

## Original Research

### Determination of Skin Lesions in type II Diabetes Mellitus patients

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#### **ABSTRACT:**

**Background:** Diabetes mellitus (DM) is a metabolic disease characterized by relative or absolute insulin deficiency. The present study was conducted to determine skin lesions in patients with type II diabetes mellitus. **Materials & Methods:** The present study was conducted on 216 patients of type II diabetes mellitus of both genders. In all subjects, a careful clinical examination was done. The type of skin lesions was recorded. The glycemic control was evaluated by measuring the glycosylated hemoglobin (Hb1AC). **Results:** Out of 216 patients, males were 112 and females were 104. Age group 20-40 years had 37, 40-60 years had 52 and >60 years had 127 patients. The difference was significant ( $P < 0.05$ ). Common skin lesions in type II DM patients was parakeratosis in 55, diabetic bullae in 34, diabetic ulcer in 124, pruritis in 56, lichen planus in 34, vitiligo in 10, Lipodystrophy in 78 and wet gangrene in 45. The difference was significant ( $P < 0.05$ ). **Conclusion:** Authors found that common skin lesions in type II DM patients was parakeratosis, diabetic bullae, diabetic ulcer, pruritis, lichen planus, vitiligo, Lipodystrophy and wet gangrene.

**Key words:** Diabetic bullae, Lichen planus, Lipodystrophy

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#### **INTRODUCTION**

Diabetes mellitus (DM) is a metabolic disease characterized by relative or absolute insulin deficiency. The metabolic abnormality in DM results in gross defect in protein, carbohydrate and fat metabolism. It is characterized by hyperglycemia secondary to absolute or relative deficiency of insulin.<sup>1</sup> DM is classified into two types, DM type 1 (insulin dependent diabetes-IDDM) and DM type 2 (non-insulin dependent diabetes NIDDM). Global incidence of DM type 2 in the year 2000 was 171 million which is likely to be 366 million in the year 2030. Long standing DM can lead to

irreversible functional changes in the body that result in various complications. Disturbed metabolism of glucose, amino acids and lipids leads directly to physical signs in patients with DM. Approximately 30% of patients with DM have skin lesions.<sup>2</sup>

Cutaneous manifestations of DM can be broadly classified into four groups; skin lesions strongly associated with DM, skin lesions of infectious etiology, lesions secondary to complications of DM and lesions related to treatment of DM. There are many proposed patho-mechanism for skin involvement in DM, which includes abnormal carbohydrate metabolism, other

altered metabolic pathways, atherosclerosis, microangiopathy, neuron degeneration and impaired host immune mechanism.<sup>3</sup> Some studies revealed the correlation of skin manifestation of DM with microangiopathic complications. However, a large-scale study in Indian population aiming at finding out the correlation of the skin manifestations with internal complication of DM is lacking till date.<sup>4</sup> The present study was conducted to determine skin lesions in patients with type II diabetes mellitus.

**MATERIALS & METHODS**

The present study was conducted in the department of Dermatology. It comprised of 216 patients of type II diabetes mellitus of both genders. All were informed regarding the study. Ethical approval was obtained from institute prior to the study.

General information such as name, age, gender etc. was recorded. In all subjects, a careful clinical examination was done. The type of skin lesions was recorded. The glyceamic control was evaluated by measuring the glycosylated hemoglobin (Hb1AC). Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

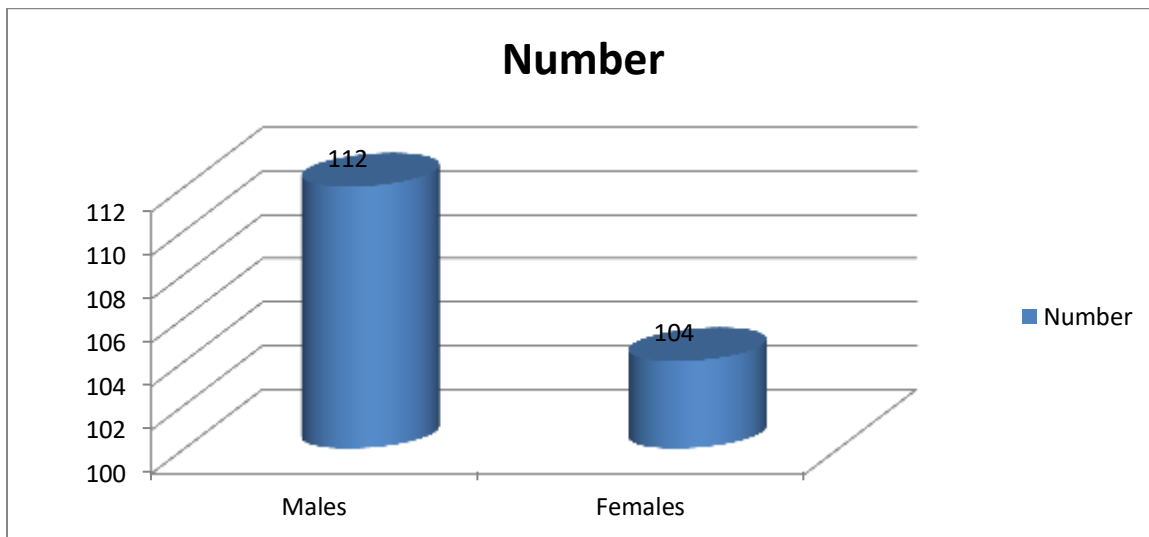
**RESULTS**

**Table I Distribution of patients**

Total- 216		
Gender	Males	Females
Number	112	104

Table I shows that out of 216 patients, males were 112 and females were 104.

**Graph I Distribution of patients**

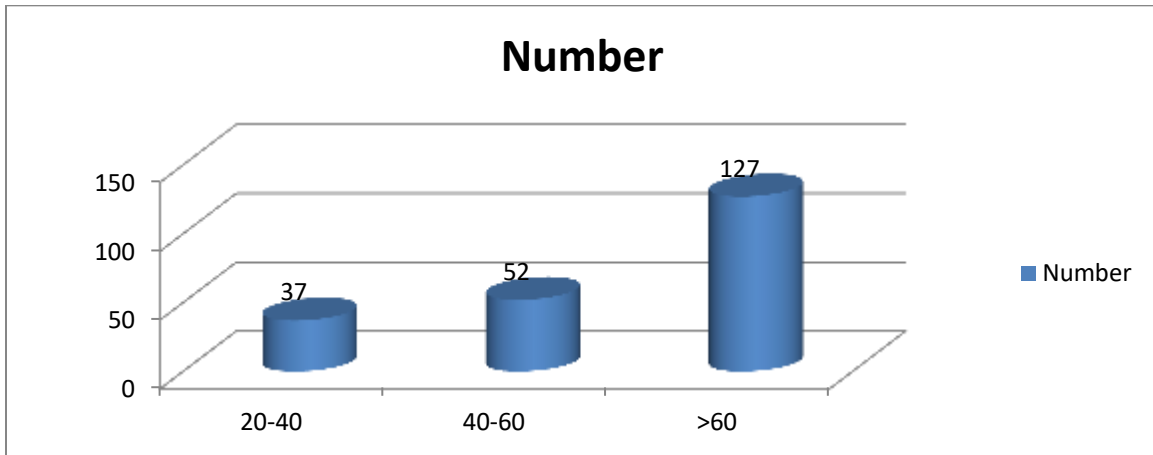


**Table II Age wise distribution of patients**

Age group (Years)	Number	P value
20-40	37	0.01
40-60	52	
>60	127	

Table II, graph II shows that age group 20-40 years had 37, 40-60 years had 52 and >60 years had 127 patients. The difference was significant (P< 0.05).

**Graph II Age wise distribution of patients**

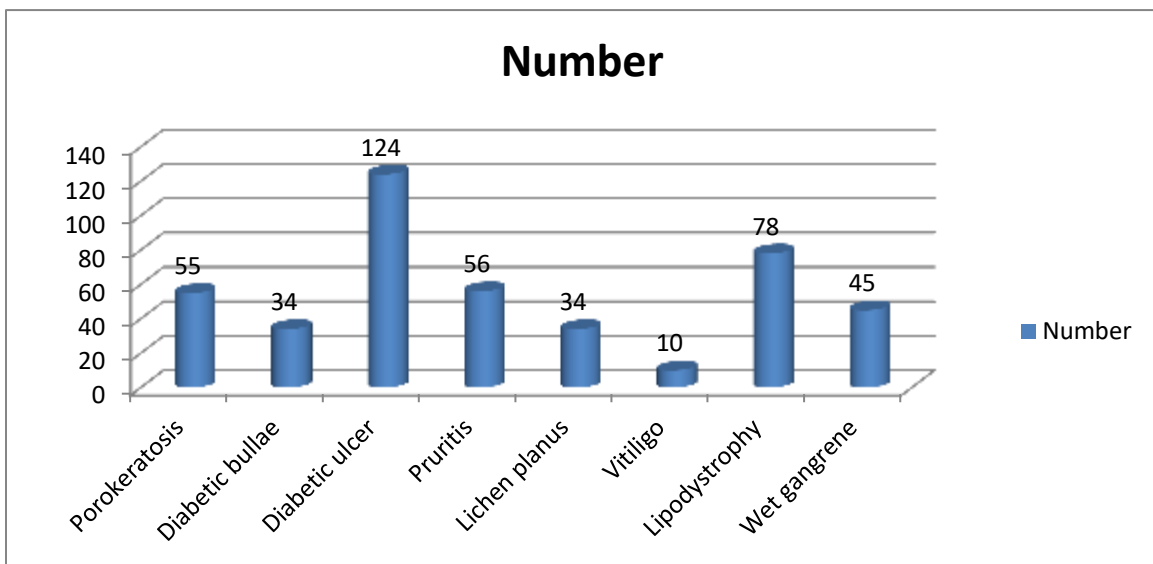


**Table III Skin lesions in patients**

Skin lesions	Number	P value
Porokeratosis	55	0.01
Diabetic bullae	34	
Diabetic ulcer	124	
Pruritis	56	
Lichen planus	34	
Vitiligo	10	
Lipodystrophy	78	
Wet gangrene	45	

Table III, graph III shows that common skin lesions in type II DM patients was porokeratosis in 55, diabetic bullae in 34, diabetic ulcer in 124, pruritis in 56, lichen planus in 34, vitiligo in 10, Lipodystrophy in 78 and wet gangrene in 45. The difference was significant ( $P < 0.05$ ).

**Graph III Skin lesions in patients**



## DISCUSSION

Various common and rare skin disorders associated with diabetes include diabetic dermopathy, necrobiosis lipoidica, diabetic bullae, diabetic thick skin, yellow skin, acanthosis nigricans, eruptive xanthomas, disseminated granuloma annulare, sclerodema, yellow nails, skin tags, diabetic rubeosis, vitiligo and lichen planus.<sup>5</sup> Commonly seen cutaneous bacterial infections in DM are folliculitis, furunculosis, carbuncle, ecthyma, cellulitis and erysipelas. Cutaneous fungal infections encountered are pityriasis versicolor, oral, as well as, vulvovaginal candidiasis and dermatophytosis.<sup>6</sup> Other associated disorders are calciphylaxis, xerosis, xanthelasma, lipodystrophy, macular amyloidosis and alopecia. Commonly seen viral infections include herpes zoster and viral warts.<sup>7</sup> The present study was conducted to determine skin lesions in patients with type II diabetes mellitus.

In present study, out of 216 patients, males were 112 and females were 104. Goyal et al<sup>8</sup> found that in 203 patients (41% male and 59% female), mean age was 50 years and mean duration of diabetes 8.5 years. Mean HbA1c was 8.6 with 68% patients having unsatisfactory glycemic control. Most frequently observed skin disease was bacterial infections (26%), followed by fungal infections (22%), acanthosis nigricans (20%), diabetic foot (16%), nail changes (16%), acrochordons (10%), diabetic dermopathy (9%), necrobiosis lipoidica (9%), viral infections (8%) pruritus (8%) and xanthelasma (8%). There was significant association of unsatisfactory glycemic control with bacterial infections ( $p = 0.037$ ) and fungal infections ( $p = 0.023$ ). Females especially had a higher frequency of association with acanthosis nigricans ( $p = 0.030$ ).

We found that age group 20-40 years had 37, 40-60 years had 52 and >60 years had 127 patients. Common skin lesions in type II DM patients was porokeratosis in 55, diabetic bullae in 34, diabetic ulcer in 124, pruritus in 56, lichen planus in 34, vitiligo in 10, Lipodystrophy in 78 and wet gangrene in 45. Ghosh et al<sup>9</sup> found that sixty ( $n = 60$ ) diabetes patients (Type 1 DM, 9 patients and Type 2 DM 51 patients) have been found to have various skin lesions. Thirty-one (51.67%) patients presented with infectious conditions, vascular complications were present in 21 (35%) and dermatomes belonging to the miscellaneous group were present in 50 (83.33%) patients. Pyoderma, diabetic dermopathy, and pruritus without skin lesions were found to be most common manifestations in infective, vascular and miscellaneous group, respectively. Higher level of HB1AC was found in patient with diabetic bulla ( $10.5 \pm 0$ ), sclerodema ( $9.75 \pm 0.77$ ), lichen planus ( $9.3 \pm 1.6$ ), and acanthosis nigricans ( $9.15 \pm 0.89$ ). Patients with psoriasis and vitiligo had statistically

significant lower level of glycosylated hemoglobin ( $P \leq 0.001$  and  $0.03$ , respectively). However, no association of any kind of skin manifestation with DM with other microangiopathic complications was found in this study.

The prevalence of different types of skin changes varies considerably in different studies. A south Indian study revealed that infectious complications are most common complications. Fungal infection was the most common infectious complication. Among the other complications, 2(2.27%) had xanthelasma palpebrarum, 1(1.14%) had pruritus without any skin lesions, 2 patients had diabetic dermopathy and 1(1.14%) had diabetic bulla. Polyneuropathy and diabetic ulcer was noted in one patient each.<sup>10</sup>

## CONCLUSION

Authors found that common skin lesions in type II DM patients was porokeratosis, diabetic bullae, diabetic ulcer, pruritus, lichen planus, vitiligo, Lipodystrophy and wet gangrene.

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