

## Treatment Pattern of dermatophytosis at the outpatient clinic of a tertiary healthcare hospital of Chhattisgarh, Central India

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### Abstract

**Background:** in the recent past dermatophytosis are being highly prevalent, main culprit behind is inappropriate use of antifungal agents and self-medications which is leading to exponential rise in global burden superficial fungal infections, and antifungal drug resistance. Clinician's management pattern data collection on time to time to have a check on the resistance/sensitivity pattern of the commonly prescribed antifungals in clinical grounds is important.

**Aims and objectives:** The present study was to describe the pattern of antifungal drug prescription and self-medication for common superficial fungal infections of skin in dermatology OPD in tertiary care hospital of Chhattisgarh.

**Materials and Methods:** Current study was a cross sectional unicentric study conducted at Dermatology OPD of Pt J.N.M. Medical College Raipur, the data collection for this observational study was undertaken for a period of six months. All patients attending the dermatology OPD with tinea infections were included in the study. This study was designed to record parameters include information related to demographic, disease profile, medications prescribed, number of drugs, dosage & duration were reported. Self medication pattern was also being observed during this study.

**Results:** A total of 17286 patients attended dermatology OPD and 42% patients were suffering from tinea. The most common fungal infection was Tinea cruris 55.07%, the commonest treatment pattern was Combination of oral & Topical therapy 92.15%. Most frequently prescribed combination was fluconazole plus itraconazole along with Clotrimazole cream was seen in 64.45%, commonest anti-fungal agents were the azoles; amongst which clotrimazole (67.04%) were the commonest. Commonly prescribed individual antifungal was oral Fluconazole 73.11%. The self-medication prevalence for dermatophytosis was 62.26%. Self-medication drugs were mainly topical (creams) FDC of antifungal and steroids. Around 76% of the self-medication information was obtained from the chemists.

**Keywords:** Dermatophytosis, Antifungal agents, Self-medication, Itraconazole.

### Introduction

In the past few years dermatophytosis has undergone a sea change in its clinical pattern and currently there is alarming situation of unprecedented increased incidence as well as the prevalence of superficial dermatophytosis is seen in India. The standard treatment recommendations which we have been following from the Western and Indian literature are no longer valid or even realistic<sup>1-3</sup> such as dermatophytoses, identifying and understanding various factors related to host, environment, and agent are essential. At the same time, it is crucial to analyze whether the clinical failure of antifungal therapy is due to recurrence and/or resistance. The development of any management strategy to treat dermatophytoses must take into account of these factors.<sup>4</sup> Despite the increasing prevalence of cutaneous dermatophytosis across the world, and especially in tropics, research in this area has often been neglected. In fact, one has to go back nearly two decades to find guidelines on the management of tinea corporis and cruris (by the American Academy of Dermatology)<sup>5</sup> and these at best, appear inadequate in today's world. The more recent guidelines published by the British Association of Dermatology and in the British Medical Journal have largely focused on tinea capitis and tinea unguium with

scarce reference to tinea corporis/cruris.<sup>6-8</sup> Updated Cochrane reviews on the use of topical therapy in tinea corporis, cruris, and pedis, and few on oral therapies have helped to bridge this knowledge gap but still well designed trials, national and/ or international evidence based guidelines and recommendations on the dose and duration of the use of systemic antifungals in tinea corporis/ cruris are conspicuous by their absence.<sup>9-11</sup> Drug implies very critical role in the improvement of human health and well-being. Periodic prescription audit is a way to control irrational prescribing. It minimize overuse and misuse of drugs, enhances the therapeutic efficacy, minimize the adverse effects and to plan essential drug selection, optimizes the cost of the therapy, provide useful feedback to the clinician and estimate the drug need of the community, thus have a favourable impact on the standards of treatment.

### Materials and Methods

This was a record based, observational, study conducted at Pt. J.N.M Medical College Raipur, an academic tertiary care hospital in Chhattisgarh. It covered six month period from July 2017 to December 2017. Outpatients of all ages and both genders attending opd with superficial fungal infections and receiving antifungal medications during the study

period were included. The demographic information of the patients (age, gender, symptoms, diagnosis) and drugs information (name, class, dose, treatment duration, topical or systemic and frequency of administration,) was noted. Self-medication Indices such as: Frequency of self medication, Drugs frequently self-medicated, Source of information for self medication were evaluated too. These data were analyzed to evaluate the prescription pattern and rationality of the use of drugs in the treatment of tinea infections.

### Result and Observations

Total 17286 patients were attended dermatology opd and 7260 (42%) patients were suffering from tinea .Out of them 4138 (57 %) patients were males and 3122/7260 (43%) were females [Table 1], which shows greater prevalence of tinea in males similar male preponderance was seen in studies done by *Siddhartha A. Kamerkar, et al and Vegada BN et al.*<sup>12-13</sup> In the disease spectrum tinea cruris was the commonest and seen in 3998 (55.07%) patients followed by tinea corporis 2846(39.20%) [Table 2] , Kak, et al also reported the similar observation in his study as tinea corporis (44.3%) followed by tinea cruris (38.2%) as the most common clinical pattern.<sup>14</sup>

Oral fluconazole was the most common drug prescribed amongst the oral formulations whereas topical clotrimazole was the most common drug prescribed amongst the topical formulations which may be because availability of Flucanazole free supply in hospital pharmacy Minocha and Narwane conducted studies also showed that most common oral antifungal agent was fluconazole due to availability in hospital pharmacy.<sup>15-16</sup>

During entire study period common treatment pattern observed was combination therapy of Topical along with systemic antifungal therapy and seen in 6690(92.15%) depicting severity of disease as shown in Table 3, Vegada BN et al, also observed similar majority (95.92%) of combination of a topical with an oral antifungal drugs in his study.<sup>13</sup> In our study majority of prescriptions were for combination of three agents consisting of oral and topical formulation. It consisted mainly of oral fluconazole/ itraconazole, oral antihistamine cetirizine/hydroxyzine and topical Clotrimazole [Table 5-6]. Regarding treatment pattern, drugs prescribed -In tinea cases were, oral fluconazole in 2305(31.75%) followed by itraconazole in combination with Flucanazole 2128 (29.31%) were the commonest whereas fluconazole along with terbinafine

was seen in 867(11.94%) [Table 5]. Systemic Flucanazole is being commonest prescribed antifungal drug was also seen in studies by *Vegada BN et al, Kamerkar et al and Khalid A et al*<sup>12,13,17</sup> in their study. Rajathilagam conducted a study also demonstrated that fluconazole (63%) was most commonly used oral antifungal agent.<sup>18</sup>

In an study, Vishal P Giri et al reported systemic polytherapy consisting of Terbinafine and levocetirizine in 50.64% patients as commonest in his study (19). In another study by *Deb P et al* the most commonly prescribed individual antifungal was oral Terbinafine (64.81%) and topical was eberconazole (58.49%).<sup>20</sup>

In our study we observed systemic polytherapy consist simultaneous use of itraconazole & fluconazole as commonest, instead of Terbinafine showing gradual shifting of favor in oral antifungals from Fluconazole to terbinafine and from Terbinafine to itraconazole recently making itraconazole as most favoring oral antifungal now a days.

In topical antifungals the most commonly prescribed drugs were clotrimazole (67.04%) followed by miconazole (17.07%) and these were free supply in hospital pharmacy and after these available creams luliconazole (6.93%) & terbinafine (6.32%) were commonest [Table 4] making luliconazole as new favored topical antifungal drug. *Kamerkar, et al and Vegada BN et al*, also reported Clotrimazole as commonest topical in their studies.<sup>12-13</sup>

Regarding usage of antihistamines in this study shows cetirizine was commonest (66.43%) in sedative type and fexofenadine was commonest in non sedative type of antihistaminic (5.76%) shown in Table 6. Self - medication has become a common health care practice among the population. This has constantly become popular because; easy Over the Counter availability at same time peoples have become increasingly aware of the drugs and their brand names. The drug sensitive fungal pathogens have gradually developed resistance thus making it progressively grim to treat even the most modest fungal infections. It has been documented that injudicious use of Steroidal creams has resulted into the worsening of the existing lesions and making it difficult to treat them. The prevalence of self-medication among patients was seen in 56.60% (4109). Most of the drugs for self-medication were topical (creams) fixed drug combination of antifungal and steroids and around 76% of the self-medication information was obtained from the chemists and almost similar self medication pattern was noted by Pooja Deb et al in their study.<sup>20</sup>

**Table 1: Patients Distribution**

Total Patients	17286	Tinea Patients	7260/17286 (42%)
Male	9858 (57.03%)	Male	4138/7260 (57 %)
Female	7428(42.97%)	Female	3122/7260 (43%)

**Table 2: Disease Distribution**

Type of fungal infection	Total Numbers	Percent %
T. Cruris	3998	55.07%
T. Corporis	2846	39.20%
T.Faciei	248	3.42%
T.Manum/Pedis	168	2.31%

**Table 3: Treatment pattern during entire study period**

Treatment Modalities	No. of patients	Percent
Combination therapy Oral + Topical	6690	92.15%
Monotherapy	570	7.85%
Topical therapy	531	7.31%
Oral therapy	39	0.54%

**Table 4: Topical drugs in Tinea Patients**

Drug	No of patients	Percent
Clotrimazole	4867	67.04%
Miconazole	1239	17.07%
Terbinafine	459	6.32%
Luliconazole	503	6.93%
Eberconazole	57	0.76%
Clotrimazole+ Betamethasone	135	1.86%

**Table 5: Systemic Drugs in Tinea Patients**

Oral Antifungal Agents	No. of patients (6690+26=6716) 92.5%	Percent
Fluconazole alone	2305	31.75%
Fluconazole + Terbinafine	867	11.94%
Fluconazole + itraconazole	2128	29.31%
Fluconazole + ketoconazole	8	0.11%
Fluconazole + Griseofulvin	0	0%
Itraconazole alone	568	7.82%
Itraconazole +ketoconazole	21	0.29%
Ketoconazole alone	72	0.99%
Terbinafine alone	438	6.03%
Terbinafine + itraconazole	309	4.25%
Griseofulvin	0	0%

**Table 6: Oral Antihistaminic Drugs in Tinea Patients**

Antihistamine Drug	No of patients	Percent
Cetirizine	4823	66.43%
Levocetirizine	827	11.39%
Fexofenadine	418	5.76%
Hydroxyzine	937	12.90%
Polaramine	201	2.77%
Desloratidine	54	0.74%

## Conclusion

There is gradual shift of management pattern from fluconazole to terbinafine and then from terbinafine to itraconazole have been observed and this change in management patterns of tinea which are the most frequently encountered, are the effect of freely available irrational fixed drug combination creams. Fixed drug combination (FDC) creams are usually a combination three drugs comprising potent steroid like clobetasol

propionate, antifungal, and antibacterial in the product. These FDC creams are available over the counter, buying over the counter and grossly abused by applying at will for weeks, months and sometimes for years, which was prescribed by the general practitioners or quacks or suggested & sold by the pharmacist. This is the most dreadful situation where we are fallen in the recent times which lead to chronic, treatment resistant dermatophytosis which is causing mayhem in India.

There is a tremendous need for well designed studies for various issues pertaining to the dermatophytosis scenario in India.

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