

Original Research Article

The Study of Magnitude of Dermatophytes and Its Correlation with Socio-Economic Status, Inhabitant, Age, Sex, and Occupation at North West Rajasthan

Dr. Vikas Mahela.¹, Dr. R.D. Mehta.², Dr.B.C.Ghiya.³, Dr.R.A.Bumb.⁴, Dr.Prasoon Soni.⁵, Dr.Paras Choudhary.⁶, Dr Divya Sharma.⁷, Dr.Jitendra Acharya.⁸

¹Consultant Dermatologist Jaipur Rajasthan India.

²Professor & Head Department of Skin & V.D. S.P. Medical College Bikaner Rajasthan. India.

³Associate Professor Department of Skin & V.D. S.P. Medical College Bikaner Rajasthan. India.

⁴Consultant Dermatologist Bikaner Rajasthan. India.

⁵Assistant Professor Department Of Skin & V.D. S.P. Medical College Bikaner Rajasthan. India.

⁶Consultant Dermatologist Mumbai. India.

⁷Consultant Dermatologist M.C. Hospital New Delhi. India.

⁸Senior Demonstrator S.P. Medical College Bikaner Rajasthan India.

*Corresponding Author

Dr.Jitendra Acharya

Abstract: Introduction: The cutaneous mycoses, mainly caused by dermatophyte fungi, are among the most common fungal infections worldwide, affecting almost every age group and adversely affecting the quality of life of infected patients. It is estimated that superficial fungal infections affect roughly 20-25% of the world population. Peak incidence of infection is in third decade (28%). Males are commonly affected than females (4:1). **Material And Methods:** A prospective study was carried out on 150 patients of dermatophytoses attending Department of Dermatology, Venereology and Leprosy, Sardar Patel Medical College and PBM Group of Hospitals, Bikaner. The cases were diagnosed on the basis of typical clinical manifestations and confirmed by KOH mount examination and cultured on Sabouraud's Dextrose Agar in the Department of Microbiology, Sardar Patel Medical College, Bikaner. **Results:** Our study shows that as we included 150 patients of different type of Tinea after following inclusion and exclusion criteria. In our study 92 (61.33%) male and 58 (38.66%) female. Out of 150 patients, 88 (58.66%) were from rural background and 62 (41.34%) were from urban areas. **Conclusion:** In our study we conclude that male was affected more than females. Most affected patients were housewives. Most common affected age group was 15-24 years and least common affected was 55-64 years of age group. Majority of patients were from rural background.

Keywords: dermatophyte, Tinea, KOH.

INTRODUCCION

The cutaneous mycoses, mainly caused by dermatophyte fungi, are among the most common fungal infections worldwide, affecting almost every age group and adversely affecting the quality of life of infected patients (Azulay, R. D., & DR-Dermatologia, A. Z. U. L. A. Y. 2008; Peres, N. T. D. A. *et al.*, 2010).

It is estimated that superficial fungal infections affect roughly 20-25% of the world population (Havlickova, B. *et al.*, 2008). Peak incidence of infection is in third decade (28%). Males are commonly affected than females (4:1) (Bhagra, S. *et al.*, 2014). The commonest clinical type is Tinea corporis

(58.84%), followed by Tinea cruris (12.3%) (Singh, S., & Beena, P. M. 2003). Dermatophytes are the most common agents of superficial fungal infections worldwide and widespread in the developing countries, especially in the tropical and subtropical countries like India, where the environmental temperature and relative humidity are high. Other factors such as increased urbanization including the use of occlusive footwear and tight fashioned clothes, has been linked to higher prevalence (Havlickova, B. *et al.*, 2008). On the basis of ecologic habitat, dermatophytes are divided into three groups of anthropophilic microorganisms (from person to person), zoophilic microorganisms (from animal to either animal or human), and geophilic microorganisms

Quick Response Code



Journal homepage:

<http://www.easpublisher.com/easims/>

Article History

Received: 13.02.2019

Accepted: 28.02.2019

Published: 14.03.2019

Copyright © 2019: This is an open-access article distributed under the terms of the Creative Commons Attribution license which permits unrestricted use, distribution, and reproduction in any medium for non commercial use (NonCommercial, or CC-BY-NC) provided the original author and source are credited.

(transmitted from soil to animals or human) (Behzadi, P., & Behzadi, E. 2003; Baldo, A. *et al.*, 2012). Dermatophytes (literally: “skin plants”) are complex fungi growing as hyphae and forming the mycelia. They have keratinophilic and keratinolytic properties. Dermatophytes as keratinophilic fungi are able to infect keratinous tissues of skin (the stratum corneum layer), hair, and nail in human beings via their keratinase enzymes. The dermatophytoses are dermatomycoses caused by a specific group of fungi known as ringworms or tineas, comprising the genera *Microsporum*, *Trichophyton*, and *Epidermophyton* (Seebacher, C. *et al.*, 2008). Transmission of dermatophytes may occur by direct contact with infected host or animals or indirectly, by contact with contaminated fomites.

MATERIALS AND METHODS

A prospective study was carried out on 150 patients of dermatophytoses attending Department of Dermatology, Venereology and Leprosy, Sardar Patel Medical College and PBM Group of Hospitals, Bikaner. The cases were diagnosed on the basis of typical clinical manifestations and confirmed by KOH mount examination and cultured on Sabouraud’s Dextrose Agar in the Department of Microbiology, Sardar Patel Medical College, Bikaner. After confirmation, the antifungal sensitivity test was performed by using micro broth dilution method.

INCLUSION CRITERIA:

- Clinically diagnosed fresh cases of dermatophytosis in the Department of Dermatology, Venereology and Leprosy.
- Patients of either sex with age range of 15-65 years
- Patients who have not taken treatment previously for any fungal infection
- Patients who were not sero positive (HIV,HCV,HBV)

EXCLUSION CRITERIA:

- Pregnant females
- Lactating mothers
- Patients less than 15 years and more than 65 years.
- The epidemiological data was recorded in the printed Performa.

Specimen collection by skin scrapping and nail clipping

RESULTS:

Our study shows that as we included 150 patients of different type of Tinea after following inclusion and exclusion criteria. In our study 92 (61.33%) male and 58 (38.66%) female.

Out of 150 patients, 88 (58.66%) were from rural background and 62 (41.34%) were from urban areas. Age of the patients included in the study were

between 15 and 64. Forty six (30.67%) patients were in 15 to 24 years of age group, 37 (24.67%) were in 25 to 34 years of age group, 33 (22%) in 35 to 44 age group, 20 (13.33%) were in 45 to 54 years of age group and 14 (9.33%) were in 55 to 64 years age group. Maximum number of patients were in the age group of 15 to 24 years. Out of 150 patients, 35 (23.33%) were housewives, followed by students which were 30 (20%) in number. Twenty four (16%) patients were farmer, 17 (11.33) were labourer, 15 (10%) were involved in private job and 12 (8%) in government job. Six patients (4%) were driver and 6 (4%) were shopkeeper.

Maximum number of patients affected were having Tinea unguis (29.33%) followed by Tinea corporis and cruris (20.67%). Tinea capitis (2%) and barbae (2%) was seen in 3 patients each.

Most common species isolated was *T. mentagrophyte* in 42 (41.18%) patients, followed by *T. rubrum* in 29 (28.34), *T. interdigitalis* in 18 (17.65%) patients, *M. gypseum* (4.90), *M. manum* (3.92%) and *T. verrucosum* (3.92%) in 5, 4 and 4 patients respectively.

TABLE 1 SEX DISTRIBUTION OF PATIENTS

SEX	NO.	Percentage (%)
MALE	92	61.33
FEMALE	58	38.66

TABLE 2 DISTRIBUTIONS OF PATIENTS ACCORDING TO LOCALITY

LOCALITY	NO.	Percentage (%)
RURAL	88	58.66
URBAN	62	41.34

TABLE 3 AGE WISE DISTRIBUTION OF PATIENTS

AGE	NO.	Percentage (%)
15-24	46	30.67
25-34	37	24.67
35-44	33	22.00
45-54	20	13.33
55-64	14	9.33

TABLE 4 DISTRIBUTIONS OF PATIENTS ACCORDING TO OCCUPATION

OCCUPATION	NO.	Percentage (%)
HOUSEWIFE	35	23.33
SHOPKEEPER	6	4.00
LABOURER	17	11.33
FARMER	24	16.00
STUDENT	30	20.00
GOVT. JOB	12	8.00
PRIVATE JOB	15	10.00
DRIVER	6	4.00
OTHERS	5	3.33

TABLE 5 PREVELANCE OF TYPE OF FUNGUS

TYPE OF FUNGUS	NO.	%
TINEA CORPORIS	31	20.67
TINEA CRURIS	15	10.00
TINEA CORPORIS AND CRURIS	35	23.33
TINEA CAPITIS	03	2.00
TINEA BARBAE	03	2.00
TINEA FACIEI	10	6.67
TINEA PEDIS	04	2.67
TINEA UNGUIUM	44	29.33
TINEA MANUM	05	3.33

DISCUSSION

The present study was conducted in an attempt to determine etiological agent, age, sex and occupational incidence, mycological pattern and antifungal sensitivity of dermatophytes in clinically suspected cases of dermatophytosis attending the Outpatient Department of Dermatology, Venereology and Leprosy of Sardar Patel Medical College & PBM Group of Hospitals, Bikaner over a period of 18 months from April 2015 to September 2016.

In the present study, 61.33% (92 out of 150) patients were male and 38.66% (58 out of 150) were female. The result is similar with the studies done by Suman Singh *et al.*, Bhagra S *et al.*, Poluri LV *et al.*, (2015), Aruna Vyas *et al.*, (2013), Vikesh Kumar Bhatia *et al.*, (2014) , H. Krishna Santosh *et al.*, (2015) and Hiral K Patel *et al.*, (2016). In one study conducted by Carla Andrea Avelar Pires *et al.*, (2014), it was found that females (61.4%) were more affected than males.

Our observation is similar to Grover, S., & Roy, P. (2003), Aruna Agrawal *et al.*, (2002), Mishra *et al.*, (1998), Nawal *et al.*, (2012), Parul *et al.*, (2010), V Bindu *et al.*, (2002) and Bhavsar H *et al.*, (2012). Once again the predisposing factor put more impact in working age group rather than the relatively sedentary age groups.

In our study, most affected patients were housewives (23.33%). The above observation is similar with the study conducted by Carla Andrea Avelar Pires *et al.*,

The majority of patients were from rural background (58.66%). Majority of patients and parents of infected children were involved in farming and other labour activities, thus exposing them to environmental predisposing factors, fomites interplay, crowded inhabitats and poor personal hygiene etc. The result is similar with Aruna Vyas *et al.*,

CONCLUSION

In our study we conclude that male was affected more than females. Most affected patients were housewives. Most common affected age group was 15-24 years and least common affected was 55-64 years of

age group Majority of patients were from rural background. In our study, most common species isolated was T.mentagrophytes. Patients' poor hygiene, fomites, environmental factors or compliance-adherence issue may contribute to the alarming scenario.

REFERENCES:

1. Azulay, R. D., & DR-Dermatologia, A. Z. U. L. A. Y. (2008). Rio de Janeiro: Guanabara Koogan.
2. Peres, N. T. D. A., Maranhão, F. C. A., Rossi, A., & Martinez-Rossi, N. M. (2010). Dermatophytes: host-pathogen interaction and antifungal resistance. *Anais brasileiros de dermatologia*, 85(5), 657-667.
3. Havlickova, B., Czaika, V. A., & Friedrich, M. (2008). Epidemiological trends in skin mycoses worldwide. *Mycoses*, 51, 2-15.
4. Bhagra, S., Ganju, S. A., Kanga, A., Sharma, N. L., & Guleria, R. C. (2014). Mycological pattern of dermatophytosis in and around Shimla hills. *Indian journal of dermatology*, 59(3), 268.
5. Singh, S., & Beena, P. M. (2003). Profile of dermatophyte infections in Baroda. *Indian Journal of Dermatology, Venereology, and Leprology*, 69(4), 281.
6. Havlickova, B., Czaika, V. A., & Friedrich, M. (2008). Epidemiological trends in skin mycoses worldwide. *Mycoses*, 51, 2-15.
7. Behzadi, P., & Behzadi, E. (2003). Medical mycology and the methods of laboratory diagnosis of pathogenic dermatophyte fungi. *Kamal-e-Danesh, Tehran*, 17-18.
8. Baldo, A., Monod, M., Mathy, A., Cambier, L., Bagut, E. T., Defaweux, V., ... & Mignon, B. (2012). Mechanisms of skin adherence and invasion by dermatophytes. *Mycoses*, 55(3), 218-223.
9. Seebacher, C., Bouchara, J. P., & Mignon, B. (2008). Updates on the epidemiology of dermatophyte infections. *Mycopathologia*, 166(5-6), 335-352.
10. Poluri, L., Indugula, J., & Kondapaneni, S. (2015). Clinicomycological study of dermatophytosis in South India. *J Lab Physicians* 7: 84.
11. Vyas, A., Pathan, N., Sharma, R., & Vyas, L. (2013). Clinicomycological Study of Cutaneous Mycoses in Sawai Man Singh Hospital of Jaipur, North India. *Annals of medical and health sciences research*, 3(3), 593-597.
12. Bhatia, V. K., & Sharma, P. C. (2014). Epidemiological studies on dermatophytosis in human patients in Himachal Pradesh, India. *Springerplus*, 3(1), 134.
13. Santosh, H. K., Jithendra, K., Rao, A. V. M., Buchineni, M., & Pathapati, R. M. (2015). Clinico-Mycological Study of Dermatophytosis Our Experience. *Int. J. Curr. Microbiol. App. Sci*, 4(7), 695-702.

14. Patel, H. K., Patel, P. H., & Nerurkar, A. B. (2016). A Study of Superficial Mycoses with its Clinical Correlation at GMERS Medical College & Hospital Valsad, Gujarat. *Indian Journal of Microbiology Research*, 3(1), 69-73.
15. Pires, C. A. A., Cruz, N. F. S. D., Lobato, A. M., Sousa, P. O. D., Carneiro, F. R. O., & Mendes, A. M. D. (2014). Clinical, epidemiological, and therapeutic profile of dermatophytosis. *Anais brasileiros de dermatologia*, 89(2), 259-264.
16. Grover, S., & Roy, P. (2003). Clinico-mycological profile of superficial mycosis in a hospital in North-East India. *Medical Journal Armed Forces India*, 59(2), 114-116.
17. Aruna, A., Usha, A., & Saroj, K. (2002). Clinical and mycological study of superficial mycoses in Amritsar. *Indian Journal of Dermatology*, 47(4), 218-220.
18. Mishra, M., Mishra, S., Singh, P. C., & Mishra, B. C. (1998). Clinico-mycological profile of superficial mycoses. *Indian Journal of Dermatology, Venereology, and Leprology*, 64(6), 283.
19. Nawal, P., Patel, S., Patel, M., Soni, S., & Khandelwal, N. (2012). A study of superficial mycoses in tertiary care hospital. *age*, 6, 11.
20. Patel, P., Mulla, S., Patel, D., & Shrimali, G. (2010). A study of superficial mycosis in south Gujarat region. *Natl J Commun Med*, 1(2), 85-88.
21. Bindu, V., & Pavithran, K. (2002). Clinico-mycological study of dermatophytosis in Calicut. *Indian Journal of Dermatology, Venereology, and Leprology*, 68(5), 259.
22. Bhavsar Hitendra, K., Modi Dhara, J., Sood Nidhi, K., & Shah Hetal, S. (2012). A study of superficial mycoses with clinical mycological profile in tertiary care hospital in Ahmedabad, Gujarat. *Nat. J. Med. Res*, 2(2), 160-164.