included.

Exclusion criteria Patients were excluded from entry into the study if they had previously received other treatment including systemic or topical anti fungals or corticosteroids up to 30 days earlier, any known history of allergy to shampoos or serious concurrent medical conditions.

Sample size and group allocation Sample size was calculated for the pityriasis versicolor cases presenting to our outpatient department. Patients were

randomly divided into two treatment groups. The patients were allocated groups by using the draw method. Group 1 consisted of patients treated with 10% sulphur and 3% salicylic acid soap.⁶ This was applied locally once daily, left on for 5 minutes and then washed off. This treatment was continued for 6 weeks. Group 2 patients were treated with 1% clotrimazole lotion. This was applied locally twice daily. This treatment was continued for 2 weeks.

Group 1 patients were assessed initially at presentation and then at 2, 4 and 6 weeks after starting treatment. Those in group 2 were assessed at presentation and then on completion of treatment course after 2 weeks. Data was collected by filling out questionnaires as well as clinical assessment. This assessment included clinical examination, examination under Wood's light and examination of the skin scrapings for fungal hyphae.

Cure rate Cure rate was determined by the number of patients in each group who showed negative skin scrapings for fungal hyphae on completion of each individual treatment course.

Statistical Package Statistical Package for Social Sciences (SPSS version 8.0) and Microsoft Excel were applied for the compilation of experimental data and its subsequent conversion into graphs and charts.

Results

40 patients were enrolled for the study. In group 1, the total number of patients was 21 (20 males and 1 female) whereas in group 2, 16 patients were enrolled but there were 3 drop-outs, so that 13 patients (11 males and 2 females) were evaluable.

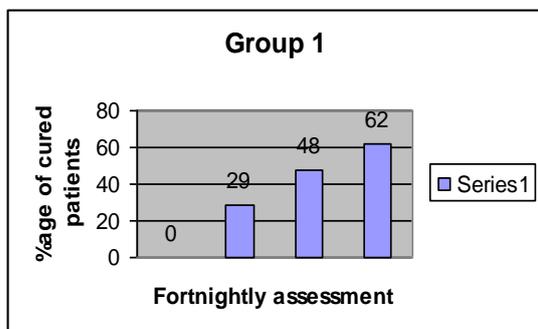


Figure 1 Results in patients treated with keratolytic soaps.

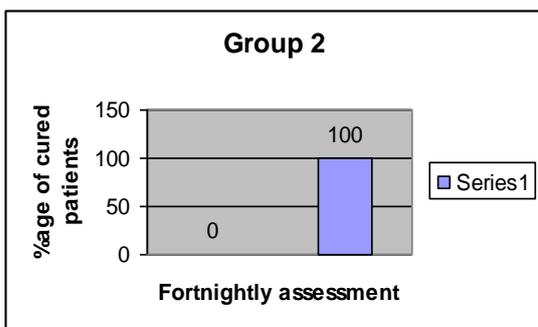


Figure 2 Results in patients treated with 1% clotrimazole.

Upper trunk, neck and face were the usual affected sites. In group 1, on initial presentation, skin scrapings for fungal hyphae on microscopy were positive in all 21 patients. At 6 weeks of therapy, fungal hyphae were seen in 8/21 patients. 13/21 patients were cured meaning a cure rate of 62% as shown in **Figure 1**. At baseline, Wood's lamp examination was positive in all 21 patients. At 6 weeks of therapy, it was positive in 11/21 patients.

In group 2, the total number of evaluable patients was 13. On initial presentation, skin scrapings for fungal hyphae on microscopy were positive in all 13 patients. At 2 weeks of therapy, fungal hyphae were not seen in any patient meaning a cure rate of 100% as shown in **Figure 2**. Similarly, on initial presentation, Wood's lamp examination was positive in all 13 patients. At 2 weeks of therapy, it was negative in all patients.

Table 1 Comparison of positive microscopy and cure rate in 2 groups.

	Group 1 (n=21)	Group 2 (n=13)
Positive microscopy		
at baseline	100%	100%
at 6 weeks	38%	0%
Cure rate (week 6)	62%	100%

Table 1 compares the results in two groups.

Discussion

Topical antifungals, by various studies have proven to be the agents of choice in treating pityriasis versicolor.^{4,5}

In this study, sulphur-salicylic acid keratolytic soaps applied for 5 minutes daily for a period of 6 weeks yielded a cure rate of 62%. In a previous study by Bamford, sulphur-salicylic acid lotion was applied overnight for one week to yield a cure rate of 86%.⁶ The main side effect was irritation. We tried application for 5 minutes daily rather than overnight on the basis of patient convenience, avoidance of the troublesome side effect of irritation caused by longer application duration and manufacturer's advice.

Conventionally, keratolytic agents have yielded their best results after an extended duration of application i.e. overnight or for 24 hours as in the case of Lassar's paste dressing (which also contains salicylic acid as one of its main ingredients).¹¹⁻¹² The 5 minute application duration, though convenient, resulted in a lower efficacy. Increasing the duration of daily application can result in an enhanced cure rate but at the cost of inconvenience and inducing irritation in the patient.

1% clotrimazole resulted in earlier clearance of pityriasis versicolor with a

cure rate of 100% (as determined by negative skin scrapings for fungal hyphae) and thus proved to be significantly more effective than sulphur-salicylic acid keratolytic soaps in treating this disease. This can be attributed to the superior mechanism of action of the drug.

As a result of its being more efficacious, 1% clotrimazole lotion is recommended as the treatment of choice for pityriasis versicolor.

Funding sources for the work

Sulphur-salicylic acid soaps (Sastid® bar) and 1% clotrimazole lotion (Stiemazole®) were both provided by Stiefel Laboratories (Limited), Pakistan.

References

1. Pueho E, Midgley G, Guillot J. The genus *Malassezia* with description of four new species. *Antonie van Leeuwenhoek* 1996; **69**: 337-55.
2. Roberts SOB. *Pityrosporum orbiculare*: incidence and distribution on clinically normal skin. *Br J Dermatol* 1969; **81**: 264-9.
3. Marples J. The incidence of certain skin diseases in Western Samoa; a preliminary survey. *Trans R Soc Trop Med Hyg* 1950; **44**: 319-32.
4. Gupta AK, Bluhm R, Summerbell R. Pityriasis versicolor. *J Eur Acad Dermatol Venereol* 2002; **16**: 19-33.
5. McDaniel DH, Welton WA. Scanning electron microscopic evaluation of tinea versicolor. Effects of treatment with miconazole nitrate and clotrimazole. *Arch Dermatol* 1984; **120**: 1057-8.
6. Bamford JT. Treatment of tinea versicolor with sulfur-salicylic acid shampoo. *J Am Acad Dermatol* 1983; **8**: 211-213.
7. Ive FA. An overview of experience with ketoconazole shampoo. *Br J Clin Pract* 1991; **45**: 279-84.
8. Reinel D. Local therapy of pityriasis versicolor: antimycotic agent or shampoo? *Mykosen* 1985; **28**: 225-31.
9. Lange DS. Ketoconazole 2% shampoo in the treatment of tinea versicolor: A multicenter randomized, double blind, placebo-controlled trial. *J Am Acad Derm* 1998; **39**: 944-50.
10. Highet AS, Kurtz J. Viral Infections. In: Champion RH, Burton JL, Burns DA, Breathnach SM, eds. *Textbook of Dermatology*, 6th edn. London: Blackwell Science; 1998. p. 995-1097..
11. Wilkinson J D. Formulary of Topical Applications. In: Champion RH, Burton JL, Burns DA, Breathnach SM, eds. *Textbook of Dermatology*, 6th edn. London: Blackwell Science; 1998. p. 3631-40.

