Complications and manifestations of diabetic patients skin in Aden-Yemen

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Abstract

Diabetes Mellitus is a chronic disease that affects multiple systems of the body, including the skin. Cutaneous manifestations of diabetes mellitus generally appear subsequent to the development of the disease, but they may be the first presenting signs and, in some cases, they may precede the primary disease manifestation by many years. The purpose of this study was to calculate the frequency of cutaneous manifestations and complications in patients with diabetes mellitus. This study is a prospective study for one hundred patients with diagnose and un diagnose cases of DM and having skin lesions that either attending the Diabetic Center, or Dermatology Outpatient at Al-Gamhoria Teaching Hospital, during the period April - December 2014.Pre-designed and pretested Performa was filled after taking informed consent .Among one hundred diabetic patients, there were 39% males and 61% females. The age of the patients ranges from 13-75 years, with a mean age were 49.6± 13.37 years .Among cutaneous disorders, commonly associated with diabetes, infections (51%) were the most prevalent and among this group the fungal infectious diseases topped the list (65.4%) followed by pruritus (18%) .Various associated complications has been noted, in which neuropathy was the most commonly found (35%) followed by hypertension (27%) then retinopathy (17%).One should be vigilant enough for the cutaneous manifestations as they are the window to the systemic illness.

Keywords: Cutaneous manifestations, diabetes mellitus, diabetic center, Aden.

Introduction

Diabetes mellitus (DM) refers to a group of metabolic disorders with a common presentation of hyperglycemia [12]. Its prevalence is increasing in the present scenario of a sedentary life style in the general population . The recent figures released by the international diabetes federation (IDF) are alarming. Worldwide, it is estimated that 366 million people have diabetes and half of them are not aware that they have the disease (undiagnosed), if the current trend is maintained and no urgent action is taken, the number of people leaving with diabetes is expected to reach 552 million by 2030 [29,5]. There are two common types of DM.

In type I,there is absolute or near total insulin deficiency; while in type II, the problem originates from insulin resistance, impaired insulin secretion and raised glucose production [15]. Skin lesions are frequently observed in diabetic patients and about 30% of diabetics have cutaneous disorders during the course of their illness[25].

Abnormalities of insulin and elevated blood glucose level lead to involve other organ systems; including cardiovascular, renal, nervous system, eyes and skin [8]. Therefore, proper control of diabetes mellitus is important to improve skin manifestations . No epidemiologic data related to skin disorders and complications in diabetics has ever been reported from South governorates of Yemen which is the aim of this study.

Materials and Methods

The present study is a prospective study performed of diabetic patients (diagnosis and undiagnosed) attending Diabetic Center (this center is a referral center for all diabetic patients from Aden and other governorates) and Dermatology Outpatient Clinic at Al-Gamhoria Teaching Hospital, during the period April - December 2014.Detailed history regarding age, sex, skin complaints, DM duration, family history, and treatment were taken for 100 diabetic patients by the

authors during the OPD. History of hypertension, ischemic heart disease, neuropathy, nephropathy, eyes affection, and hyperlipidemia were also asked. All the patients under are a detailed dermatological examination in natural light. Investigations, like, blood sugar, micro-biological investigations, and skin scrapings for fungal infections were carried out wherever necessary to confirm the diagnosis. Data were statistically described in terms of range, mean ± standard deviation (±SD), as appropriate. The continuous variable data were analyzed, using the Chi-square test and SPSS version 16. The level of significance was set at a P-value of ≤ 0.05.

Results

Among 100diabetic cases, there were 39 males (39.00 %) and 61 females (61.0%). The age of patients ranges from 13 years to 75 years, with mean age of 49.6±13.37 . The cutaneous manifestation were more prevalent in the age group more than 40 to 80 years78(78.0%), followed by age group from more than 20 to 40 years 19 (19.0%). Statistically significant association was existed (P=000). The majority (79.0 %) of diabetics patients had type II diabetes mellitus and only (21.0 %) had type I DM. Also, significant association was existed between type of diabetic and skin lesions (P= 0.003).

Of the total diabetic patients, the majority 49(49.0) of the patients had < 5 years duration of diabetes mellitus, followed by 38 (38.0) with duration from 5-10 years of diabetes mellitus, and only 13 cases (13.0%) had a duration >10 years of illness. One patient of the total were newly diagnosed as diabetics. Various types of skin lesions in diabetic patients were observed (Table -1). Some of the patients had more than one type of skin lesions, nine patients had two types of skin lesions, and only one patient had three types of skin lesions. However, the majority of patients (90%) had one type of skin lesion. The most common skin disorders that were seen are : Infection (52.0%), pruritus (18 .0 %) followed by hair loss(11.0%). Among cutaneous infections (Table -2) , fungal infections formed the largest group (34.0%), these include (candida intertrigo (13.0%), tinea pedis (13.0%), tinea cruris (6.0%), T. capitis (1.0%), T. corporis (1.0%). Bacterial infections were seen in 10 cases and these included frunculosis (4.0%) cellulitus (5.0%), impetigo (1.0%). Viral infections constituted (6.0%) and scabies only 2 cases (2.0%) Cutaneous disorders uncommonly associated with diabetes mellitus i.e. Psoriasis, lichen planus, and vitiligo accounted for (4.0%, 6%, and 3%) respectively. The most common complications observed in this study, were neuropathy (35 %) and hypertension (27%).These are delineated in (Table 3). Some of the patients had more than one complication. However, non-significant association was seen between these complications and diabetic type (P=0. 967).

Table1: Cutaneous manifestation of diabetes mellitus in 100 patients

Cutaneous manifestations	No	Percentage
Infections	52	52%
Pruritus	18	18%
Hair loss	11	11%
Lichen planus	6	6%
Acantosis nigricans	4	4%
Psoriasis	4	4%
Vitiligo	3	3%
Ulcer foot	3	3%
Urticaria	3	3%
Pemphigoid	1	1%
Alopecia areata	1	1%
Senile lentigious	1	1%
Neurodermatitis	1	1%
Idiopathic hypopigmentation	1	1%
Total	109	109

Table 2: Cutaneous infections in diabetics

Infections	No	Percentage
Fungal	34	65.4
Bacterial	10	19.2
Viral	6	11.5
Scabies	2	3.9
Total	52	100

Table 3: Systemic complications in diabetic patients with cutaneous manifestations

Complications	No	Percentage
Neuropathy	35	35.0%
Hypertension	27	27.0
Retinopathy	17	17.0
Hyperlipidemia	1 6	16.0
Nephropathy	6	6.0
CAD*	4	4.0
CVA**	2	2.0
Total	107	107

*=coronary artery disease

**= cerebrovascular disease

§ Some of the patients had more than one complication

Discussion

Diabetes mellitus is a worldwide problem and is the most common endocrine disorder. Almost all diabetic patients eventually develop skin complications. Most of the time a patient is unaware that his skin condition is due to diabetes. So, the exact data of prevalence of skin changes among the diabetic patients is difficult to obtain. Various studies reported 7.6% to 30% of diabetics have some cutaneous involvement [24,6,25] study carried out by Yosipovitch *et al*. found the prevalence of skin manifestations among Type 1 DM population as high as 71%[30].

Type 1 DM has an abrupt onset and is usually seen in cases less than 30 years of age. It occurs mostly in children and the incidence is highest among the 10 to 14-years old age groups, whereas type 2 DM has a gradual onset and occurs mainly in the middle-aged and elderly[3]. Mahajan et al[16] and AL-Mutairi et al , in their study on diabetic patients , documented the most common age group to be of 41 – 50 years (33%) , 40 – 60 years (45%) respectively . Unlike Bhat et al.[4] who showed the maximum number of patients to be in the age group of 51 to 60 years (29.9%) followed by 41 to 50 years (27.3%), and Timshina et al[27] pointed that most of the dermatoses occurring in diabetic patients were seen in the age of fifth decade. Similarly, Romano et al[25].Nigam and Panda [20] and Kataria et al [14] reported their finding commonly in the 5th and 6th decades. In our study, the cutaneous manifestations were most prevalent in the age group 41- 80 years (78.0 %). A statistically significant difference (p =0.000) was seen.

The results also showed that skin diseases were more prevalent in women (61.0%) than men (39.0%) as was reported by others [25- 16-4]. This could be partly due to greater awareness of women of health issues or may be due to under representation of men in medical OPD. In contrast, a study from Sargodha, Pakistan, reported that skin disorders were more in men than women [17].

It is widely believed that diabetic patients have an increased risk for infectious diseases, although there is little documented evidence to support it. This risk seems to be higher in poorly controlled patients, but it is often difficult to understand whether poor control is the cause or the consequence of the concurrent infections [9]. In our study, the commonest skin manifestation observed was skin infection, found in 52 % of diabetics. Our finding corresponds with other reports from India

(54.69% , 49%)[3,14]. Higher frequency rates 62.2%, and72% of skin infections in diabetics were documented by Naheed et al [18]from Lahore, and Baloch et al [1]. Lower value (39.66%, 30.9%,31.0% and 23%respectively) were reported by Ahmed et al [1], Goyal et al [9], Mahmood et al [17] , and in a study carried in a tertiary care hospital in Gujarat by Vahora et al[28].

Fungal infections, in our study, formed the largest group among infectious disease being present in 34%.Similarly, Kataria et al[14] reported also fungal infections as the largest group and Radhu et al [23] found fungal infections more common. Lower frequency (16%) detected among diabetic patients from Western Himalayas by Goyal et al[9] . In contrast, PuriNeerja[22] and Ghosh[7] reported pyoderma as the commonest manifestations in their studies.

Viral infections constituted 6% in this study, low incidence 2.2% reported by Bhat et al[4]. Others, such as Goyal et al [9] , A study carried at reported that none of the patients had viral infection in their study.

The second most common skin disorder found in this study was pruritus(18%).A similar in order, a study by Mahajan et al [16]reported that pruritus was the second most common manifestation and was seen in 15.62%patients.Other similar previous studies reported the prevalence of pruritus in 7.1% , 10.5% , 12.12% , and 15.1 % Ahmed et al[1], Kataria et all [14],Bhat et al [4], Najdawi and Faouri [19] respectively, whereas higher incidence 30% has been reported by other reference [9] . Rao and Pai[24] also described that pruritus was the main presenting symptom but with a higher frequency (60.23 %), AL-Mutairi et al [2]reported it in 49% of patients.

Acanthosis nigricans, although it may be familial and benign, it has been long recognized as a cutaneous marker for systemic conditions such as endocrinopathies (including DM) and malignancy jelinek [10].It was noted in 16.7% by Naheed et al [18] , while in our study only 5 cases(5.0%) were detected. Similar values (8 cases) documented by Bhat et al [4] and Goyal et al[9].

Among dermatoses, associated with an increase incidence of diabetes, vitiligo, lichen planus and psoriasis were also detected in the present study which has been documented earlier.

Long standing diabetes can lead to permanent and irreversible functional changes in the body cells and thus lead to various complications [21].

Uncontrolled diabetes increases the risk of development of microangiopathy and related complications or sequelae. Our study showed that a higher percentage (64.0%) of patients with cutaneous manifestation had systemic complications, like peripheral neuropathy, hypertension, retinopathy, nephropathy, coronary artery disease and cerebrovascular disease ,as was reported by Shemeret et al[26] ,Bhat et al[4] and Mahajan et al[6]55.5%, 87%, 89% respectively. Neuropathy was the most common complications (35.0%) documented in our study. In Al-Azhar University Hospitals, Egypt, Kasime et al[13]reported a frequency 29.7% of peripheral neuropathy among studied subjects. Lower values 4% were reported by Kataria et al[14] .Type II DM was associated with an increased risk of complications, compared to type I DM in this study, however this was statistically non–significant (P=0.967).

The complications of diabetes mellitus are many and inter-related and are mostly a result of poor glycemic control, hypertension, hyperlipidemia, obesity, and smoking[11]. There has been no significant statistical association between diabetic dermoangiopathy and diabetic retinopathy, neuropathy, nephropathy, or hypertension (P>0.05) in our study and similar results have been obtained by Mahajan et al[6]. In our study, type II DM has been associated with increased risk of diabetic complications, compared to type 1 DM, although the increased frequency had not achieved statistical significance.

Not any adverse drug reaction to oral hypoglycemic drugs or liphypertrophy to insulin injection was observed .

Conclusion

From the foregoing account, at is concluded that DM involves the skin quite often, and whenever patients present with multiple skin manifestations their diabetic status should be checked.

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المضاعفات والأعراض الجلدية لمرضى السكري في عدن – اليمن

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الملخص

السكري مرض مزمن يؤثر على العديد من أجهزة الجسم بما فيها الجلد، الظواهر الجلديةوالأعراض لمرض السكري قد تظهر في مراحل لاحقة من تطور المرض، أو في بعض الأحيان قد تكون هذه المظاهر الجلدية هي العلامة الأولى للإصابة بالسكري بل انَّها قد تسبق ظهور المرض بعدة سنوات.

تهدف هذه الدراسة إلى قياس المظاهر الجلدية والمضاعفات المصاحبة وتقييمها لمرض السكري وقدأجريت الدراسة الوصفية على المرضى الذين لديهم آفات جلدية، بعضهم شخص بالإصابة بالسكري وبعضهم لم يشخص وكان عدد المرضى الذين تمت معاينتهم من قبل الباحثين بعد أخذ موافقتهم مئة مريض حضروا إلى مركز السكر أو العيادة الخارجية للأمراض الجلدية في مستشفى الجمهورية خلال الفترة من إبريل إلى ديسمبر 2014.وقد لوحظ بأنَّ الاناث شكلت أعلى نسبة(61%)من الذكور (39 %) واعمارهم ما بين 13 – 75 سنة بمتوسط عمري 49.6 ±13.37.

وكانت الأمراض الجلدية المعدية هي الأكثر شيوعاً(51%)، تصدرت الأمراض الفطرية المعديةقائمة هذه المجموعة بنسبة 65.4% ، تليها الحكةأو الهراش بنسبة 18%.

وقد لوحظ أيضاً وجود العديد من المضاعفات الجهازية المرتبطة بالمرض،ومن هذه المضاعفات اعتلال الأعصاب هو الأكثر شيوعاً (35%) يليه ارتفاع ضغط الدم(27%) ثم اعتلال شبكية العين (17%).

واستخلص من هذه الدراسة ضرورة الانتباه للأعراض التي قد تظهر على الجلد كونها نافذة تدلنا عن وجود أمراض جهازية في الجسم كالسكري.

الكلمات المفتاحية: المظاهر الجلدية ، مرض السكري ، مركز السكر- عدن.