

Original Research Article

Dermatological Manifestations of Diabetes Mellitus in Hilla City

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Abstract

Diabetes mellitus is a serious, life-long condition. Dermatologists frequently encounter patients with diabetes mellitus. Sufferers from both type 1 and type 2 DM whether they use insulin or oral hypoglycemic drugs in controlling the blood sugar level may exhibit dermatological manifestations. Recognizing these skin manifestations early facilitate early diagnosis and aid in selecting the suitable treatment for the diabetic patients. Additionally, early diagnosis may prevent the long-term sequel of the disease. This epidemiological study was designed to assess different cutaneous manifestations of Diabetes Mellitus in Marjan Hospital in Hilla city.

Key Words: Dermatological, Manifestations, Diabetes.

الخلاصة

داء السكري مرض خطير ومزمن. أطباء الأمراض الجلدية غالباً ما يتعاملون سريريا مع هذا المرض. الذين يعانون من كلا النوعين الأول والثاني لداء السكر سواء كانوا يستخدمون الانسولين او الأدوية الفموية المخفضة للسكر للسيطرة على مستوى السكر في الدم قد يحملون مظاهر جلدية. تتميز هذه الاعراض الجلدية مبكرا يساعد على التشخيص المبكر ويساعد في اختيار العلاج المناسب لمرضى السكري. بالإضافة الى ذلك، التشخيص المبكر قد يمنع التبعات الطويلة الأمد للمرض. المعلومات الاحصائية لهذه الدراسة شملت مختلف الاعراض الجلدية للسكري في مدينة الحلة.

الكلمات المفتاحية: داء السكري، الأدوية الفموية.

Introduction

D iabetes mellitus is a chronic and debilitating metabolic disorder characterizing by high blood glucose levels and diverse complications affecting many systems, fundamentally the cardiovascular, the ophthalmic, the renal, the nervous as well as the cuticular systems. The Three main types of the disease are:

Type 1, formerly referred to as insulin-independent diabetes mellitus or juvenile-onset diabetes, is characterized by the tendency to affect younger people, a little or inability to produce insulin, a lifelong dependency on insulin injections, and a propensity for ketoacidosis [1].

Type 2, known as non-insulin-dependent diabetes mellitus or adult-onset diabetes, is manifested later in life and characterized by the tendency to impact obese people. The rate of ketoacidosis in the sufferers are low and they are capable of producing C peptide [1].

Type 3, secondary diabetes, is an additional type of diabetes, which develops secondary to a genetic defect, to acquired hormonal disorder or as a complication of ingesting particular drugs or other chemicals [2].

Many of the cutaneous changes associated with diabetes directly reflect vascular and neuropathic changes that occur as diabetes progresses. Some changes reflect

alterations in production of epidermal growth factors and other factors that affect tissue proliferation. Some of the clinical findings are the direct consequence of associated metabolic disturbances such as abnormal lipid metabolism [2].

The at most prevalent skin manifestations of DM are prolonged or delayed wound healing and ulcerations of the skin (diabetic foot ulcer) [2].

A minor mechanical trauma at the pretibial region of a diabetic patient may result in a pigmented pretibial papule known as diabetic dermopathy [3].

This lesion, also termed diabetic dermopathy and diabetic skin spot, commences as a small zone of erythema and gradually evolve into a circular hyperpigmented area. It is encountered more in elderly men with DM [4].

A shallow ulcer or erosion in the pretibial region can also be seen in diabetic patients as a consequence of a Bullous diseases like bullous diabeticorum.

A rare disorder of collagen degeneration, thickening of blood vessel walls, and fat deposition known as Necrobiosis lipoidica diabeticorum predominantly affects young women with type 1 DM, neuropathy, and retinopathy [5].

It usually commences as an erythematous plaque or papules in the pretibial region and progressively expand and darken. The margins of the lesion, which may be painful, are irregular and the center is atrophied and ulcerated [6].

Individuals with type-1 diabetes manifesting Vitiligo at an augmented rate [6].

Sometimes as a feature of severe insulin resistance a brown or black, poorly defined, hyper pigmented velvety thickened areas may develop in the skin and body folds of the major flexures [7]. It is termed acanthosis nigricans and usually accompanying diabetes.

It is common for the diabetic population to develop erythematous plaques on the

extremities or trunk known as Generalized or localized granuloma annulare. Additionally, scleredema which is an uncommon connective-tissue disease characterized by woody induration and hardening of the skin at the site of previous infection on the neck and the back is commonly seen in the diabetic individuals [8].

On the other hand, it is unusual now for lesions like lipoatrophy and lipohypertrophy to occur at insulin injection sites due to the use of human insulin [7].

Yet, Xerosis of the skin and pruritus are still common in the diabetics and they may be relieved by skin moisturizers [3].

Moreover, among the cutaneous conditions that affect diabetic people, infections still forming a considerable share. [4]

Materials and Methods

This is epidemiological descriptive study conducted in the Department of Endocrinology and Diabetes Mellitus-Marjan Teaching Hospital from April 2015 to December 2015.

One thousand and two diabetic patients were encountered in this study, 464 (46.3%) were males and 583 (53.7%) were females and their ages ranged 2-95 years (Figure-2).

490 (48.9%) participants were registered as having Type-1 Diabetes Mellitus (T1DM), while the other 51.1% (512) suffering from T2 DM.

More than 41.7% (418) of the study participants had a records of less than 5 years history of DM.

Dermatological examination was done for each patient searching for specific cutaneous signs of diabetes mellitus. The cutaneous signs were diagnosed clinically by the researcher. Whereas PNP were diagnosed by a neurologist.

Statistical analysis was performed using SPSS version 22.

Results

This study enclosed A total sample of 1002 diabetic patients,464 males and 538 females (Figure 1).

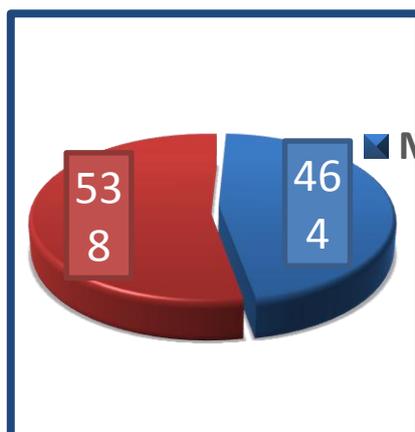


Figure 1: Distribution of the study participants by their sex (N=1002)

Age of the patients were ranged from 2-95 year (the mean= 50.9 year).Most common age group were from 51-60 year (Figure2).



Figure 2: % of the study participants according to their age group (N = 1002).

Six hundred twenty-three (623) patients (62.2%) had negative specific cutaneous findings of DM, while positive results were observed in (379) patients (37.8%).

Shine spot is the utmost prevalent cutaneous manifestation of DM among participants with positive dermatological findings in this study which represent 48.0% (182 patients), followed by skin infections (bacterial, fungal, and viral) 58 patients (15.3%), diabetic foot ulcer (DFU) 50 patients (13.2%), xerosis 36

patients (9.5%), psoriasis 17 patients (4.5%), vitiligo 13 patients (3.4%), itching 13 patients (3.4%), acanthosis nigricans 12 patients (3.2%), skin tag 7 patients (1.8%), cheiroarthropathy 6 patients (1.6%), necrobiosis lipoidica 5 patients (1.3%), amputation 3 patients (0.8%), diabetic bullae 1 patient (0.3%), reactive perforating collagenosis 1 patient (0.3%) and alopecia 1 patient (0.3%) (Table 1)

Table 1: Cutaneous manifestations in participants with positive Findings (N = 379).

Cutaneous Finding	Frequency	%
Shine Spot	156	41.2
Skin Inf.	56	14.8
Xerosis	36	9.5
DFU	28	7.4
Shine Spot + DFU	20	5.3
Ps	16	4.2
Itching	13	3.4
Vitiligo	11	2.9
AN	9	2.4
Cheiroarthropathy	6	1.6
N L	5	1.3
Skin tag	4	1.1
Shine Spot + Skin Inf.	4	1.1
Amputation	3	0.8
AN + Skin tag	3	0.8
Lipoatrophy	2	0.5
Bulla	1	0.3
RPC	1	0.3
AA	1	0.3
Shine Spot + Vitiligo	1	0.3
DFU + skin inf.	1	0.3
DFU + Vitiligo	1	0.3
Shine Spot + Ps	1	0.3
Total	379	100

The cutaneous complications of DM were more common in males (211) patients (59.4%), while in females (168) patients (40.6%).

Four hundred ninety patients (48.9%) had type 1 DM, whereas (512) patients (51.1%) had type 2 DM.

The dermatological manifestations of DM were more common in type 2 DM 192 patients (50.7%), while in type 1 DM (187) patients (49.3%).

A significant association were observed between the duration of DM and occurrence or increment of the cutaneous complications (P value = 0.000). Among those less than 5 years history of the disease (418), cutaneous manifestations were shown among 126(30.1%) patients; whereas cutaneous findings were observed in 43.3% (253) of participants with more than 5 years of the disease.

Peripheral neuropathy (PNP) was seen in 453 patients (45.2%) from the total 1002 patients; whereas it was negative in 549 patients (54.8%) (figure4).

Of the total 453 patients with PNP,one hundred fifty-six patients (34.4%) had shine spot, whereas only 4.7% of patients without PNP had shin spot. The association between shine spot and PNP was found to be statistically highly significant (P value = 0.000).

On the other hand, 47 patients (10.4%) of those with PNP had DFU, and only 3 (0.5%) of those who are negative for PNP had DFU. That's why DFU showed a significant statistical association with PNP (P value =0.000).

Similarly; other dermatological complications were rarely associated with PNP.

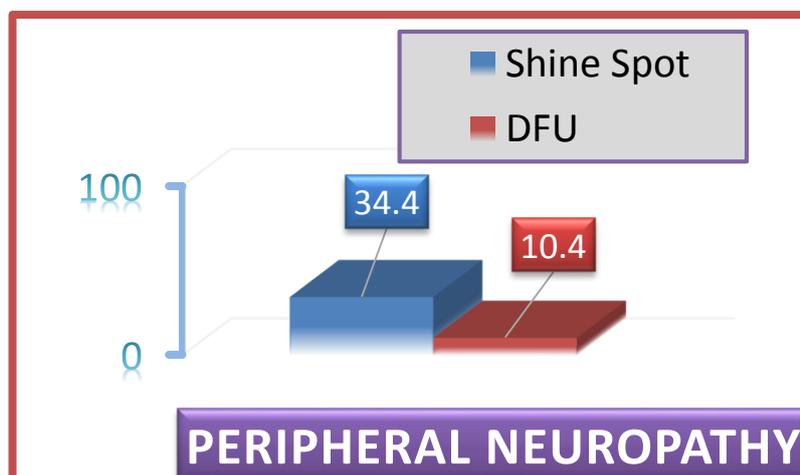


Figure 3: % of patient with Shine spot and DFU among those with PNP (N= 453).

Discussion

DM is a very common endocrine disease with sequelae that affect almost every system including the skin.[6]

Cutaneous manifestations of DM were seen in 37.8 %of patients which is nearly compatible to other study that show 40% involvement of skin in diabetic patients [13]. Shine spot is the most prevalent cutaneous manifestation of DM in this study (18.2%),followed by skin infections (5.8%) which is nearly consistent with a study concerning shine spot,[9] and not consistent with other studies that show skin infections is the most common cutaneous manifestation of DM (48%) while shine spot represent only (4%) of patients [7,8]. Another study identified xerosis as the most common cutaneous manifestation of DM, [12] while in this study xerosis was represented in only (3.6%) of patients.

Cutaneous complications of DM involved (55.4%) of males and (44.6%) of females, this is differing from that seen in other study with males' involvement (48%) and (52%) in females,[8] other study show involvement of males in (44.9%) and females in (55.1%) [7].

Dermatological complications of DM were more common in type2 DM (51,4%), whereas in type 1 DM they were (48.6%). These figures are resembling the results of Yasso's study in which the incidence of skin manifestations was (56.4%) in type 1 DM and (43.6%) in type 2 DM [8]. However; in another study, the cutaneous

complications was reported in (12%) of patients with type 1 DM [10]. Whereas Habif's study showed cutaneous complications in (25%)of individuals with type 2 DM [11].

The highest cutaneous complications were found among those of more than 5-years duration of disease, other study show that some skin complications of DM can take 20-25 year till they appear [8].

Peripheral neuropathy (PNP) was occurred in (45.2%) of diabetic patients in this study, in other studies showed that the risk of PNP in DM patients was (50%) [12,14] 28.9% of patient with PNP had shine spot which is statistically significant (P- value <0.0001), that is differ from other study which show presence of shine spot in (62%) of patients with PNP.⁹ Other study shows significant greater proportion of patients with shine spot (42.9%) of patients had concomitant PNP [15].

(10.4%) of patients with PNP had diabetic foot ulcer (DFU) which is statistically significant (P-value <0.000), another study show incidence of DFU with PNP is (4.5%) [16]. Other cutaneous complications of DM are rarely and statistically not significantly involved in PNP patients.

Conclusions

The main conclusions from this work that cutaneous manifestations of DM are fairly common. Shine spot is the most common dermatological manifestation. Cutaneous manifestations of DM are more common in males. Cutaneous manifestations of DM

are more common in type 2 DM. The association between PNP and shine spot was found to be statistically significant. Similarly, statistically significant association was observed between PNP and DFU.

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