pISSN 2394-6032 | eISSN 2394-6040

# **Research Article**

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20151547

# Pattern of dermatoses in diabetic patients: a cross-sectional study of 100 patients

# Tulika Rai\*

Department of Skin & V.D, Heritage Institute of Medical sciences, Varanasi, Uttar Pradesh, India

**Received:** 17 September 2015 **Revised:** 18 September 2015 **Accepted:** 09 October 2015

## \*Correspondence: Dr. Tulika Rai,

E-mail: raitulika@gmail.com

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

#### **ABSTRACT**

**Background:** Diabetes mellitus is associated with an increased incidence of cutaneous infections and dermatoses. This study was carried out to study the association of diabetes with dematoses and to see the pattern of dermatoses in diabetics.

**Methods:** One hundred consecutive diabetic patients were included in the study and were examined for the presence of cutaneous lesions. Data was analysed using SPSS 19.0.

**Results:** There were 54 males and 46 females in our study. The majority belonged to the 50-59 years age group. Infections (fungal and bacterial) were the most common cutaneous manifestations. Diabetic dermopathy which is a cutaneous marker of diabetes mellitus was found in 3 patients. The other specific cutaneous markers like necrobiosis lipoidica diabeticorum, diabetic bulla are rare and were not found in our study.

Conclusions: Diabetes mellitus is associated with an increased incidence of cutaneous infections and dermatoses.

Keywords: Diabetes mellitus, Dermatoses, Infections

### INTRODUCTION

Diabetes mellitus (DM) is the most common endocrine disorder. It exhibits a variety of multisystem complications involving the blood vessels, skin, kidney, eve and the nervous system during the course of the disease process. Abnormal carbohydrate metabolism. altered metabolic pathways, atherosclerosis. microangiopathy, neuron degeneration, and impaired host mechanisms all play roles. The association of certain skin diseases with diabetes mellitus has been well recognized with an incidence rate ranging from 11.4% to 66%. Many studies have reported increased incidence of various types of bacterial and fungal infections in the  $diabetics^{\vec{1},\vec{3}}$  and correlated it with the increased concentration of glucose in the skin which acted as a substrate for the growth of these organisms.

Diabetes mellitus affects individuals of all ages and in all socio-economic segments of the population. The International Diabetes Federation (IDF) estimates the total number of diabetic subjects to be around 40.9 million in India and this is further set to raise to 69.9 million by the year 2025. Estimates by WHO suggest that the number of diabetic subjects would increase to 80 million by the year 2030 in India.

#### **METHODS**

A cross-sectional study was carried out among one hundred consecutive, diabetic patients attending the diabetic clinic, medical out-patient department and skin out-patient department and different wards of Jawaharlal Nehru Medical College, Aligarh Muslim University and Heritage Institute of Medical Sciences, Varanasi during the period of January 2015 to July 2015. Patients with the family history of diabetes, type I dabetes mellitus, with

gestational diabetes and with impaired glucose tolerance were excluded from the control group. A detailed history and clinical examination, especially for the presence of cutaneous lesions, was carried out in proper sun light. Blood sugar estimation, urine examination and Hb1AC were also done. Scraping and direct KOH examination and culture for fungus in sabouraud's agar and gram staining and culture of the pus was done to identify the type of bacterial organism only in selected cases not responding to standard treatment. A detailed dermatological examination, serum cholesterol, liver and kidney function tests and electrocardiogram were carried out

#### **RESULTS**

Out of 100 patients, 54 were males and 46 were females. The age group ranged from 39 to 84 years. The duration of diabetes ranged from 6 months to 17 years. Out of 100 diabetic patients, 78 had controlled diabetes with oral hypoglycemic agents or insulin and the rest 22 had uncontrolled diabetes. Table 1 shows the distribution of various dermatoses in diabetic patients. A total of 38 patients had one or more cutaneous manifestations of diabetes mellitus. Fourteen patients had four cutaneous features; twelve had three cutaneous features, nine had two cutaneous features, three had only one cutaneous feature. The most common cutaneous manifestation among diabetics was fungal infections (tinea corporis, tinea cruris, tinea manuum, tinea pedis, onychomycosis, candidiasis, candidal intertrigo). Fungal infections were seen in 22 patients. Bacterial infections were the next most common presentation. It was seen in 20 patients. It comprised of folliculitis, furuncles, carbuncles, cellulitis and erysipelas.

Skin tags were the next common presentation. They were seen in 12 patients. These features were followed by seborrheic keratosis, generalized pruritus and acanthosis nigricans in decreasing order of frequency.

Table 2 shows the age distribution of the diabetic patients.

None of the patients had necrobiosis lipoidica diabeticorum, diabetic bullae, reactive perforating collagenosis, and drug reactions to OHA. Associated hypercholesterolemia was seen in 17 patients. 9 patients also had elevated serum triglycerides.

# **DISCUSSION**

Out of 100 patients, 38 patients had some form of cutaneous involvement. Other studies have reported a slightly higher incidence of cutaneous manifestations. Majority of the patients were in the fifth decade of life. Nigam<sup>5</sup> reported a higher incidence of 61% of cases with cutaneous manifestations in diabetic patients. Bedi and Kandhari, however, observed a slightly lower incidence rate of 42.5% of cases with cutaneous involvement

among the diabetic patients. The lower incidence of cutaneous manifestations in our patients could be due to better control of diabetes in most patients as compared to the other studies.

Gulati et al<sup>7</sup> reported cutaneous infections in 49% of diabetics in their study group. In the present study also, infections formed the largest group affecting, 26 out of the 38 cases had cutaneous infections. Most of our patients had more than one cutaneous manifestations of diabetes.

Table 1: Various dermatoses in patients of diabetes.

Skin disease	No. of males	No. of females	Total	Percentage (%)
Fungal infections	9	13	22	22
Bacterial infections	12	8	20	20
Viral infections	s 3	1	4	4
Trophic ulcers	3	0	3	3
Diabetic dermopathy	2	1	3	3
Pruritus	7	4	11	11
Necrobiosis lipoidica Diabeticorum	0	0	0	0
Skin tags	4	9	13	13
Acantosis nigricans	3	6	9	9
Seborrheic keratosis	4	8	12	12
Xanthomas	2	1	3	3
Xerosis	6	3	9	9
Lichen planus	1	0	1	1
Psoriasis	0	1	1	1
Vitiligo	0	2	2	2
Reactive perforating collagenosis	0	0	0	0
Gangrene	0	0	0	0
Drug reactions to OHA	0	0	0	0
Diabetic bullae	0	0	0	0

Table 2: Age wise distribution of patients (Total=100).

Age Group	No. of patients
30-39	1
40-49	27
50-59	32
60-69	26
70-79	11
80-89	3

Dermatoses associated with an increased incidence of dm, like vitiligo (2), lichen planus (1), were also detected in the present study as documented earlier.<sup>8</sup>

#### **CONCLUSION**

Diabetes mellitus is associated with an increased incidence of cutaneous infections and dermatoses.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

#### **REFERENCES**

- 1. Greenwood AM. A study of skin in 500 diabetics. JAMA. 1927;89:774-9.
- Nigam PK, Pande S. Pattern of dermatoses in diabetics. Indian J Dermatol Venereol Leprol. 2003;69:83-5.
- 3. Urbach K, Lentz JW. Carbohydrate metabolism and the skin, Arch Dermotol Syphilol. 1965;52:301–4.

- 4. Sicree R, Shaw J, Zimmet P. Diabetes and impaired glucose tolerance. In: Gan D, editor. Diabetes atlas. International diabetes federation. 3 rded. Belgium: International Diabetes Federation. 2006;15-103.
- Nigam PK, Pande S. Pattern of dermatoses in diabetics. Indian J Dermatol Venereol Leprol. 2003;69:83-5.
- 6. Bedi BMS, Kandhari KC. Diabetes or prediabetes and dermatoses. J Assoc Phys Ind. 1965;13:809-10.
- 7. Gulati S, Jaganath K, Ashok SG. Cutaneous manifestations associated with diabetes mellitus- a study of 75 cases. 28" National conferenced Indian Association of Dermatologists, Venereologists and Leprologists (Abstract book). 2000:143:167-16.
- 8. Roo GS, Poi GS. Cutaneous manifestations of diabetes mellitus: a clinical study. Indian J Dermatol Venereal Leprol. 1997;63:232-4.

**Cite this article as:** Rai T. Pattern of dermatoses in diabetic patients: a cross-sectional study of 100 patients. Int J Community Med Public Health 2016;3:133-5.