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Research Article

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Study on cutaneous manifestation among type II diabetes mellitus in rural Pondicherry, India

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ABSTRACT

Background: Diabetes has emerged as a major public health care problem in India. According to Diabetes atlas published by the International Diabetes Federation (IDF), there was on 2007 an estimated 40.9 million people with diabetes in India and this number is predicted to rise to almost 69.9 million people by 2025. The skin is affected by both the acute metabolic derangements and the chronic degenerative complications of diabetes. Cutaneous signs of diabetes mellitus are extremely valuable to the clinician as some of them can alert the physician to the diagnosis of diabetes and also reflect the status of glycemic control and lipid metabolism. The objective was to study the cutaneous manifestations in patient with type II diabetes mellitus.

Method: The present cross sectional study was conducted at field based area of Mahatma Gandhi Medical College and Research Institute, Puducherry, India from January 2013 to June 2013. Data collection was done using pretested proforma and information regarding age, sex, duration of diabetes, treatment, blood glucose (Fasting, Post prandial), urine examination, specific investigations and skin lesions were taken. A complete physical and dermatological examinations of the patients was done. Statistical analysis was done.

Results: Among the total number of 166 patients studied, there were 44 (26.50%) women and 122 (73.49%) men; the male: female ratio was 3:1, of the total diabetic patients, majority 85 (51.2%) had <5 years of duration of diabetes. Among the cutaneous disorders found in patients with diabetes, majority of the patients had cruralcandidal intertrigo and patients each had acquired ichthyosis and tineacruris. Trophic ulcer and xerosis were found in 8% patients followed by furunclosis and psoriasis vulgaris seven percent (7%).

Conclusion: The failure to give adequate skin care in patients with diabetes may be attributed to lack of patient's knowledge of the disease.

Keywords: Diabetes mellitus, Blood glucose, Cutaneous lesion

INTRODUCTION

Diabetes has emerged as a major public health problem in India. According to diabetes atlas published by the international diabetes federation (IDF), there was an estimated 40.9 million people with diabetes in India and this number is predicted to rise to almost 69.9 million

people by 2025. The organs affected by diabetes include the cardiovascular, renal and nervous systems, eyes and the skin. The skin is affected by both the acute metabolic derangements and the chronic degenerative complications of diabetes. Although the mechanism for many diabetes associated skin conditions remains unknown, the pathogenesis of others is linked to abnormal carbohydrate

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metabolism, other altered metabolic pathways, atherosclerosis, microangiopathy, neuron degeneration and impaired host mechanism.³ Cutaneous signs of diabetes mellitus are extremely valuable to the clinician as some of them can alert the physician to the diagnosis of diabetes and also reflect the status of glycemic control and lipid metabolism.⁴ It has been observed that without control of diabetes, the treatment response is poor in cutaneous complications.⁵ Thus, the present study was done to analyse the pattern of diabetic dermatitis in view of increasing prevalence of diabetes in the present scenario of sedentary life style in the general population. An objective of the study was to study the cutaneous manifestations of type II diabetes mellitus.

METHODS

It is a cross sectional study conducted in field based area (Seliamedu) of Mahatma Gandhi Medical College and Research Institute, Puducherry, India from January 2013 to June 2013. All the patients of age 40-75 years with type II diabetes mellitus and skin lesions attending rural health training centre, Seliamedu were included in the study. After obtaining written informed consent, data collection was done using pretested proforma and information regarding age, sex, duration of diabetes, treatment, blood glucose (fasting, post prandial), urine examination, specific investigations and skin lesions were taken. A complete physical and dermatological

examination of the patients was done, including tests to detect peripheral neuropathy. Confidentiality maintained during and after the study.

RESULTS

Table 1: Demographic distribution.

Age in years	N (%)
40-49	63 (37.95)
50-59	47 (28.31)
60-69	40 (24.09)
>69	16 (9.63)
Sex	N (%)
Male	122 (73.5)
Female	44 (26.5)

Table 2: Duration of diabetes and treatment.

Duration of disease (years)	N (%)
<5	85 (51.2)
6-10	62 (37.3)
>10	19 (11.4)
Treatment	N (%)
OHA	121 (72.8)
Insulin	41 (24.6)
Combined therapy	4 (2.4)

Table 3: Cutaneous manifestations and its distribution.

Skin lesions	N	(%)	Skin lesions	N	(%)
Tinea versicolor	12	(7.22)	Phytophoto dermatitis	1	(0.60)
Acquired ichthyosis	17	(10.24)	Seborrhoeic keratosis	2	(1.20)
Trophic ulcer	14	(8.43)	PMLE	7	(4.21)
Acanthosisnigricans	4	(2.40)	Fissure foot	7	(4.21)
Skin tags	9	(5.42)	Sebaceous cyst	3	(1.80)
Verruca vulgaris	10	(6.02)	Psoriasis vulgaris	13	(7.83)
Achrocordon	4	(2.40)	Chronic eczema	4	(2.40)
Tineacruris	17	(10.2)	Pitted keratolysis	2	(1.20)
Scaling of palms	1	(0.60)	Tineapedis	16	(9.63)
Meralgiaparesthetica	1	(0.60)	Tineamannum	1	(0.60)
Bulla diabeticorum	2	(1.20)	Alopecia areata	2	(1.20)
Candidal intertrigo	20	(12.0)	Seborrhoeic dermatitis	1	(0.60)
Cellulitis	16	(9.63)	Lipodermatosclerosis	3	(1.80)
Folliculitis	3	(1.80)	Corn foot	3	(1.80)
Furunculosis	13	(7.83)	Palmoplantar psoriasis	6	(3.61)
Callosity	8	(4.81)	Herpes zoster	2	(1.20)
Xerosis	14	(8.43)	Anetoderma	1	(0.60)
Vitiligo vulgaris	7	(4.21)	Milliariarubra	3	(1.80)
DPN	3	(1.80)	Rosaceae	3	(1.80)
Macular amyloidosis	3	(1.80)	Tineacorporis	2	(1.20)
Melanonychia	1	(0.60)	ABCD	3	(1.80)
Idiopathic guttateHypomelanosis	2	(1.20)	Pyoderma	1	(0.60)
PapularUrticaria	1	(0.60)	Lichen simplex chronicus	1	(0.60)
Onychomycosis	7	(4.21)	Sebopsoriasis	1	(0.60)

Among the total number of 166 patients studied, there were 122 (73.49%) men; the male: female ratio was 3:1.The mean age group was 52.49±9.72 and majority was belongs to 40-49 years shown in (Table 1).

The duration of disease ranged from 1-20 years. Of the total diabetic patients, majority was less than 5 years of duration and 11% of them were more than 10 years. The glycogenic status in this study revealed the mean and standard deviation of FBS &PPBS as 200.50±75.07 and 272.83±90.48 respectively seen in (Table 2).

Among the cutaneous disorders found in patients with, 20 (12.04%) of the patients had crural candidal intertrigo, 17 (10.24%) patients had acquired ichthyosis and tineacruris, followed by 16 (9.63%) of patients had cellulites and tineapedis. Trophic ulcer and xerosis were found in 14 (8.43%) patients followed by furunclosis and psoriasis vulgaris 13 (7.83%) explained in (Table 3).

DISCUSSION

Diabetes mellitus is a disease which also involves the skin. Minor skin manifestations are ignored by the patients and they seek help of the doctor only if there is any major problem which does not heal with ordinary medications. In this study the results indicate that skin diseases were more prevalent in men than women. This could be partly due to greater awareness of health issues or may be due to under representation of women in the hospital. Similarly, a study from Sargodha, Pakistan found skin disorders more in men than women.⁶

Mean age of diabetic patients in this study was 52 years whereas in a survey done in Karachi, Pakistan, it was 51.5 years. The high prevalence of diabetes in this age meant that majority of diabetics were suffering from the disease in their most productive years of life. The glycogenic status in this study was very poor. This was indicative of high tendency of diabetic complications, as uncontrolled diabetes increases the risk of development of microangiopathy and related sequelae. This could be due to lack of health related facilities or ignorance of patients about blood glucose measurements, the morbidity of diabetes and low literacy rate of the patients.

The commonest skin manifestation observed in this study was candidal intertrigo found in 12.04% of diabetics followed by other fungal infections like tineacruris and pedis. This is indicative of high prevalence of fungal infections in immune compromised state like Diabetes mellitus. Similarly Radhu, et al found fungal infections as the most common in type 2 diabetics in their study. ¹⁰ interestingly the second most common skin lesions observed in this study was acquired ichthyosis and xerosis, probably because of increased sweating due to the climate and inadequate intake of fluids in addition to diabetes.

The third most common skin disorder found in this study was diabetic cellulites followed by tropic ulcers. This abnormality was observed in 9.63% and 8.43% of total study population respectively. The causes of diabetic foot in our population may be due to lack of awareness among the patients, (treating health care personnel may not be adequately educating the diabetic patient regarding foot care, illiteracy of patients). Those engaged in agricultural work most often go bare-footed. Infection, ill-fitting foot wear, improper toe nail cutting, use of slippers with a single throng between hallux and second toe and bare foot gait were also reported as causes of foot complications of diabetics in one study.11 The fifth commonest findings, furunculosis and Psoriasis vulgaris were found in 7.83% of diabetic patients in this study. The relative high prevalence of skin infections in this study could be due to poor hygienic conditions. Similarly Mehajan, et al found skin infections in 54.69% diabetics, Baloch, et al observed prevalence of skin infection in 72% of diabetics.3,12

The limitation of the study is, involved those who come to health centre only and known diabetic patients. Apart from diabetic, there were many external and internal factors also influence this cutaneous lesion and those factors were not considered.

CONCLUSION

The recognition of skin findings is the key to early diagnosis, treatment and prevention of complications. The failure to give adequate skin care in patients with diabetes may be attributed to lack of patient's knowledge of the disease, Physicians counselling and access to health care and in-affordability to medicines.

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Institutional Ethics Committee

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