



ORIGINAL RESEARCH PAPER

General Medicine

STUDY OF CUTANEOUS MANIFESTATIONS OF TYPE 2 DIABETES MELLITUS IN RURAL POPULATION LOCATED IN SOUTH INDIA

KEY WORDS: Type 2 Diabetes mellitus, cutaneous manifestations

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ABSTRACT

Type 2 diabetes mellitus (DM) is associated with several disorders like micro vascular, macro vascular and neuropathic complications in which cutaneous lesions are also more common with mild to severe lesions. Multiple factors play a role in the manifestations of cutaneous signs of DM. The prevalence of a cutaneous disorder appears to be similar between Type 1 DM and Type 2 DM patients. But Type 2 DM patients develop more frequent cutaneous infections than Type 1 DM patients. The objective of the study was to assess the various cutaneous manifestations of Type 2 DM. All patients with Type 2 DM, of age group above 40 and both sexes attending to medicine OPD and in patients who are willing to give written informed consent, were included for the study between Jan 2020 to June 2020. Complete history and examination of all the patients with regards to onset of cutaneous manifestations was taken. Majority (49%) of patients was in the age group of 41 to 50 years, and majorities (66%) were males. 57.5% were new cases and 42.5% were known cases. Duration of illness - majority 50.58% were <5 years, 27.05% in 6 to 10 years. In present study there were 61% who had infectious skin manifestations and 39% who had non-infectious skin manifestations. Out of infectious manifestations 39.5% had fungal infection. We conclude that the skin is involved in DM quite often more than micro and macro vascular complications which also has to be given more importance. The manifestations are numerous and varied and many a times they can serve as diagnostic marker for underlying DM. Whenever patients present with multiple skin manifestations, their diabetic status should be checked. The recognition of these skin findings is the key to treatment and prevention of skin complications and glycaemic level.

INTRODUCTION

Diabetes mellitus (DM) is a common endocrinopathy and assumes significance for its ability to adversely affect the various internal organs. It can also derail the immune system of the affected. Abnormal insulin secretion and/or utilization, leads to hyperglycemia which has adverse effects on the heart, blood vessels, kidney, nervous system, eye and skin. [1] The knowledge of the cutaneous signs of diabetes mellitus (DM) can be valuable to the clinicians as their observation can point towards the diagnosis of diabetes. Mostly, these cutaneous findings manifest after the diagnosis of DM, but they may appear coincidentally with its onset, or even precede diabetes by many years. [2] Hence, it is not surprising for diabetes to affect skin (the largest organ) producing different lesions. At times, evaluation for skin lesions leads to diagnosis of underlying diabetes. In a known diabetic, skin changes may provide warning signals regarding systemic involvement.

In this study, we have attempted to record the cutaneous manifestations of type 2 DM.

METHODOLOGY

The present study was an observational study conducted in the Department of Medicine, Rajah Muthiah Medical College and Hospital, which is a tertiary care hospital located in delta south India over a period of 6 months from Jan 2020 to June 2020. All patients attending to medicine OPD and in patients in the department fitting in the inclusion criteria and willing to participate were included in the study. Sample size was 200 patients. Study participants were coming to Medicine Department and having inclusion criteria were taken in the study.

Inclusion criteria

Both gender with age above 40 years, Patients diagnosed to have DM and newly diagnosed DM based on the American Diabetic Association criteria (symptoms of diabetes and random plasma sugar >200 mg/dl or fasting plasma sugar >126 mg/dl or >200 mg/dl 2 h after 75 g oral glucose or hemoglobin A1c >6.5%) were included in this study. [3]

Exclusion criteria

Patients with known comorbid conditions requiring long-

term steroid therapy and patients suffering from immune compromised conditions, type 1 DM, pulmonary tuberculosis, collagen vascular diseases, thyroid disorders, and primary dermatological conditions were excluded from the study. Age under 40 was excluded.

All the data were collected properly and analyzed statistically.

RESULTS

TABLE 1; Age distribution among the study population (n=200)

Age distribution (years)	Frequency	Percentage
41-50	85	42.5
51-60	99	49.5
>60	16	8
Total	200	100

TABLE 2; Gender distribution among the study population (n=200)

Gender distribution	Frequency	Percentage
Male	132	66
Female	68	34
Total	100	100

TABLE 3; DM known case or new case (n=200)

DM	Frequency	Percentage
New case	115	57.5
Known case	85	42.5
Total	200	100

TABLE 4; Duration of DM among the study population (n=85)

Duration in years	Frequency	Percentage
<5	43	50.58
6 - 10	23	27.05
11 - 15	9	10.85
16 - 20	10	11.76
Total	85	100

TABLE 5; Skin manifestation among the study population (n=200)

Skin manifestation	Infectious (n=122)			Non infectious (n=78)	Total
	Bacterial	Fungal	Viral		

Frequency	41	79	2	78	200
Percentage	20.5%	39.5%	1%	39%	100%

TABLE 6; Duration of skin infection among the study population (n=200)

Duration	Frequency	Percentage
<1month	155	77.5%
>1month	45	22.5%
Total	200	100%

TABLE 7; Association between duration of DM and bacterial, fungal, viral skin manifestation among the study population (n=85)

Duration of DM	Bacterial		Fungal		Viral	
	Present	Absent	Present	Absent	Present	Absent
<5	9	34	18	25	2	41
6-10	5	18	9	14	0	23
11-15	2	7	5	4	0	9
16-20	7	3	3	7	0	10

TABLE 8; Association between duration of DM and non infectious skin manifestation among the study population

Duration of DM	Non infectious		Total
	Present	Absent	
<5	35	18	53
6-10	24	19	43
11-15	7	2	9
16-20	4	6	10
Total	70	45	115

TABLE 9; Association between duration of DM and infectious skin manifestation among the study population

Infections	Duration of DM (years)				P value
	<5	6-10	11-15	16-20	
Bacterial	9	5	2	7	0.0247
Fungal	18	9	5	3	0.0312
Viral	2	0	0	0	0.57

DISCUSSION

In our study, majority 49.5% of patients were in the age group of 51 to 60 years, followed by 42.5% who were less than 41-50 years and only 8% were more than 61 years. Mean age was 49.5±14.2 years. Galdeano et al in their study showed that of the 125 diabetic patients hospitalized in the Department of Medical Clinic of the Hospital Luis Lagomaggiore, it was observed that mean age was 58.9±15.43 years, with a maximum of 85 years and a minimum of 16 years old, 55% of patients (n=69) were older than 60 years. [4] An observational study by Goyal et al comprised of 100 consecutive patients of DM. The youngest patient was 28 years and oldest was 80 years with a mean age of 57.44±10.37years. [5]

In our study, majority 66% were males and 34% were females. Galdeano et al in their study showed that females predominated slightly, representing 57% of the patients. [4]

In our study, majority 57.5% were new cases and 42.5% were known cases. Study by Kumar et al showed that 5 were newly diagnosed. [7]

In our study with relation to the duration of the illness, majority 50.58% were <5 years, 27.05% in 6 to 10 years, 11.76% in 16 to 20 years and 10.85% in 11 to 15 years. Study by Kumar et al showed that the duration of diabetes was <10 years in 30 patients, 17 had 11-20 years and 3 had >20 years of diabetes. [7]

The duration of the disease ranged from 3 months to 30 years with a mean of 10.57±7.63 years. The duration of DM was more than 5 years in 65 patients and 5 years or less in 35 patients in a study by Sanad et al. [6]

In the present study 61% had infectious skin manifestations

and 39% had non-infectious skin manifestation. Out of infectious manifestations 39.5% had fungal infection, 20.5% had bacterial and 1% had viral. Galdeano et al showed that the skin infection was present in 35 patients (28%). [4]

The most common skin disorders were cutaneous infections (30%), followed by pruritus (21%), local reactions at the site of insulin injection (9%), vitiligo (7%), diabetic dermopathy (7%), and xanthelasma (5%). Diabetic bullae, reactions of oral hypoglycemic drugs, skin tags, and neuropathic ulcers occurred in 10% of the patients, whereas acanthosis nigricans, angular cheilitis, and xerosis in 3% and diabetic rubeosis, stiff joints, necrobiosis lipoidica diabetorum, psoriasis, and eczema were observed in 3% of the patients.

In our study, majority 77.5% had for less than 1 month and 22.5% >1 month. Association between duration of DM and bacterial, fungal skin manifestations, p value is 0.0247, 0.0312 which shows statistical significance and viral manifestation p value is 0.57 shows no significance. Galdeano et al in their study showed that there was statistical significance (p=0.009), [4] Similar results were in present study.

CONCLUSION

We conclude that the skin involvement in diabetes quite often and should be given more importance like other diabetic complications. The manifestations are numerous and varied and many a times they can serve as diagnostic marker for underlying diabetes. Whenever patients present with multiple skin manifestations, their diabetic status should be checked. It is found more frequently among Type 2 diabetics and increasing duration of diabetes increases the possibility of skin involvement. Impaired diabetic control as evidenced by higher HbA1C levels among patients with infections can be used as a good measurement tool. As the duration of diabetes increased, the likelihood of developing skin manifestations also increases. Early detection and prompt treatment of cutaneous lesions in diabetic is more important to have good control and prevent disabling complications.

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