PREVALENCE OF SKIN MANIFESTATIONS IN DIABETES MELLITUS AT KING ABDULAZIZ UNIVERSITY HOSPITAL

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ABSTRACT

Background: The prevalence of diabetes in Saudi Arabia is now one of the highest in the world, with the rise in prevalence of Type II diabetes. Patients with diabetes mellitus commonly suffer from a wide variety of cutaneous disorders.

Aims: This study estimates the prevalence of skin manifestations in patients with diabetes mellitus, at King Abdulaziz University Hospital.

Materials and Methods: Five hundred and fifty-eight patients with the diagnosis of diabetes, attending the dermatologic and diabetic clinic were included in this study.

Results: The common skin disorders were: xerosis (74.7%), pruritus (38.2%), diabetic dermopathy (30.1%), finger pebbles (25.6%), and thickened skin (22.2%).

Conclusion: Skin manifestations in diabetics are common. High prevalence of xerosis in our diabetic population is significant and further studies are recommended.

Keywords: Diabetes, Skin manifestations.

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INTRODUCTION
The prevalence of diabetes mellitus (DM) in Saudi Arabia is now one of the highest in the world 23.7%, with the rise in prevalence of Type II diabetes.[1-4]. It is estimated that up to 70% of all diabetics suffer from pathologic skin changes during the course of the disease.[5]. The exact pathogenesis of most of these dermatoses is unknown. It is reasonable to assume that it is linked to the abnormal carbohydrate metabolism, other associated metabolic pathways, microangiopathy, neuropathy, and impairment of the immune system.

There are few epidemiologic data related to skin disorders in diabetics reported from Saudi Arabia and mainly on diabetic feet.[6-7]. This study was designed to analyze the prevalence of skin manifestations among diabetic patients in Saudi Arabia.

SUBJECTS AND METHOD
A cross sectional study was conducted at King Abdulaziz University Hospital in Jeddah. The study included five hundred and fifty-eight (558) diabetic patients of either type, during one year, from September 2007. Each patient were interviewed and examined for cutaneous disorders, and all clinically definable cutaneous lesions were recorded in a predesigned form. Diabetic foot diseases were excluded. Oral consent was taken from all the participants. Statistical analysis of data was performed using SPSS-16 and frequencies of occurrence of various cutaneous manifestations were obtained. Qualitative data were presented in the form of numbers and percentage; chi-square was used as a test of significance. The qualitative data were presented in the form of mean and standard deviation. Significance was considered at p value less than 0.05.

RESULTS
A total of 558 diabetic patients (N 269 48.2% males, and N 289 51.8% females), with a mean age of 52 years (range 20-85 years), of whom 42 (7.5%) had insulin-dependent diabetes mellitus (IDDM) and 516 (92.5%) had non-insulin-dependent diabetes mellitus (NIDDM). The mean disease duration was 11 ± 8.5 years. Of the 558 patients, 536 cases had cutaneous manifestation, while 22 (3.9%) had no skin disorders. Among the cutaneous disorders found in patients with DM, the most common skin disorder was Xerosis in 417 (74.7%) of patients, followed by pruritus 214 (38.2%). The rest of the skin disorders are shown in Table 1. Xerosis, ichthyosis, dermopathy and finger pebbles were significantly higher in males (p = 0.02), whereas pruritus was higher in females. Diabetic bullae, thickened skin of hands and fingers were significantly higher among Type II diabetics. Whereas, other skin disorders showed non-significant difference between Type I and II diabetes. Xerosis (mean 12.85 ± 8.61 years) and diabetic dermopathy (13.75 ± 7.95 years) were significantly associated with the duration of diabetes (p < 0.001).

Among the patients 184 (33%) were Saudis and 374 (67%) were non-Saudis. Skin lesions showed non-significant difference between Saudi and non-Saudi diabetics. Forty-two (7.5%) patients were smokers while the majority 516 (92.5%) patients were not smokers, there was no significant difference between smokers and non-smokers in skin manifestations. Of notice, none of the patients had granuloma annulare, lichen planus and acquired perforating dermatoses, or glucagonoma.

DISCUSSION
Cutaneous manifestations of diabetes are common. They usually appear during the course of the disease, but sometimes they may precede the disease. In our patients, the mean age was 52 years and the mean duration of the disease was 11 years. Type II diabetes was the most prevalent among our patients, and this is in agreement with national diabetes studies.[1-2].

Xerosis (74%), pruritus (38%), diabetic dermopathy (30%), finger pebbles (25%), thickened skin of hands and fingers (22%), and acanthosis nigricans (12%) were the commonest six skin disorders in diabetic patients. Xerosis was highly associated with duration of diabetes (p = 0.001). The reason for the high prevalence of xerosis in our patients is not clear. There was no difference between patients with Type I or II diabetes or males versus females. A similar study from India found xerosis to be the most common among their patients 44%, and they attributed it to the cold and dry weather in their area.[8]. But the weather in Jeddah is hot and humid all year round, therefore, this cannot explain its prevalence in

Table 1. Prevalence of skin manifestations among the studied diabetic cases.

<table>
<thead>
<tr>
<th>Skin Manifestations</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xerosis</td>
<td>417 (74.7)</td>
</tr>
<tr>
<td>Pruritus</td>
<td>214 (38.2)</td>
</tr>
<tr>
<td>Dermopathy</td>
<td>168 (30.1)</td>
</tr>
<tr>
<td>Finger Pebbles</td>
<td>143 (25.6)</td>
</tr>
<tr>
<td>Scleroderma-like</td>
<td>124 (22.2)</td>
</tr>
<tr>
<td>Skin Tags</td>
<td>104 (18.6)</td>
</tr>
<tr>
<td>Acanthosis Nigricans</td>
<td>67 (12)</td>
</tr>
<tr>
<td>Ichthyosis</td>
<td>34 (6.1)</td>
</tr>
<tr>
<td>Rubiosis Faciei</td>
<td>22 (3.9)</td>
</tr>
<tr>
<td>Necrobiosis Lipoidica</td>
<td>19 (3.4)</td>
</tr>
<tr>
<td>Vitiligo</td>
<td>17 (3)</td>
</tr>
<tr>
<td>Scleroderma Adultorum</td>
<td>16 (2.9)</td>
</tr>
<tr>
<td>Granuloma Annulare</td>
<td>0</td>
</tr>
<tr>
<td>Lichen Planus</td>
<td>0</td>
</tr>
<tr>
<td>Aquired Perforating Dermatosis</td>
<td>0</td>
</tr>
<tr>
<td>Glucagonoma</td>
<td>0</td>
</tr>
</tbody>
</table>
Prevalence of Skin Manifestations in Diabetes Mellitus

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our patients.

Sakai et al, found that the clinical presence of dryness are supported by objective findings of a reduced hydration state of the stratum corneum and the decreased sebaceous gland activity in patients with diabetes, without any impairment of the stratum corneum barrier function[9].

Pruritus (38%) was the second most common finding in our patients, compared to the patients from Kuwait 49%[10]. Pruritus was not associated with duration of the disease or type of diabetes, but it was significantly higher in females (p=0.001). Wohlrab et al. stated that about 20–40% of all diabetics report itching symptoms. The etiology of itching cannot be attributed to a single pathophysiologic mechanism. Several cutaneous mediators have suggested that induce pruritus may be linked to metabolic changes in diabetic[5].

Diabetic dermopathy (DD), in the form of minimally scaling, shiny, brownish, atrophic hyperpigmented macules, was the third most common finding in our patients 30%. There was no relation to the type of diabetes, but it increased with the duration of diabetes, and it is more in males (p=0.001). Goyal et al. found DD in 36% of their patients[8]. It is considered a sign of a diabetic microangiopathy and neuropathy, were hemosiderin is deposited in the skin. Hence, its presence is associated with complications of diabetes. Thus, the presence of DD should prompt aggressive intervention to detect DM and prevent the development of ensuing complications. Unfortunately, no effective treatment for the color is available.

Finger-pebbles was found in 25% of our patients, were the highest finding was 49% patients based in a study from Jammu, India[11]. Thickened skin of hands and fingers (scleroderma-like), was present in 22% of cases, 9% had Type I and 23% had Type II, which was statistically significant (p=0.0024). There was no difference between males and females. Similar finding of thick, adherent skin on the digits, and occasionally over the dorsum of the hand was found in 24% of 137 children[12].

Acanthosis nigricans occurred in 12% of patients, equally in males and females, and was not related to type or duration of diabetes. It was present in 4.7% in Kuwait[10], and in 2.9% in India[13]. Ruberosis faciei, necrobiosis lipoidica diabetorum (NLD), and bullous diabeticorum occurred in 3.9%, 3.4% and 2.2%, respectively. There was no relationship to gender or duration or type of diabetes, except NLD was found only in Type II diabetics. Necrobiosis lipoidica diabetorum (NLD) was prevalent in 1.4% of NIDDM patients and 0.0% in IDDM patients[13]. Similar finding was present in 1% in Kuwait[10].

Pavlovi et al., found the prevalence of ruberosis faciei in patients with type I diabetes were 7%, and it was found to be weakly related to the disease duration[14]. The prevalence in most previous studies in patients with Type II diabetes was estimated at 21–59%[15]. It is presumed that venular dilation in the cheeks of diabetic patients underlies ruberosis faciei and is caused by hyperglycemia-induced sluggish microcirculation[16].

Dermatoses associated with an increased incidence of DM, like granuloma annulare, lichen planus and acquired perforating dermatoses were not detected in the present study, perhaps, due the limited number of patients in this study, and probably, to the low incidence of these dermatosis. Vitiligo was found in 3% of cases. Khurshid et al. found vitiligo in 5.7% of the cases[13].

CONCLUSION

Skin manifestations in diabetics are common. High prevalence of xerosis in our diabetic population is significant and therefore, further study is recommended.

REFERENCE


