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Original Research Article

Dermatophytosis: clinical profile and association between socio-demographic factors and duration of infection

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ABSTRACT

Background: Dermatophytes are fungi that break down keratin of the stratum corneum and grow. They cause superficial infections of the skin, hair, and nail that are referred to as tinea infections. This study aims to assess the socio-demographic factors and clinical profile of subjects with dermatophytic infections and their impact on the duration of the illness.
Methods: 200 random subjects with dermatophytic infections were enrolled and assessed clinically.
Results: There was significant association between duration of infection with age, diabetes, living condition and personal factors.
Conclusions: The impact of age, diabetes, living condition and personal factors on susceptibility to and duration of dermatophytic infections was elucidated.

Keywords: Epidemiology, Dermatophytosis, Diabetes

INTRODUCTION

Dermatophytes are fungi that break down keratin of the stratum corneum and grow. They cause superficial infections of the skin, hair, and nail that are referred to as tinea infections. The clinical expression of this dermatophytosis depends on the site, organism and host response.[1]

In patients with dermatophytosis, physical examination may reveal a characteristic pattern of inflammation, termed an "active" border. The inflammatory response is usually characterized by a greater degree of redness and scaling at the edge of the lesion or, occasionally, blister formation. *Tinea cruris*, frequently called "Jock itch," is a dermatophyte infection of the groin. This dermatophytosis is more common in men than in women. *Tinea corporis*, or ringworm, typically appears as single or multiple lesions with varying degrees of itching. Previous topical corticosteroid use can alter the the lesions, cause a deep follicular tinea infection.[2]

In the infectious process, dermatophytes must overcome the host's innate defense mechanisms, the initial protection of the organism againts infections, so that tissue colonization occurs. The physical and chemical structure of the skin, constant exposure to ultraviolet light, temperature, lack of humidity, and the presence of normal microbiota all play a role in defense against dermatophytic infections.[3] Various personal and sociodemographic factors alter these defense mechanisms.

This study aims to assess the socio-demographic factors and clinical profile of subjects with dermatophytic infections and their impact on the duration of the illness.

METHODS

The study was carried in the dermatology OPD of Meenakshi Medical College, Kanchipuram over duration of 6 months from June 2016 to November 2016.

Subjects clinically diagnosed to have dermatophytic infections were enrolled to the study following written and oral consent. 200 random subjects with dermatophytic infections were enrolled in the study.

Demographic data (age, sex, occupation, socioeconomic status, living condition, personal factor, overcrowding, familial infection, diabetes) and clinical assessment (itching, duration of illness, previous treatment, sites of lesion, inflammation, pigmentation) of the subjects were done.

Statistics

This is a descriptive observational cross sectional study. Data was analysed using IBM SPSS statistics software version 24.

RESULTS

In the study majority of the subjects were in the age group 20 to 40 years, 56% were males, 54.5% were manual laborers, 50% belonged to lower class, 76.5% were residing at home, 50% had poor personal hygiene, 45.5% were living in overcrowding place or home, 40% had familial infection and 30.5% had history of diabetes (Table 1).

On history and examination it was observed that 79.5% had itching, 81% had infection for <6 months, 44% were on topical steroids, 30% on other forms of treatment (AYUSH), most common site of lesion was *Tinea Cruris*, 77.5% had signs of inflammation and 43% had pigmentation (Table 2).

On comparing duration of infection with various socio demographic factors, it was observed that there was significant association between duration of infection with age, H/o diabetes, living condition and personal factors. I.e. Subjects with chronic infection were majority in the age group of >50 years, subjects with diabetes had 100% H/o of chronic infection, majority living at home and with poor personal hygiene had chronic infection (Table 3).

Table 1: Profile of subjects in the study: socio-demographic details.

Variables		Count	Percentage
Age	<20 years	23	11.50%
	21 to 30 years	56	28.00%
	31 to 40 years	52	26.00%
	41 to 50 years	29	14.50%
	51 to 60 years	27	13.50%
	>60 years	13	6.50%
Sex	Female	88	44.00%
	Male	112	56.00%
Occupation	Manual Labour	109	54.50%
	Professional	50	25.00%
	Others	41	41.00%
Socioeconomic status	Lower class	100	50.00%
	Middle class	80	40.00%
	Upper class	20	10.00%
Living condition	Hostel	47	23.50%
	Home	153	76.50%
Personal factor	Sharing clothes	70	35.00%
	Poor personal hygiene	100	50.00%
	None	30	15.00%
Over crowding	Yes	91	45.50%
	No	109	54.50%
Familial infection	Yes	80	40.00%
	No	120	60.00%
Diabetes	Yes	61	30.50%
	No	139	69.50%

Table 2: Clinical profile of subjects in the study.

Variables		Count	Percentage
Itching	Yes	159	79.5%
	No	41	20.5%
Duration	<6 months	162	81.0%
	>6 months	38	19.0%
Previous treatment	Topical steroids	88	44.0%
	None	52	26.0%
	Others	60	30.0%
Sites of lesion	Tinea Cruris	82	41.0%
	Tinea Corporis	62	31.0%
	Multiple sites	56	28.0%
Inflammation	Yes	155	77.5%
	No	45	22.5%
Pigmentation	Yes	86	43.0%
	No	114	57.0%

Table 3: Association between duration of lesion with socio demographic factors.

Variables		Duration			
		<6 months		>6 months	
		Count	Percentage	Count	Percentage
Age	<20 years	23	14.2%	0	0.0%
	21 to 30 years	53	32.7%	3	7.9%
	31 to 40 years	44	27.2%	8	21.1%
	41 to 50 years	22	13.6%	7	18.4%
	51 to 60 years	14	8.6%	13	34.2%
	>60 years	6	3.7%	7	18.4%
Sex	Female	70	43.2%	18	47.4%
	Male	92	56.8%	20	52.6%
Diabetes	Yes	23	14.2%	38	100.0%
	No	139	85.8%	0	0.0%
Socioeconomic status	Lower class	80	49.4%	20	52.6%
	Middle class	67	41.4%	13	34.2%
	Upper class	15	9.3%	5	13.2%
Living condition	Hostel	45	27.8%	2	5.3%
	Home	117	72.2%	36	94.7%
Personal factor	Sharing clothes	65	40.1%	5	13.2%
	Poor Personal Hygiene	72	44.4%	28	73.7%
	None	25	15.4%	5	13.2%
Over crowding	Yes	73	45.1%	18	47.4%
	No	89	54.9%	20	52.6%
Familial infection	Yes	68	42.0%	12	31.6%
	No	94	58.0%	26	68.4%

DISCUSSION

In our study it was observed that a significant portion (30.5% in dermatophytosis vs 10% in general population) of the subjects were diabetics. This was higher than seen in some studies which still showed higher prevalence than the general population.[4] However some studies have shown dermatophysis subjects to less likely be diabetic than the general population.[5] Our study also shows that diabetes also increases the risk for more chronic dermatophytosis. The increase in susceptibility to and duration of fungal infections among diabetics as observed in our study is due to alteration in host immune response to fungal infections.[6]

Dermatophytosis was most common in the 20-40 age group with age also shown to have a significant impact on the duration of illness. While some studies supported our findings other studies show a higher incidence of dermatophytosis in the 51-60 age group.[5,7,8] More focused studies on this aspect will reveal if this is due to regional

variation or possibly due to confounding factors we may have over looked.

Dermatophytosis was more common in people living in their own homes, manual labourers, and people in lower socioeconomic groups. Living conditions, personal factors also increased the duration of dermatophytosis. This was similar to other studies which analyzed this aspect[5]. The increased perspiration and lowered hygienic standards is expected to lead to increased susceptibility to fungal infections.

CONCLUSION

The impact of age, diabetes, living condition and personal factors on susceptibility to and duration of dermatophytic infections was elucidated. Dermatophytosis subjects were more likely to be diabetics. Subjects in the 20-40 age groups were more predisposed to develop dermatophytosis. Manual labour, poor living conditions, hygiene and sanitation had an impact on development of sanitation.

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