

Frequency of pityriasis versicolor in diabetic patients attending a tertiary care hospital

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Abstract *Objective* To determine the frequency of pityriasis versicolor (PV) in uncontrolled diabetes patients attending a tertiary care hospital.

Methods This descriptive, cross-sectional study was conducted in the Dermatology Department, Civil Hospital, Karachi and Diabetic OPD Civil Hospital, Karachi. Diabetic patients of ages 40-70 years, of either gender who presented in OPD were selected for study. Only those patients whose random blood sugar (RBS) was more than 200 mg/dl and whose duration of diabetes was more than 5 years were included in study. Patients who were taking corticosteroids or immunosuppressive drug were excluded from study. 119 patients were enrolled in study. Patients were examined for PV and skin scrapings were taken for microscopy.

Results PV was detected in 5 out of 119 (4.2%) patients. Males were found to be affected more than females. There was no association between PV and duration of diabetes.

Conclusion Pityriasis versicolor is not very common in diabetic patients.

Key words

Pityriasis versicolor, tinea versicolor, diabetes mellitus type 2.

Introduction

Pityriasis versicolor (PV) also known as tinea versicolor is a superficial chronically recurring fungal infection of stratum corneum, characterized by scaly, dyspigmented, irregular macules most often occurring on trunk and extremities.¹ The causative organism is a lipophilic yeast *Malassezia globosa*.² Environmental factors and individual host susceptibility are usually blamed for occurrence of PV. Causative factors are warm climates, steroid treated patients, those with Cushing's disease or undergoing immunosuppression for renal transplantation, and persons who are severely malnourished and patients with uncontrolled diabetes.³ PV is more common in adults than in children,

perhaps because of the greater activity of the sebaceous glands in adults.⁴ In tropical countries, the condition is more common than in temperate zones and as many as 40% of the population may be affected.¹

Diabetes mellitus (DM) is a clinical syndrome of chronic and degenerative course caused by a disorder in insulin secretion and/or action which results in metabolic changes, especially high blood glucose.³ With an estimated 60 million people worldwide, all populations and age groups are affected by DM.⁵ DM is associated with complications involving all systems of the body, including neuropathy, retinopathy, renal disease, cardiovascular disease and infections. Generally, diabetic patients are more susceptible to skin infections (62.2%).⁶ Although the overall incidence of skin fungal infection in diabetics is not higher as compared with healthy population, diabetics seem to suffer from certain types of fungal infections more frequently.⁷

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As DM is very common and diabetic patients are more susceptible to fungal infections, the frequency of PV in diabetic patients is thought to be high but very little work has been done on this topic in our country.

Methods

This study was conducted in patients attending dermatology department and diabetes OPD Civil Hospital, Karachi. Study was done in 6 months period from 1st May 2010 to 31st October 2010. Study was conducted on 119 diabetic patients collected by non-probability consecutive sampling technique.

Inclusion criteria were age: 40-70 years, either gender, patients with uncontrolled type II diabetes mellitus of duration more than 5 years. Patients taking corticosteroid and immunosuppressive drugs for any other disease were excluded.

All registered patients fulfilling the inclusion criteria were included in the study. After informed consent, proforma were filled in OPD. History regarding identification of patient, age, sex, and duration of diabetes was taken. Patients were examined with magnifying glass and Wood's lamp for lesions of PV, scaling, colour, yellowish fluorescence and distribution of lesions were noted. In all clinically diagnosed cases of PV scrapings were taken for microscopy with KOH, in which fungi appears as short, thick hyphae with a large number of variously sized spores (spaghetti and meat-ball appearance). This is diagnostic of PV.

SPSS-version 10 was used to analyze data. Variables included were presence or absence of PV, age, sex, and duration of diabetes. Frequency and percentage were computed for sex and presence or absence of PV. Mean and standard deviation were computed for age and duration of diabetes.

Effect modifiers were controlled through stratification of age (in groups of 1. 40 year-50 year, 2. 51-60 year, 3. 61-70 year), gender (male and female) and duration of diabetes (5-10 year, 11-15 year and more than 15 year) to observe effect on outcome.

Results

A total of 119 patients with type 2 diabetes mellitus, who fulfilled the inclusion criteria, were included in this study. The mean age of patients was 51.32 ± 7.96 years. Subjects were divided into the different age groups i.e. 40-50 years, 51-60 years and >60 years. It was found that 68 (57.1%) patients were in 40-50 year group, 39 (32.8%) patients were in 51-60 year group and 12 (10.1%) patients were in 61-70 year group.

Out of 119 patients, there were 68 (57.1%) male and 51 (42.9%) were female patients.

In 72 (62.2%) patients the duration of diabetes mellitus from the date of diagnosis was within 5-10 years, 26 (21.8%) patients duration of DM was within 11-15 years while in 19 (16%) patients duration of DM was more than 15 years.

Out of 119 patients 5 (4.2%) had PV while remaining 114 (95.8%) patients did not have disease. Out of these 5 patients, 3 were males and 2 were females. 3 patients had diabetes since 5-10 years and 2 had diabetes since 11-15 years while those patients who had diabetes since more than 15 years, none had PV **Table 2**.

According to age, in 40-50 years age group 2 patients had PV, in 51-60 year age group 2 patients and in 61-70 year age group 1 patient had PV **Table 3**.

Table 1. Gender wise distribution of pityriasis versicolor (n=119).

Gender	Pityriasis versicolor		Total
	Present	Absent	
Female	2	49	51
Male	3	65	68
Total	5	114	119

Table 2 Presence of pityriasis versicolor according to duration of diabetes (n=119).

Duration of disease (years)	Pityriasis versicolor		Total
	Present	Absent	
5-10	3	71	74
11-15	2	24	26
>15	0	19	19
Total	5	114	119

Table 3 Presence of pityriasis versicolor in different age groups (n=119).

Age of patients (years)	Pityriasis versicolor		Total
	Present	Absent	
40-50	2	66	68
51-60	2	37	39
61-70	1	11	12
Total	5	114	119

Discussion

Pityriasis versicolor (tinea versicolor) is a superficial fungal infection of the skin, appearing most commonly on the upper trunk, as well as on the upper arms, neck and face.⁸ PV is caused by *Malassezia* species which are lipophilic yeasts and are considered part of the normal flora of the skin, being particularly common on the scalp, face and trunk.⁹ Some triggering or aggravating factors have been described, although what induces transformation of the saprophytic yeast form to the parasitic mycelial form remains subject to debate. Iatrogenic factors, such as treatment with systemic or immunosuppressive corticosteroids, could also be involved. In general, local factors seem to predominate in the pathogenesis of this disease, such as high temperatures, the degree of humidity and occlusion produced by clothing, which combine with the individual derived changes in sebum composition. These factors would induce changes in the yeasts to develop mycelium and transform to the parasitic form.¹⁰

DM is a clinical syndrome of chronic and degenerative course caused by a disorder in insulin secretion and/or action which results in metabolic changes, especially high blood glucose.³ Infections in DM patients have a more severe clinical course and are one of the most commonly seen chronic complications of DM. The causes of increased infection susceptibility in these patients are not yet clear. Previous studies have suggested a possible immune response abnormality specific to DM and role of macro- and microangiopathy and/or diabetic neuropathy. Superficial mycoses are considered to affect more frequently patients with type 2 diabetes mellitus, especially onychomycosis and tinea pedis. This study was conducted to measure the frequency of PV in type 2 diabetic patients presenting in tertiary care hospital.

In our study out of 119 patients, only 5 (4.2%) patients were found to have PV while remaining 114 patients did not show any sign of pityriasis versicolor. These results are comparable with that by Foss *et al.*³ showing PV in 5.2% patients among diabetics. In one study out of 110 PV patients 2.73% were diabetic.¹ The disease was detected in 8 of 238 (3.3%) patients with type 1 diabetes of more than 5 years duration in study conducted by Yosipovitch *et al.*¹¹

However, other studies showed different results from ours. Of the 200 patients with diabetes mellitus seen in the in- and outpatient clinic in Raipur, Rajasthan, a total of 122 (61%) patients had some associated cutaneous diseases: the fungal infections being tinea cruris, which was present in 7 cases, followed by tinea corporis and tinea unguium in 3 cases each. *Trichophyton rubrum* was the most frequently isolated agent, present in 11 cases. Monilial infection was seen in 9 cases, but none had PV.¹² Among 100 consecutive diabetes mellitus patients attending the diabetic clinic of a hospital in New Delhi,

fungal infections were seen in 21, dermatophytoses in 11, and candidiasis in 10 and not a single case with PV was detected.¹³ In another 100 diabetic patients from Jammu, India, candidal and dermatophytic infections were seen in 10% and 8%, respectively but not a single case of PV detected.¹⁴

These differences in results in ours and above studies may be because of difference in sampling technique, control of diabetes, and difference in inclusion criteria.

Age is considered one of the most important factors in PV, it mainly affect young subjects. According to a study by Karakas *et al.*¹⁵ age groups mainly affected by PV were those whose ages ranged 16-30 years (51.5%), 31-45 years (28.9%), 46-60 years (8.3%) and no patients in >60 years age group. In our study there was no significant difference observed in frequency of PV in different age groups, because our study population was in 40-70 year of age group.

In the present study, out of 5 PV cases, there were 3 males were and 2 females. In a study by Nigam¹² more males were affected by fungal infections than females. In study by Kyriakis *et al.*¹⁶ men had higher prevalence rates than women. This trend might be attributed to the higher rates of male population exposure to physical exercise and/or manual working.

Duration of disease in diabetics also affects the development of complications but in our study duration of diabetes mellitus had no effect on the frequency of PV. Various other studies also report no statistical correlation among superficial mycoses and the duration of diabetes.^{3,17}

Conclusion

It is concluded that pityriasis versicolor is not very common in type 2 diabetes mellitus patients as it was thought before.

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