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Mucocutaneous Manifestations among Indian Type 2 Diabetes Subject: A Longitudinal Study in a Tertiary Care Hospital in Darbhanga

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Abstract **Original Research Article**

Aim: Mucocutaneous manifestations in Type 2 Diabetes Mellitus (T2DM) is the most common phenomenon. The main aim and objective of this trial is to assess the mucocutaneous manifestations in T2DM subjects who attained a tertiary care hospital in Darbhanga and also its major role towards diagnosing the metabolic endocrine disorder and its complications. ***Methods:*** This is an observational and longitudinal study where 350 patients having diabetes with skin complaints and admitted in wards or attending skin outdoor department in a tertiary care hospital situated at Darbhanga, had been studied. Clinical examination, Detailed history and relevant investigations were done to diagnose the mucocutaneous disorders, type 2 diabetes, and diabetes related complications. After taking informed consent Pre-designed and pretested proforma was filled. Weekly follow-up was done to all patients till satisfactory improvement was achieved. The data was collected in a computer and analysis was done through a statistical software. ***Result:*** Majority of cases having with demographic profile in more than 40 years of age and preponderance of male and female was almost equal. 21.67% cases having presenting feature of diabetes were also present with Mucocutaneous manifestations. Maximum of 119 (39.66%) cases Infections were most common, followed by 46 (15.33%) cases with acanthosis nigricans. 160 (53.3%) patients were also associated with diabetic complications like hyperlipidaemia, retinopathy, coronary artery disease, hypertension, nephropathy, neuropathy and diabetic ketoacidosis. ***Conclusions:*** Along with other severe disease even in T2DM internal disease was reflected by skin which also worked as reflecting mirror. Through cutaneous manifestations of T2DM awareness, dermatologist is not only capable of detecting diabetes but also in a position to diagnose, prevent further complication f T2DM.

Keywords: Type 2 Diabetes Mellitus, Mucocutaneous manifestations, Skin lesions.

INTRODUCTION

Around 40.9 million people estimates to have diabetes in India by International Diabetes Federation (IDF) and by the year 2025, this is further set to rise to 69.9 million [1].

Mucocutaneous manifestations in Type 2 Diabetes Mellitus (T2DM) is the most common phenomenon. Mucocutaneous conditions have vulnerability to be recalcitrant in subjects whose diabetes in uncontrolled. In reverse if mucocutaneous conditions if not treated properly the prognosis of uncontrolled type 2 diabetes mellitus (T2DM) can further be worsen by became uncontrolled and may become aggravated. Gilgor and Lazarus observed that some type of cutaneous involvement during the course of their diabetes was as equals as 30% [2]. Thus, it of immense importance that mucocutaneous conditions has to be detected, diagnose and treated early to prevent further worsening of T2DM and its complications.

The main aim and objective of this trial is to assess the mucocutaneous manifestations in T2DM subjects who attained a tertiary care hospital in Darbhanga and also its major role towards diagnosing the metabolic endocrine disorder and its complications.

MATERIALS AND METHODS

This is an observational and longitudinal study where 350 patients having diabetes with skin complaints and admitted in wards or attending skin outdoor department in a tertiary care hospital situated at Darbhanga, had been studied. clinical examination, Detailed history and relevant investigations were done to diagnose the mucocutaneous disorders, type 2 diabetes, and diabetes related complications. After

taking informed consent Pre-designed and pretested proforma was filled.

FBS>126 mg/dl and PPBS >200 mg/dl was considered as uncontrolled T2DM and included in the study. Medical records were reviewed for information of medications, duration and complications of diabetes. semi-structured questionnaire guidelines by using local vernacular language were used to collect the information. Cutaneous and mucosal examination was performed to all subjects at regular interval and also screened for postulated/known/without a clear pathogenesis of cutaneous diseases. Cases were subjected to baseline investigations like fasting and post-prandial blood sugar levels, urine examination, complete blood count, histopathological and microbiological investigations and dilated fundus examination.

Weekly follow-up was done to all patients till satisfactory improvement was achieved. The data was collected in a computer and analysis was done through a statistical software.

RESULTS

Majority of cases having with demographic profile in more than 40 years of age and preponderance of male (55%) and female (45%) was almost equal with 53.17±16.09 (Mean±SD) years of age. Majority of cases (58.11%) were in the age group of more than 40 years. Majority (61.21%) had the duration of DM< 6 years. In 82.5% of patients, the duration of diabetes was >10 years. Uncontrolled diabetes was seen in 59% of cases. 72 (20.57%) cases presenting with mucocutaneous lesions were found to have diabetes on investigations (Table-1).

Table-1: Demographic Profile

Characteristics	No.	Percentage
Total patients	350	100
Males	193	55
Females	157	45
Uncontrolled diabetes	208	59
Freshly detected diabetes	89	25
Age (years) (mean+standard deviation)	53.17±16.09	
Duration of diabetes (years)	7.8±1.96	

189 (54%) patients presented with cutaneous manifestations of known/postulated pathogenesis. Cutaneous infections comprised the largest group affecting 123 (35%) cases. Acanthosis nigricans (AN) was the second most common condition seen in 52 (15%) cases (Figure-2). Xanthelasma was seen in 11 (3.14%) cases. Diabetic ulcers were present in 8 (2.28%) cases uncontrolled blood sugar levels. Scleredema diabeticorum was noted over back and shoulders in two cases (Table-2).

Table-2: Cutaneous manifestations of DM (n=300)

Cutaneous manifestations	No. of cases (%)
With known/postulated pathogenesis	189 (54%)
Cutaneous infections	123 (35%)
Acanthosis nigricans	52 (15%)
Scleredema diabeticorum	3 (0.8%)
Diabetic ulcer	8 (2.28%)
Xanthelasma	11 (3.14%)
Without a clear pathogenesis	24 (6.85%)
Diabetic dermopathy	9 (2.57%)
Diabetic bullae	2 (0.57%)
Acquired perforating dedrmatoses	9 (2.57%)
Granuloma annulare	2 (0.57%)
Known to be associated with DM	98 (28%)
Skin tags	48 (13.71%)
Rubeosis faciei	3 (0.8%)
Pigmented purpuric dermatoses	1 (0.28%)
Lichen planus	14 9 (4%)
Vitiligo	12 (3.42%)
Cherry angiomas	8 (2.28%)
Dryness (xerosis)	21 (6%)
Generalized pruritus	4 (1.14%)
Bullous pemphigoid	2 (0.57%)
Complication with anti-diabetics	8 (2.28%)
Oral hypoglycaemic agents	1 (0.28%)
Insulin	6 (1.71%)
Other cutaneous findings	108 (30.85%)
Achard thiers syndrome	1 (0.28%)
Eczema/dermatitis	46 (13.14%)
Immunobullous diseases	19 (5.42%)
Psoriasis	12 (3.42%)
Urticaria	9 (2.57%)
Cutaneous amyloidosis	8 (2.28%)
LSA	1 (0.28%)
Callosity	3 (0.85%)
IGH	1 (0.28%)

Maximum of 119 (39.66%) cases Infections were most common, followed by 46 (15.33%) cases with acanthosis nigricans. 160 (53.3%) patients were also associated with diabetic complications like hyperlipidaemia, retinopathy, coronary artery disease, hypertension, nephropathy, neuropathy and diabetic ketoacidosis.

DISCUSSION

Multiple degenerative alterations that affect the cardiovascular system were associated with Diabetes in long run along with the other complications like the central as well as peripheral nervous system, the eyes, and the skin. physicians studied cutaneous complications associated with this disease because of their numerous and complicated repercussions.

82.5% of the patients had duration of less than 10 years as shown in the present study which even confirmed by Bhat *et al.*, [3], Dogra *et al.*, [4] and Rao and Pai *et al.*, [5] *R*isk of development of microangiopathy and related complications or sequel was increased by uncontrolled diabetes which also reported by Yosipovitch *et al.*, [6] and Sawhney *et al.*, [7].

As a marker of DM cutaneous manifestations may serve in nature. The most common manifestation observed in present study was cutaneous infections (35%), similar to Mahajan *et al.,* [8] and Nigam *et al.*, [9]. Probably due to hyperglycaemia and defects in polymorphonuclear leukocyte function diabetic patients are susceptible to infections. Amongst 52 (15%) cases of AN, 31 (67.39%) patients were known diabetics with or without other cutaneous manifestations. Insulin at high concentrations is suggested to be promoting epidermal cell proliferation by stimulate insulin-like growth factor receptors on keratinocytes [10].

Severity of cutaneous disorders with or without known pathogenesis is reduces by a good glycaemic control [11]. Risk of these disorders can be reduced by health promotion and education to control glycemia [12, 13]. Skin disorders in almost all the diabetic patients results in long-term effects of DM on the microcirculation and on dermal collagen. Along with other severe disease even in T2DM internal disease was reflected by skin which also worked as reflecting mirror [14]. Through cutaneous manifestations of T2DM awareness, dermatologist is not only capable of detecting diabetes but also in a position to diagnose, prevent further complication f T2DM.

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