FREQUENCY OF CUTANEOUS MANIFESTATION OF DIABETES MELLITUS

Amin S, Haq A, Irfanullah & Noor M

ABSTRACT

Objective: The objective of this study was to find the pattern and frequency of cutaneous manifestations in diabetes mellitus.

Material and Methods: The aim of this study was to evaluate the frequency of skin manifestations in patients with diabetes mellitus in tertiary care hospital Peshawar. This descriptive observational study was conducted in indoor and outdoor patients in department of medicine Hayatabad Medical Complex Peshawar from January 2010 to December 2010.

Results: A total of 500 indoor and outdoor DM (types 1 and type 2) patients over 15 years of age attending department of medicine Hayatabad Medical Complex Peshawar were examined in detail for skin manifestations of the disease. Out of 500 patients, dermatologic manifestations related to DM were seen in 310 patients (62%).Male DM patients were 286 and 214 were female. The age ranged from 15 years to 88 years with mean age 53(+84).The 41 to 60 years age group was dominant with 62.8%.The type 2 DM patients outnumbered type 1 having 89.2 %. The patients with duration of illness >10years was abundant group with 55.2 %.

Infectious were the most common mounting 39% among them bacterial infections were 30.2%, fungal infections 7.2% and viral infections 1.6%.

Lipodystrophy due to insulin injections was found in 1.4%.

Condition related to diabetes complications including ulcer and gangrene were 11.2% and 4.2% respectively.

Among the cutaneous manifestation of DM, diabetic dermopathy was 6%, vitiligo in 5%, xanthelasma was found in 4%, pruritis was found in 4.4%.

Acanthosis nigricans, diabetic bullae, rubiosis facies, necrobiosis lipoidica, diabetic scleroderma were 2%, 1%, 1%, 0.6%, 0.6% and 0.4% respectively.

Conclusions: Cutaneous manifestations are quite common in the DM patients.

INTRODUCTION

Diabetes mellitus (DM) is the most common endocrine disorder[1] characterized by elevated serum glucose level resulting from defects in insulin production, insulin action, or a combination.[2]

The World Health Organization (WHO) estimates the global burden of DM to be 299 million cases by the year 2025.[3] Pakistan belongs to high prevalence area, currently having 6.9 million affected people with DM, with projected estimates expected to double by 2025 and affect 11.5 million people.[4] Diabetes Mellitus is the fourth leading cause of death in most developed countries[5] while Pakistan currently ranking at 7th position in the list of countries with major burden of DM and it is expected to move to 4th position.[6]

Long standing diabetes can lead to permanent and irreversible functional changes in body cells and thus lead to various complications.[6] The skin is the largest organ of the body.[8]

The cutaneous manifestations of DM are well known and considered as common, as observed in 30–71% of diabetic patients.[9] the exact pathogenesis of most of these dermatoses is unknown. It is reasonable to assume that vessel and connective tissue alterations as well as the impairment of the immune system and other associated metabolic changes caused by diabetes.[10] Cutaneous infection, dermatologic disorders related to DM complication, skin diseases with strong association with DM, skin condition related to treatment are the four main groups of cutaneous manifestation of DM.[1]

MATERIAL AND & METHOD

A total of 500 DM patients (type1 and type 2) of more than 15 years of age, presenting to OPD and ward in department of medicine Hayatabad Medical Complex Peshawar from January 2010 to December 2010. A detail history and physical examination was performed especially taking into account the duration of illness, previous blood sugar tests records, previous skin disorders, dietary control and treatment record of the patients. Blood pressure and random blood glucose readings were recorded. Verbal consent was taken from all the participants and they were thoroughly

examined for cutaneous disorders and all clinically definable cutaneous lesions were recorded in a predesigned Performa. Frequencies of occurrence of various cutaneous manifestations were obtained. Patients were managed according to standard treatment guidelines.

RESULTS

A total of 500 indoor and outdoor DM (types 1 and 2) patients over 15 years of age attending Department of Medicine Khyber Teaching Hospital Peshawar from January 2010 to December 2010 were included in this study.

Out of 500 patients, dermatologic manifestations related to DM were seen in 310 patients (62%). Male DM patients were 286 and 214 were female. The age ranged from 15 years to 88 years with mean age 53 (+84).less than 20 years were 18 patients (3.6%), 21 to 40 years were 80 patients (16%), 41 to 60 years were 314 patients(62.8%) and >60 years were 88 patients(17.6%).

Table 1: Cutaneous manifestation of diabetes mellitus

	Patients	Percentage
INFECTIONS		
Bacterial infections	151	30.2%
Fungal infections	36	7.2%
Viral infections	8	1.6%
CONDITIONS RELATED TO DM COMPLICATIONS		
Ulcer	56	11.2%
Gangrene	21	4.1%
DIABETES TREATMENT RELATED CUTANEOUS MANIFESTATION		
Lipodystrophy	7	1.4%
DM CUTANEOUS MANIFESTATIONS		
Diabetic dermopathy	30	6%
Diabetic scleroderma	3	0.6%
Necrobiosis lipoidica	3	0.6%
Rubiosis facies	5	1%
Acanthosis nigricans	10	2%
Diabetic bullae	5	1%
Xanthelasma	20	4%
Pruritis	22	4.4%
Vitiligo	25	5%
Granuloma annulare	2	0.4%

Type 2 diabetics were 446 (88.2%) and type 1 diabetics were 54 patients (10.8%). There were 52 patients (10.4%) having duration of diabetes <5 years, 172 patient (34.4%) having duration of illness 6 to 10 years and 276 patients (55.2%) having diabetes for >10years.

Infections were the most common mounting 39%. Among them bacterial infections were 30.2%, fungal infections 7.2% and viral infections 1.6%.Lipodystrophy due to insulin injections was found in 1.4%.

Condition related to diabetes complications including ulcer and gengrene were 11.2% and 4.2% respectively.

Among the cutaneous manifestation of DM, diabetic dermopathy was 6%, vitiligo in 5%, xanthelasma was found in 4%, pruritis was found in 4.4%.

Acanthosis nigricans, diabetic bullae, rubiosis facies, necrobiosis lipoidica, diabetic scleroderma were 2%, 1%, 1%, 0.6%, 0.6% and 0.4% respectively.

DISCUSSION

Almost all diabetic patients eventually develop skin complications from the long-term effects of DM on the microcirculation and on skin collagen. Cutaneous infections are more common in type 2 diabetes, whereas autoimmune-related lesions are more common in type 1 DM.[11] In our study dermatologic manifestations related to DM were seen in 62% patients whereas Romano et al,[12] Nigan PK,[13] Yoshipovich et al,[9] Wahid and Kanji,[14] found these in 60%, 61%,71%, and 82% respectively.

In our study the male out numbered the female as shown by the studies of Nawaf A Mutiari[10] et al and Nigan PK[13]. But not in other local study conducted by Khursid AH et al[15] the reason being selection of rural Population in that study.

Majority of patients were in 40-60 years age, an observation noted by other researchers such as Nawaf A Mutiari[10] and Nigan PK[13] but not in the other study khursid AH et al.[15]

It is well known that DM patients are susceptible to infections due to hyperglycemia and defect in polymorphnuclear leucocytes function.[16] Skin infections occur in 20% to 50% of DM patients (more often in those with type 2 diabetes).[17]

Among cutaneous disorders in DM patients in our study infections comprised the largest group mounting 39% comparable to observation by khursid AH et al[15] 30.9% while it was 67% in Nawaf A Mutiari.[10]

Diabetes Mellitus patients form the single largest group of non-traumatic amputations. The initial condition that leads eventually to amputation begins with a skin ulcer. Diabetic foot ulcers are separated into two categories: ischemic and neuropathic ulcers.[18] Ulcer and gangrene were next 15.3% in our study comparable to 12.9% in local study by khursid AH et al.[15]

Diabetic dermopathy was found in 6% in our study comparable to 4.2% in local study by khursid AH et al.[15] Pruritus was found in 4.4% patients in our study comparable to 7.7% in local study by khursid AH et al[15] while Mahajan S et al[19], Nawaf A Mutiari,[10] found it in 15.62% and 49% respectively. The reason being the presence of other contributing causes in these two studies.

REFERENCES

1. Paron NG, Lambert PW. Cutaneous manifestation of diabetes Prime care 2000;27:371-83.
2. Nathan M. Long-term complications of diabetes mellitus. *N Engl J Med* 1993;305:1676-85.
3. Khatib P, Oussama MN. Guidelines for the prevention, management and care of diabetes mellitus. EMRO Technical Publications Series;32,2006:1.
4. The Nation. WHO ranks Pakistan 7th on diabetes prevalence list [online] 2008 [cited 2010 July 18].
5. International Diabetic Federation Diabetes [online] 2006 [cited 2010 July 18].
6. Khuwaja AK, Fatmi Z, Soomro WB, Khuwaja NK. Risk factors for cardiovascular disease in school children: a pilot study. J Pak Med Assoc 2003;53.
7. Powers AC. Diabetes Mellitus. In: Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL (eds). Harrison's principles of internal medicine. New York: McGraw-Hill, 2005;2152-3.
8. Dogra S, Kumar B. Epidemiology of fungal infections, a study from Northern India. Pediatr Dermatol. 2003;20:470.
9. Yosipovitch G, Hodak E, Vardi P, Shraga I, Karp M, Sprecher E, David M: The prevalence of cutaneous manifestations in IDDM patients and their association with diabetes risk factors and microvascular complications. Diabetes Care 1998;21: 506–509.
10. Nawaf Al-Mutairi Amr Zaki Ashok Kumar Sharma Mazen Al-Sheltawi Cutaneous Manifestations of Diabete Mellitus. Med Princ Pract 2006;15: 427–430.
11. Landau J, Davis E. The small blood-vessels of the conjunctiva and nail bed in diabetes mellitus. Lancet 1960;2:731.
12. Romano G, Moretti G, Di Benedetto A, Giofre C, Di Cesare E, Russo G, et al. Skin lesions in diabetes mellitus: Prevalence and Clinical correlation. Diabetes Res Clin Pract 1998;39:101-6.
13. Nigam PK, Pande S. Pattern of dermatosis in Diabetes. Indian J Dermol Venerol Leprol 2003;69: 83-5.
14. Wahid Z, Kanjee A. Cutaneous manifestations of diabetes mellitus. J Pak Med Assoc 1998; 48(10):304–5.
15. Khurshid Ahmed, Zardad Muhammad, Iftikhar Qayum Prevalence of cutaneous manifestations of diabetes Mellitus J Ayub Med Coll Abbottabad 2009;21(2).
16. Kemmerly SA: Dermatologic manifestations of infections in diabetics. Infect Dis Clin North Am 1994;8:523–532.
17. Simone Van Hattem Aart H. Bootsma. H. Bing Thio., Cleveland Clinic Journal Of Medicine November 2008;75(11):772-787.
18. Miller, F., 1998. III. Management of diabetic foot ulcers. J. Cut. Med. Surg., 3(Suppl 1):13-7.
19. Mahajan S, Koranne RV, Sharma SK. Cutaneous manifestation of diabetes mellitus. Indian J Dermatol Venereol Leprol 2003;69(2):105–8.