A Therapeutic Overview of Dermatophytosis

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INTRODUCTION:

Dermatophytosis is the most prevalent superficial fungal infection in India. These fungi, also known as dermatophytes attacks the keratinized tissues within the skin and its appendages. Itchy, scaly and erythematous lesions which are ring-shaped with a clear centre are the characteristic manifestations of these tinea infections.

Based on the anatomical region affected they are classified into tinea capitis (scalp), tinea faciei (face), tinea barbae (beard area), tinea corporis (body), tinea manuum(hand), tinea cruris (groin), tinea pedis (foot) and tinea unguium(nail). Diagnosis can be confirmed by KOH microscopy, cultures and biopsy.

Severity and extensiveness of skin lesions determines therapy. Topical antifungals are used to treat mild cases whereas systemic antifungals for severe infections or in those unresponsive to the former.

In the recent years, the clinical presentation of these tinea infections have changed owing to the easy availability of steroidal creams.

REVIEW OF LITERATURE

1) TINEA CAPITIS:

As it effects the hair follicles and the scalp, oral therapy is recommended. It is more prevalent among children, post-menopausal women and immunosuppressed individuals. Griseofulvin is the drug of choice in tinea capitis given at 500mg/day for 8 weeks with an efficacy 88-100%. Terbinafine is another antifungal used in children above 2 years for 4 weeks at 250mg. Their increased acceptance is owed to good absorption and safe application.

Azoles are the least preferred class with no regulatory approval in children. Pulse therapy is advocated for Itraconazole and Fluconazole as a series of doses for a week and then laying it off for 2-3 weeks. The former is effective and is observed to have better compliance in children. Steroids in particular Prednisone is used for severe cases with kerion to reduce scarring. It may be taken for two weeks at 1mg/kg/day. Selenium sulphide, ciclopirox, zinc pyrithrone or ketoconazole containing shampoos may be used adjunctively. Regular cleaning of personal items with bleach or sodium hypochlorite may be ideal.

2) TINEA FACIEI:

As the name suggests, it effects the facial region except the bearded areas. Management resembles that of T.corporis with route of therapy determined based on extensiveness.

3) TINEA BARBAE:

Tinea barbae is the fungal infection of the beard and moustache areas. The management is similar to that of T.capitis. Oral therapy is preferred for a period of 4-6 weeks. Itraconazole 100 mg daily and terbinafine 250 mg are the treatment options.

4) TINEA CORPORIS:

Topical treatment is preferred for localized infection. Azoles are the first line agents for treating T.corporis with no existent superiority among them. Allylamines (terbinafine 1% cream once or twice daily) and amorolfine may be used. Systematic therapy using terbinafine 250mg OD and itraconazole 100-200 mg/ day with a duration of minimum 2-4 weeks is effective. Various studies show that griseofulvin is less efficious in comparison to the aforementioned drugs.

5) TINEA MANUUM:

This infection involves the hands, especially the palms and interdigital areas, usually restricted to a side with hyper keratinized creases. Emollients having lactic acid and other antifungal applications can be utilized for treatment.

6) TINEA INCOGNITO:

Tinea incognito is a resultant infection of irrational use of steroid containing creams and sometimes due to calcineurin inhibitors. Hence the precipitant drug has to be removed abruptly and antifungals introduced for improvement. Drugs like terbinafine and itraconazole are commonly used in treating the condition. While griseofulvin and fluconazole are more effective but they have an increased duration of therapy.

Steroid-antifungal combinations were increasing used due to the assumption that the former inhibits fungal metabolism at higher concentrations. In practise this was not the case as only minimal concentration penetrated the skin, leading to reduced absorption. Mycological and clinical cure rates were not superior for such combinations in comparison to anti-fungal alone.

7) TINEA PEDIS

Tinea pedis is the commonest dermatophyte infection which involves in soles and interdigital foots region. Its prevalence rate is high in males than in females. The main key to prevent occurrence is moisture removal, using absorbent socks and avoidance of bare foot walking .First line agent used for treatment is topical agents with antibacterial therapy like ciclopiroxolamine , miconazole , naftifine hydrochloride. In case of uncomplicated lesions azoles , allylamines , haloprogin are also implemented. Oral therapy with griseofulvin and terbinafine is also prescribes in case of severity.

8) TINEA CRURIS.

Tinea cruris is also known as jock itch is a type of fungal infection affecting groin , pubic region and thighs. The main recommended topical treatments are azoles , allylamines , ciclopiroxolamine . study demonstrates 70% cure rates of butenafine when applied for 2 weeks . oral therapy is fixed with griseofulvin providing faster results and better cure rates at dose 500mg OD.

9) TINEA UNGUIUM

Tinea ungium commoly refers to the nail infections caused by dermatophytes. The prevalence rate is high in males than in females. Gold standard is clinical cure. Combined therapy is mostly preffered. Success rate depends on longer nail growth. Commonly used therapy are terbenafine , itraconazole and fluconazole . topical agents are continued up to 48 hrs until healty nail growth. Terbinafine 250mg taken once daily for 12 weeks is the first line treatment .

CONCLUSION

Presently , tinea infection is the very common infection in general population. It causes when fungus invades the skin causing lesions on the stratum corneum of skin , nails , hair etc. Eventhough dermatophytosis are less life threatening , they need a proper long term treatment because of the frequency of relapse. The fungal infections are characterized by erythematous , annular lesions with inflammation and central clearing. Diagnosis of dermatophytosis includes KOH microscopy , fungal culture , biopsy etc.

Dermatophytosis can be treated by both systemic and topical antifungal agents. The locality and severity of the infection will determine the type of treatment regimen to be performed. Most of the common tinea infections requires azoles class of the drugs for example itraconazole , fluconazole , miconazole , ketoconazole. While infection in nails requires systemic treatment with griseofulvin.

REFERENCE

[1] Irene Weitzman and Richard C. Summerbell. The Dermatophytes 1995: p240-259

[2] Rosemary Shy. Tinea Corporis and Tinea Capitis 2007:28(5):p164-174

[3] Amalia del Palacio, Margarita Garau, Alba Gonzalez-Escalada and M Teresa Calvo. Trends in the treatment of dermatophytosis 2000: p148-158

[4] Tom Kovitwanichkanont and Alvin H Chong. Superficial fungal infections 2019:48(10):p706-711

[5] Shishira R. Jartarkar, Anant Patil, Yaser Goldust, Clay J. Cockerell, Robert A. Schwartz, Stephan Grabbe and Mohamad Goldust. Pathogenesis, Immunology and Management of Dermatophytosis 2021: 8(1):39

[6] Subuhi Kaul, Savita Yadav and Sunil Dogra. Treatment of Dermatophytosis in Elderly, Children, and Pregnant Women 2017:8(5):p310-318

[7] Barry L. Hainer. Dermaphyte Infections 2003:67(1):p101-108

[8]Soumya Panda and Shyam Verma. The menace of dermatophytosis in India: The evidence that we need 2017:83(3):p281-284

[9] Murlidhar Rajagopalan, Arun Inamadar, Asit Mittal, Autar K. Miskeen, C.R. Srinivas, Kabir Sardana, Kiran Patel, Madhu Rengasamy, Shivaprakash Rudramurthy and Sunil Dogra. Expert Consensus on The Management of Dermatophytosis in India (ECTODERM India) 2018:18(1):6

[10] Singh et al. Treatment of fungal infections of skin in India 2020:p840-846

[11]Theodore C. White, Keisha Findley, Thomas L.Dawson Jr. , Annika Scheynius, Teun Boekhout, Christina A. Cuomo, Jun Xu and Charles W. Saunders. Fungi on the Skin: Dermatophytes and Malassezia 2014: 4(8): a019802

[12] Sang-Ha Kim, Seung-Hak Cho, Seung-Ki Youn, Je-Seop Park, Jong Tae Choi, Young-Seok Bak, Young-Bin Yu and Young Kwon Kim. Epidemiological Characterization of Skin Fungal Infections Between the Years 2006 and 2010 in Korea 2015:6(6):p341-345