International Journal of Multidisciplinary Research and Development 2014; 1(5): 26-28

International Journal of Multidisciplinary Research and Development

IJMRD 2014; 1(5): 26-28
www.allsubjectjournal.com
Received: 22-09-2014
Accepted: 02-10-2014
e-ISSN: 2349-4182
p-ISSN: 2349-5979

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Prevalance of trichophyton mentagrophyte infection in Diabetic and Non-Diabetic patients

Dinesh Kaliyamoorthi

Abstract
Background
Diabetes mellitus is the most common endocrine disorder and takes on pandemic proportions. Dermatophytosis remains a significant public health problem. The objective of the study was to study the prevalence of *Trichophyton mentagrophyte* infection among diabetic and non- diabetic patients.

Materials and methods
It is a cross sectional study conducted during July 2011 to July 2012. All clinically diagnosed cases of dermatophytosis attending the Dermatology OPD of were included in the study. Among those 40 diabetic and 40 non diabetic Patients were included. Clinical materials were collected from the patients suffering from various types of dermatophytoses and processed according to standard protocols.

Result
Among the eighty samples 15 samples showed positive for *Trichophyton mentagrophyte* in both direct microscopy and culture (18.75%) from both diabetic and non-diabetic population. Among the diabetic patients 7 were positive for *T. rubrum* (18.75%) which includes 5 male patients (16.25%) and 2 female patients (2.5%). In non-diabetic patients 8 patients were positive for *T. rubrum* (10%) which includes 2 male (2.5%) and 6 female patients (7.5%).

Conclusion
The percentage of *Trichophyton mentagrophyte* isolated from non-diabetic patients (10%) is higher when compared to diabetic patients (8.75%) in our hospital in Chennai.

Keywords: *Trichophyton mentagrophyte*, Diabetic patients, Non-diabetic patients.

1. Introduction
Diabetes mellitus is the most common endocrine disorder and takes on pandemic proportions. Worldwide, over 246 million people suffer from the disease in 2007 and estimates for 2025 are depicted at a total of 380 million patients [1]. It is very unfortunate that India tops the list in diabetic population. World health organisation (WHO) estimates the diabetic population in India in 2000 is 31.7 million and in 2030 it is likely to rise to 79.4 million[2].

A wide variety of cutaneous infections in man are present worldwide in which the integuments and its appendages, the hair and the nail are involved. Majority of the infections are caused by a homogenous group of keratophilic fungus called the dermatophytes. Dermatophytes are fungi that can cause infections of the skin, hair and nails due to their ability to utilize keratin. The fungi are the commonest infective agent of man and no group of people or geographical areas are without tinea or ringworm infection (tinea-latin for worm). Occasionally the organisms do invade the subcutaneous tissues, resulting in kerion development. The organisms are transmitted by either, direct contact with infected host (human or animal) or by Direct or indirect contact with infected exfoliated skin or hair in combs, hair brushes, clothing, furniture, theatre seats, caps, bed linens, towels, hotel rugs and locker room floors.

Skin manifestations in diabetes mellitus are common and expressed in numerous forms. If one considers metabolic effects on microcirculation and changes in skin collagen, prevalence approaches 100%. The findings range from the presenting manifestations of the disease to signs of long term involvement, and serious or even life threatening problems. For all of these, recognition is the key to treatment and/or prevention [3].

Non-diabetic patients are also prone to dermatophytic infection because of their poor hygiene in low socio-economic group and the environment they live in also plays as an etiological cause. The common dermatophytes encountered in non-diabetic patients are *T. rubrum*, *T. mentagrophyte*, and *M. gypseum*.

Superficial fungal infections of the foot (tinea pedis and onychomycosis) are common among elderly patients. Although most authorities believe that patients with diabetes mellitus have an increased predisposition to dermatophytic infections, some controversies still remain. Because these infections disrupt the skin integrity and provide an avenue for bacterial super-infection, elderly diabetic patients with dermatophytic infection should be promptly treated with an antifungal agent. For most dermatophytic infections of the foot, topical agents are usually effective and less expensive than oral agents [4].

Recent studies show greater incidence of skin infections in diabetic patients. Incidence of skin infections in diabetic patients ranges from 20-50%, [5] mostly in type 2 diabetes mellitus and often associated with poor glycemic control [6]. Infections constitute the main bulk of cutaneous manifestations of diabetes mellitus [7]. With this background, the objective of the study was to study the prevalence of *Trichophyton mentagrophyte* infections among diabetic and non- diabetic patients.

2. Materials & Methods

This was a cross sectional study conducted during July 2011 to July 2012. All clinically diagnosed cases of dermatophytosis attending the dermatology OPD were included in the study. Among the subjects 40 diabetic and 40 non diabetic patients were included.

The inclusion criteria considered for the studies were; 1" patients with type 1 and type 2 diabetes; 2". Normal individuals without diabetes; 3". age limit is more than 40 years of age; and 4" both male and female patients. Whereas, the exclusion criteria were; patients below 40 years of age, and patients using antifungal treatment for >3 weeks.

Sterilized equipments were used to collect the samples (skin scrapings, nail clippings & hair) every time to avoid contamination by non-pathogenic fungi and bacteria. Direct microscopy, culture of the samples (on Sabourauds dextrose agar- SDA), and identification of the etiologic agents were carried out according to a standard methodology.

3. Results

A total of 80 cases of various types of dermatophytes were studied, diagnosed clinically and confirmed by culture and other tests. Patients who were above 40 years were taken, which includes both male and female. Among these, 40 patients belong to diabetic population, 18 females and 22 males were included and 40 patients belong to non-diabetic population which includes 21 females and 19 males.

Trichophyton mentagrophyte

Totally 15 patients were infected with 17.5% of incidence among both diabetic and non-diabetic patients.

Table 1: The incidence of *Trichophyton mentagrophyte* among both diabetic and non-diabetics.

SEX	DIABETIC	NON DIABETIC
MALE	5	2
FEMALE	2	6
RATIO	2.5:1	3:1

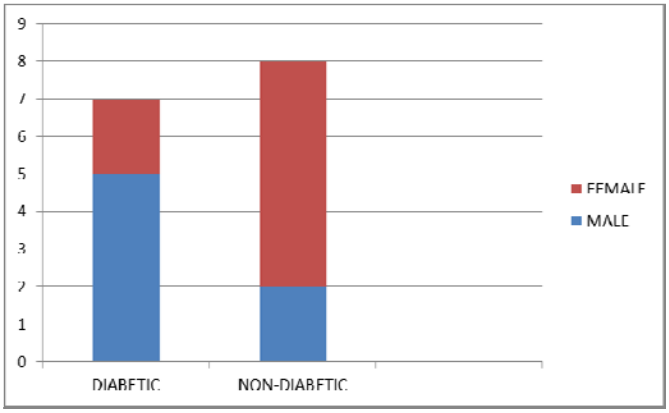

Fig 1: Incidence of *Trichophyton rubrum* among both diabetic and non-diabetics.

4. Conclusion

Totally 15 isolates of *T. mentagrophyte* were isolated from 80 patients. Among these 7 patients were diabetic and 8 were non-diabetic patients. *T. mentagrophyte* is the second most commonly isolated to *T. rubrum* this is confirmed by the studies of Urmil Mohan *et al*. There were 5 males and 2 females among the diabetic patients and 2 males and 6 females among non-diabetic patients. *T. mentagrophyte* var. *T. mentagrophyte* is the zoophilic form of *T. mentagrophytes* with a worldwide distribution and a wide range of animal hosts including mice, guinea pigs, kangaroos, cats, horses, sheep and rabbits. This is the reason for lower incidence of *T. mentagrophyte* as they are found more common in animals than the humans.

5. References

1. van Houtum WH. 5th International symposium on the diabetic foot. Diabetes Metab Res Rev. 2008; 24(Suppl 1): S1-S2.
2. Wilds Roglic G, Green A, Sinee R, King H. Global prevalence of diabetes estimate for the year 2000 and projections for 2030. Diabetes care 2004; 27:1047-1053.
3. Art huntly, Rhett Drugee. The Electronic textbook of Dermatology: Diabetes in Skin infection.
4. Tan JS, Joseph WS. Common fungal infections of the feet in patients with diabetes mellitus. Department of Internal Medicine, Northeastern Ohio Universities College of Medicine, Ohio, USA. Foot Fungus in Diabetics: Drugs Aging 2004; 21(2):101-12.
5. Hattemn SV, Boots MA, Thio HB. Skin manifestations of diabetes. Cleveland Clin J Med 2008; 75:772-87.
6. Nigham PK, Pande S. Pattern of dermatoses in diabetics. Indian J Dermatol Venereol Leprol 2003;

69:83-5.
7. Mahajan S, Koranne RV, Sharma SK. Cutaneous manifestation of diabetes mellitus. Indian J Dermatol Venereol Leprol 2003; 69:105-8.
8. A Study of prevalence of dermatophytes in north Chennai and a profile of their antifungal susceptibility pattern by Suganthi 2006.
9. Chuku Aleruchi, Makinde Adesoji A, Ta'ama Louisa, Dalis James, Shaibu Samson J and Irokanulo *et al* Afr. J. Cln. Exper. Microbiol 2012; 13(2):84-89.
10. Samraj D, Kamalam A, Thambiah AS. Dermatophytosis and mycotic keratitis. Indian J Ophthalmol 1980; 28(2)61-62.
11. Nwadiaro, PO. Incidence of dermatophytes infections amongst some occupational and select groups in JOS. Afr. J. Clin. Exp. Microbiol (AJCEMI200207SI2314) 2003; 4(2).
12. Weinstein A, Berman B. Topical treatment of common superficial tinea infections. Am Fam Physician 2002; 65:2095-2102.
13. Merlin K, Kilkenny M, Plunkett A, Marks R. The prevalence of common skin conditions in Australian school students: 4 Tinea pedis. Br J Dermatol. 1999; 140(5):897-901.