



Cutaneous manifestations of diabetes mellitus in controlled and uncontrolled state

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Abstract

Background: Diabetes Mellitus can be complicated by a variety of cutaneous manifestations. Good metabolic control may prevent some of these manifestations and may support cure. Almost all diabetic patients eventually develop skin complications from long term effects of Diabetes Mellitus on the microcirculation and skin collagen. Cutaneous infections are more common in type 2 diabetes. Patients, who had diabetes for many years, tend to develop the most devastating skin problems.

Aim: To evaluate the pattern of cutaneous manifestations in Diabetes Mellitus in controlled and uncontrolled State.

Material and methods: Two hundred patients with the diagnosis of diabetes mellitus type-II (100 controlled and 100 uncontrolled) attending the outpatient departments of dermatology and medicine of B.P.S. Govt. Medical College, Khanpur Kalan, Dist. Sonapat were studied.

Results: Among the cutaneous disorders commonly associated with diabetes, infections (49%) were the most prevalent.

Conclusion: One should be vigilant enough for the cutaneous manifestations as they are the window to the systemic illness.

Key words

Diabetes Mellitus, Cutaneous manifestations, Microcirculation.



Introduction

Diabetes Mellitus is a chronic disease and it affects multiple systems of the body including the skin. It is the most common endocrine disorder and it is estimated that it will affect 300 million people worldwide by 2025 [1]. Abnormalities of insulin and elevated blood glucose level lead to involvement of multiple organ systems including cardiovascular, renal, nervous system, eyes and skin [2]. More than one third of diabetic patients have some type of dermatologic manifestation during the course of their chronic disease [3]. Abnormal carbohydrate metabolism, atherosclerosis, microangiopathy, neuron-degeneration and impaired host mechanism all play roles in the pathogenesis of cutaneous complications. Cutaneous signs of diabetes mellitus are extremely valuable to the clinicians as some of them can alert the physician to the diagnosis of the diabetes mellitus and also reflect the status of glycemic control and lipid metabolism [4]. The aim of the present study was to evaluate the pattern of cutaneous manifestations in Diabetes Mellitus in controlled and uncontrolled state.

Material and methods

Two hundred patients with the diagnosis of diabetes mellitus type-II (100 controlled and 100 uncontrolled) attending the outpatient departments of dermatology and medicine of B.P.S. Govt. Medical College, Khanpur Kalan, Dist. Sonapat were studied. The patients having other dermatological illness were excluded from the study (e.g. psoriasis, erythroderma etc). A detailed history was taken in each patient with particular reference to cutaneous complaints. A detailed clinical examination especially for the presence of muco-cutaneous lesions was done in natural light. Blood sugar, urine examination, liver function tests, lipid profile, kidney function tests, ECG and 24 hours urine protein were done in all patients. Glycosylated hemoglobin (Hb

A1C) levels were estimated in all patients to assess the control of diabetes. Histo-pathological examination of skin lesions and micro-biological investigations were carried out where ever necessary to confirm the diagnosis. Patients with Hb A1C value less than 7 gm% were considered in controlled state and more than 7 gm% in uncontrolled state.

Results

Among 200 Diabetes Mellitus type II patients; there were 120 (60%) females and 80 (40%) males. The male: female ratio was 2: 3. The duration of diabetes ranged from one year to twenty years. The age of patients ranged from 18 – 70 years and the most common age group were 51-60 (42%) followed by 41-50 (28%) and 31-40 (20%). In the controlled group, there were 58% females and 42% males. In uncontrolled group, female patients were 62% and male patients were 38%. The cutaneous manifestations were most prevalent in the age group of 51-60 years. The majority of patients (55%) with cutaneous manifestations were having disease duration between 1-5 years followed by 6-10 year (30%) and more than 10 years duration in 15% patients.

In diabetic patients with cutaneous manifestations, hypertension was present in 26%; nephropathy in 5%; neuropathy in 4% and retinopathy in 3% cases. Among the cutaneous disorders commonly associated with diabetes, infections (49%) were the most prevalent. Bacterial infections were seen in 23% cases and these included impetigo (6%), frunculosis (11%) and carbuncle (6%). Fungal infections were seen in 26% cases and these included Candidal intertrigo, vulvo vaginal candidiasis and balanoprostitis were seen in 12% cases. Dermatophytic infections included toe nail onychomycosis (3%), finger nail onychomycosis (2%), tinea pedis (3%), tinea corporis (2%), tinea manuum (1%) and tinea cruris (3%). Among the



cutaneous disorder uncommonly associated with diabetes only for disease i.e. psoriasis, liken planus, vitiligo and pemphigus were seen. Pruritis, localized or generalized without any skin lesions were present in 10.5% cases as per

Table - 1.

Discussion

Out of 200 diabetic patients, 49% patients were having cutaneous infections as reported by S. Sasmaz, et al. [5] also. The female predominance was seen in our study as reported by Mahajan, et al. [6] and Romano, et al. [7]. The frequency of skin disease was more in 5th and 6th decades as reported by Romano, et al. [7]. The cutaneous manifestations were more commonly seen in uncontrolled diabetes mellitus (HbA1C more than 7 gm %).

Infections were present in 49% cases. The incidence of cutaneous infections was more in uncontrolled diabetics. Fungal infections formed the largest group. Dogra, et al. [8] have reported a high incidence of onychomycosis in diabetics and it is attributed to increasing age and impaired peripheral circulation. Pruritus without skin lesions was seen in 10.5% cases in the present study. It has been reported as the main presenting complains by Rao and Pai [9]. We did not see any adverse drug reaction to oral hypoglycemic.

Conclusion

Diabetes Mellitus involves the skin quite often and when ever patients present with multiple skin manifestations; their diabetic status should be checked. Many of these manifestations, especially the more common ones, might be explained on the basis of the attachment of glucose to proteins, and the subsequent metabolism of this combination, which results in changes in structure, function and color. Hence one should be vigilant enough for the cutaneous

manifestations as they are the window to the systemic illness.

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Table - 1: Pattern of cutaneous manifestations in Diabetic patients.

Cutaneous manifestations		Numbers of patients	
		Controlled Group	Uncontrolled Group
A	Cutaneous disorders commonly seen in Diabetes Mellitus		
1	Infections	47%	51%
2	Skin tags	8%	10%
3	Acanthosis nigricans	7%	5%
4	Diabetic dermopathy	6%	8%
5	Bullous diabeticorum	6%	6%
6	Periungual telangiectasia	6%	2%
7	Eruptive xanthoma	3%	1%
8	Generalized pruritis	9%	12%
9	Necrobiosis lipoidica	3%	1%
B	Cutaneous disorders uncommonly seen in Diabetes Mellitus		
1	Lichen planus	1%	1%
2	Vitiligo	2%	1%
3	Psoriasis	1%	1%
4	Pemphigus vulgaris	1%	1%

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