EFFICACY OF TERBINAFINE VERSUS ITRACONAZOLE IN TREATMENT OF TINEA CAPITIS

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ABSTRACT

Background: Tinea capitis is an important skin infection in children. Terbinafine has been used as preferred drug but increasing number of resistance and side effect profile suggests search to find another drug with better efficacy and safety. **Objective:** To compare the efficacy and safety of terbinafine and Itraconazole in tenia capitis. **Methodology:** It was a randomized control trial on 120 cases of tenia capitis diagnosed on the basis of five clinical signs and symptoms (erythema, desquamation/scaling, papules, pustules and pruritis) which were rated on four point scale (0-absent, 1-mild, 2-moderate, 3-severe) summed as total signs and symptoms score (TSSS) and a positive KOH microscopy and were divided into two equal groups A and B. Group A was treated with terbinafine at a dose of 62.5 mg for children less than 20 kg, 125 mg for 20-40 kg and 250 mg for above 40 kg. Group B was treated with Itraconazole and dosage was as follows;10-19 kg 50 mg/day, 20-40 kg 100mg/ day, more than 40 kg 200 mg/day. This study was carried out from 1st January to 30th June 2016, at department of Dermatology, Sheikh Zayed Hospital, Rahim Yar Khan. These cases were then followed at weeks 02, 04, 06 and 08 and assessed on the basis of KOH microscopy and TSSS score. Negative microscopy and zero TSSS were labeled as cured and parents were also asked about any side effect and tolerability. The data was entered and analyzed by using SPSS version 16. **Results:** There were 60 cases in each group. Group A has 29 males and 31 females while Group B has 34 males and 26 females. Cure was seen significantly higher in Group B where it was in 86.67% as compared to Group A with 68.33%. (p value 0.01). There was again significant difference seen when they were compared in terms of cure time where 58.34% of cases in group B were cured by 6 weeks as compared to 40% in Group A. (P value 0.03). There was no significant difference in terms of side effect profile (p= 0.45) while it was again significantly better in terms of tolerability with Itraconazole (p= 0.02). **Conclusion:** Intraconazole has better care and safety profile as compared to terbinafine in treatment of Tenia Capitis.

Key Words; Tinea capitis, Terbinafine, Itraconazole.

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INTRODUCTION

Tinea capitis is a common skin infection in children globally. It represents the skin manifestation of fungal infection involving scalp, eyebrows and lashes caused by Trichophyton and Microsporum. The reported incidence in America in school going children is noted in 12.9% cases and in recent times their rate is on the decline from 14% to 1.2% in the last 50 years in South Asia, courtesy better hygienic and sanitary conditions.[1-2] It involves mainly the children and very occasionally, the other age groups. Most common age of involvement is 5 to 10 years.[3] Tinea capitis usually has a good outcome and the cases who are improperly treated or resistant to its treatment are at risk to abscess development, called as kerion.4 Topical treatment alone usually is not effective and not recommended for the management of tinea capitis.[4] Griesofulvin, terbinafine, itraconazole, fluconazole all have been tried.[5,6] Griesofulvin was considered the treatment of choice but the duration of treatment was longer and even in a study of comparison of all these the side effects were only noted in the group of Griesofulvin. The length of treatment varied between 4 to 8 weeks. Newer antifungal medications, such as itraconazole, terbinafine, and fluconazole, have been reported as effective alternative therapeutic agents for tinea capitis.[5] Of these agents, Itraconazole and terbinafine are used most commonly. There may be some advantage to giving Itraconazole with whole milk to increase absorption.[6] This study was conducted to determine the efficacy of terbinafine and itraconazole in frequency of tenia capitis.

METHODOLOGY

It was a randomized control trail in which total 120 Children with 3 to 16 years of age, having black dot and grey patch tinea, diagnosed clinically and confirmed by KOH microscopy were included in study. These cases were evaluated on the basis of five clinical signs and symptoms (erythema, desquamation/scaling, papules, pustules and pruritis) which were rated on four point scale (0-absent, 1-mild, 2-moderate, 3-severe) summed as total signs and symptoms score (TSSS). The cases

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with kerion, favus and deranged LFTs were excluded. Then these cases randomly were divided into two groups A and B respectively. Group A was treated with terbinafine at a dose of 62.5 mg for children less than 20 kg, 125 mg for 20-40 kg and 250 mg for above 40 kg. Group B was treated with Itraconazole and dosage was follows; more than 40 kg 200 mg/day, 20-40 kg 100 mg/ day and 10-19 kg 50 mg/day. This study was carried out at Department of Dermatology, Sheikh Zayed Hospital, Rahim Yar Khan between the period of 1st January to 30th June 2016. These cases were then followed up on OPD basis at weeks 02, 04, 06 and 08 and assessed on the basis of KOH microscopy and total signs and symptoms score (TSSS). A negative scrapping for KOH and TSSS score of zero was labeled as cured. Patients were also asked about any side effect, and their subjective feeling regarding tolerability (very good/good/moderate/poor and very poor) and also underwent investigations like complete blood count and serum liver function tests.

A sample of 60 in each group was selected. Both the groups were compared in terms of their mean age, weight and TSS score via independent sample t test and chi square test for their gender, number of lesion (one or more). Post stratification chi square test was applied to compare the two groups to look for efficacy, side effect profile and tolerability taking p value of ≤ 0.05 as significant. The data was entered and analyzed by using SPSS version 16.

RESULTS

There were 60 cases in each group. Group A contained 29 (48.33%) males and 31 (51.67%) females while Group B had 34 (48.33%) males and 26 (51.67%) females (Pvalue =0.36). There was no significant difference in terms of mean age, weight, pre-treatment TSS score, and number of lesions (one or more). (Table I) Cure was seen significantly higher in Group B where 52 (86.67%) cases were cured as compared to group A with cure rate of 41 out of 60 (68.33%). (p value of 0.01).(Table II) There was again significant difference seen when they were compared in terms of cure time where 35 (58.34%) cases in group B were cured by 6 weeks as compared to group A having success in 24(40%) cases in similar time. (p value 0.03). (Table III) Among side effects abdominal pain was the most reported and seen in 11 (18.33%) cases in group A and 9 (15%) cases in group B and anorexia and vomiting were other less reported side effect with no significant difference in both groups. (p= 0.45) (Table IV) The tolerability was significantly better in group B where 47 (78.34%) has either very good or good response to drug tolerance as compared to Group A where it was seen in 32 (53.34%) of cases.(p= 0.02)(Table V) There was no case seen with any derangement in liver profile and complete blood count.

Table I: Comparison between variables of two groups.

Variable	Group A	Group B	P value
Age (years)	7.27±3.05	6.80± 3.25	0.62
Weight (Kg)	16.73±4.50	15.77±5.02	0.07
Pre-treatment TSSS	8.50±2.31	7.33±2.05	0.30
Pre-treatment lesion			
Single	26 (43.33)	22(36.675%)	P= 0.45
Multiple	34 (56.67%)	38(63.33%)	

Table II: Cure in both groups

Cure	Treatment group			
	Group A No (%)	Group B No (%)	Total	
Yes	41 (68.33%)	52 (86.67%)	96 (80%)	P= 0.01
No	19 (31.67%)	08 (13.33%)	24 (20%)	
	60 (100%)	60 (100%)	120 (100%)	

Table III: Time taken to cure in both groups

Cure time	Treatment group		Total
	Group A No (%)	Group B No (%)	
2 weeks	0 (0%)	0 (0%)	0
4 weeks	04 (6.67%)	13 (21.67%)	26
6 weeks	20 (33.33%)	22 (36.67%)	39
8 weeks	18 (30%)	17 (28.33%)	31
Not cured	18 (30%)	08 (13.33%)	24
Total	60	60	120

(P value 0.03)

Table IV. Side effect profile in both groups

Side effects	Treatment group		Total
	Group A	Group B	
None	39 (65%)	45 (75%)	84
Abdominal pain	11 (18.33%)	09 (15%)	20
Vomiting	6 (10%)	02 (3.33%)	05
Anorexia	04 (6.67%)	04 (6.67%)	12
Total	60	60	120

(P value 0.45)

Table V: Tolerability of the drugs in both groups

Tolerability	Treatment group		Total
	Group A	Group B	
Very good	07 (11.67%)	13 (21.67%)	32
Good	25 (41.67%)	34 (56.67%)	50
Moderate	26 (43.33%)	11 (18.33%)	32
Poor	02 (3.33%)	02 (3.33%)	06
Very poor	00 (0%)	00 (0%)	00
Total	60	60	120

(P value 0.02)

DISCUSSION

There were total 120 cases in this study where 63 were males and 57 females. The ratio of male to female was found slightly higher with male predominance, although this difference was not statistically significant. This was similar to previous studies done by Kundu D et al and Ayaya SO et al[7-8] who also found higher number in males. Cure was seen significantly higher in Group B where 52 (86.67%) cases were cured as compared to group A where 41 out of 60 (68.33%) were cured with p value of 0.01. This was in contrast to a study done by Gupta AKet al[9] who found cure rate of 94% in terbinafine group as compared to 82% of Itraconazole. In another study by Khan SU et al[10] where terbinafine was compared to Griesofulvin they found cure rate of 70% vs 55% cases. While in another study by Friedlander FS they found cure in 65% cases with terbinafine.[11] In another study in china by Yu J et al[12] reported about 88.4% with Itraconazole. The question why the rate with Itraconazole remained over 80%; and with terbinafine is on the declining side from 94% in a study conducted in 2001 to present studies showing efficacies in 60s or 70s. This is may be due to emergence of the resistance to this drug by this fungus. Secondly there is a greater clearance of the drug in younger age groups as compared to older ones. Thirdly as seen in our study the poor tolerance of the drug may be another issue leading to interrupted intake of this drug, hence lesser efficacy and emergence of resistance.

There was again significant difference seen when they were compared in terms of curative time where 35 (58.34%) cases in group B were cured by 6 weeks as compared to group A having success in 24 (40%) cases in similar time with p value of 0.03. Similar was seen by Yu J et al whose 88.4% of cases treated with Itraconazole were converted by 6 weeks.[12] While in a study in Pakistan by Khan SU et al showed cure at 6 weeks in 60% of the cases with same drug.[10] The higher rate of cure at 6 weeks in china but similar result of our study with another study in Pakistan might point out toward a specific strain prevalent here as compared to China and showing similar sensitivity of the drug. Moreover this relatively earlier cure time with Itraconazole as compared to Terbinafine again confirmed the better efficacy of the drug. There was again a significant better tolerability of the drug in Group B with p value of 0.02 while in terms of side effect profile there was no statistically significant difference. (P= 0.45).

CONCLUSION

Itraconazole showed significant benefit not only in terms of cure rate but also in the time of cure and it has better tolerability as compared to terbinafine.

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