Original Article

Frequency of New Onset Diabetes Mellitus Type II in Patients of Psoriasis Attending Tertiary Care Hospital

Madiha Sajid, Zarnaz Wahid, Humaira Talat, Reema Mirza, Najam us Sahar

ABSTRACT

OBJECTIVE: To determine the frequency of new onset diabetes mellitus type II in patients of psoriasis attending tertiary care hospital.

METHODS: This cross-sectional study done in the out-patient department, Department of Dermatology, Dow University of Health Sciences & Civil Hospital Karachi. Diagnosed cases of psoriasis meeting the inclusion criteria were selected and relevant history taken. Fasting blood sugar levels were checked two times. Informed consent was taken from all the patients. Categorical variables were expressed in frequency and percentage, whereas numerical variables were expressed in mean and standard deviation. Stratification was done with regards to age, gender and duration of psoriasis 1-5 years, to find out the effect of duration upon onset of Diabetes. The data was analyzed using SPSS version 17.

RESULTS: Of 114 patients 63 (55.3%) were less than 50 years of age with mean age of 48.8±7.3 years and 77 (67.5%) were male with male to female ratio of 2.1:1. Of 114 patients, 68 (59.6%) had duration of psoriasis less than 2 years with mean duration of 3.5±2.3 years. Of 114 patients, 9 (7.9%) had blood sugar >126 mg/dl with mean blood sugar 113±24.2 mg/dl. Frequency of new onset type II diabetes was 9 (7.9%). Stratified analysis showed that new onset type II DM is more common in female patients of < 50 years of age.

CONCLUSIONS: It is concluded from this study that patients with psoriasis are at the risk of developing type II diabetes and these patients should be screened for diabetes.

KEYWORDS: Diabetes type II, psoriasis.

This article may be cited as: Sajid M, Wahid Z, Talat H, Mirza R, Sahar NU. Frequency of New Onset Diabetes Mellitus Type II in Patients of Psoriasis Attending Tertiary Care Hospital. J Liaquat Uni Med Health Sci. 2015;14(02):83-5.

INTRODUCTION

Psoriasis is a common, chronic, inflammatory and proliferative skin disease .There are genetic, immunological, metabolic, and environmental factors that play a vital role in its development.[1] The characteristic lesions consist of red, scaly, sharply demarcated indurated plaques present mostly over the extensor surfaces and scalp.[2] Psoriasis has different morphological types.

Ferdinand von Hebra described psoriasis as a distinct entity in 1841. Psoriasis affects around 2% of general population.[4] The most widespread field study was done in the Faroe Islands, where the prevalence was found to be 2.8%.[3] Different studies have shown association between psoriasis and diabetes mellitus type II. Eight percent of psoriatic patients develop new onset diabetes mellitus according to the study published in a local journal.[5] More the duration of psoriasis, greater is the risk of developing diabetes mellitus .[6]

In the nested case-control analysis, the prevalence of psoriasis was slightly higher among cases of DM than among controls (adjusted OR 1·31, 95% CI 1·13-1·51), and a BMI above 25 kg m^{-2} as well as comorbid states associated with metabolic syndrome were also more common in cases with DM than in controls. The slightly raised risk of developing DM associated with psoriasis was comparable to conclusions from previous studies in non hospitalized patients and from cross-sectional designs.[7,8]

Morbidity from new onset diabetes in patients with psoriasis is on the rise. Epidemiological studies are most essential in planning and allocating resources as they give important information for good strategy making in a country having poor resources. This study was conducted to find the frequency of new onset diabetes mellitus type II in patients of psoriasis.

MATERIAL AND METHODS

This cross-sectional survey was done in Out-patient department, Civil Hospital Karachi & Dow University of Health Sciences Department of Dermatology. Through consecutive sampling methods 114 patients

were selected .Patient aged 40-70 years with duration of psoriasis between 1-5 years and diabetes mellitus not present at the time of diagnosis of psoriasis were included. Patients suffering from active infections (tuberculosis, septicemia), hepatic diseases, taking corticosteroids, pregnant ladies, patients suffering from polycystic ovarian disease and patients of metabolic syndrome were excluded.

Relevant history about duration of psoriasis was obtained, fasting blood sugar levels were checked twice and if any of this found more than 126mg/dl patient was labeled to have new onset diabetes mellitus type II. All the data i.e. age, gender, duration of psoriasis and diagnosis of new onset diabetes mellitus type II, was entered in pre-designed proforma by the researcher.

All the data was entered and analyzed by SPSS version 17.0. Categorical variables, such as gender and diagnosis of new onset diabetes mellitus type II were expressed in frequency and percentage, whereas numerical variables such as patients' age and duration of psoriasis were expressed in mean and standard deviation. Stratification was done with regards to age, gender and duration of psoriasis 1-5 years, to see the effect of this on outcome. This study was conducted after approval from Hospital Ethical Review Committee. Informed consent was obtained from all the patients.

RESULTS

A total of 114 patients were enrolled in this study during study period. Of 114 patients 63 (55.3%) were less than 50 years of age and 51 (44.7%) were more than 50 years with mean age of 48.8±7.3 years (Table 1) and 77 (67.5%) were male with male to female ratio of 2.1:1 (Table I).

Of 114 patients, 68 (59.6%) had psoriasis for less than 2 years and 46 (40.4%) had it for more than 2 years with mean duration of 3.5±2.3 years (Table I).

Out of 114 patients, 9 (7.9%) had blood sugar of >126 mg/dl with mean blood sugar of 113±24.2 mg/dl (table 4). Frequency of new onset type II diabetes was 9 (7.9%) (Table I). Among from 9 patients with new onset type II DM 3 were male and 6 were female.

Stratified analysis based on age, sex and duration of psoriasis was summarized in (Table II). Stratified analysis showed that new onset type II DM is more common in female patients of < 50 years of age. However duration of psoriasis was almost equally distributed between less than and more than two years. (Table II)

TABLE I:
CHARACTERISTICS OF PARTICIPANTS (n=114)

Variables	Frequency (%) Or Mean ± SD
Age	48.8±7.3 years
Gender Male Female	 37(32.5) 77(67.5)
Duration of illness <2 years >2 years	 68(59.6) 46(40.4)
Diabetes Mellitus Yes(>126 mg/dl) No(<126 mg/dl)	 9(7.9) 105(92.1)

TABLE II: STRATIFICATION OF DIABETES MELLITUS BY AGE OF STUDY PARTICIPANTS

DM*	Age group	
	<50 years	≥50 years
Yes	7 (11.1%)	2 (3.9%)
No	56 (88.9%)	49 (96.1%)
Total	63	51
DM*	**SEX**	
	Male	**Female**
Yes	3 (8.1%)	6 (7.8%)
No	34 (91.9%)	71 (92.2%)
Total	37	77
DM*	**Duration of illness**	
	<2 years	**≥2 years**
Yes	5 (7.4%)	4 (8.7%)
No	63 (92.6%)	42 (91.3%)
Total	68	46

DISCUSSION

Psoriasis is linked with several co-morbid states that can have a major effect on severely affected patients and these along with psoriasis increase the morbidity and mortality.[5] Other than psoriatic arthritis, diseases such as metabolic syndrome and cardiovascular diseases are becoming of prime importance. The chronic inflammatory nature of psoriasis is probably responsible for the development of metabolic syndrome and cardiovascular diseases.[9]

TNF (tumor necrosis factor) plays a major role in the development of psoriasis. It plays a key role in initiation of innate and acquired immune responses leading to chronic inflammation, injury to tissues and proliferation of keratinocyte. Levels of TNF are much high in skin lesions, serum and synovium of patients with psoriasis and these show a correlation with the severity of disease. Fall in the TNF levels are associated with clinical improvment.[2] A higher prevalence of insulin resistance and/or type II diabetes in psoriasis has been studied since long . In a study it was observed a considerable correlation between psoriasis severity and insulin secretion and serum resistin levels, a cytokine recognized to be raised in insulin resistance, supporting the concept of insulin resistance as a consequence of chronic inflammation.[10]

Understanding the relationship between these conditions is important for the management of psoriasis and the associated co-morbidities.

Similar to this study, a study in India reported that, of 100 patients with psoriasis diabetes mellitus was seen in 8% of patients. Most common age group was in the range of 41-50 years.[5]

In fact, latest prospective studies have shown that the collective incidence of diabetes is notably higher in the psoriasis patients, confirming psoriasis as an independent risk factor for the development of diabetes.[11]

In this study we found that 7.9% patients with psoriasis had incident type II diabetes. In this study it was found that 11.7% of type II diabetes was present in younger than 50 years of age and there was no difference between male and female i.e. 8.1% and 7.8% respectively. In our study duration of psoriasis was nearly equally distributed between <2 and >2 years.

CONCLUSION

It is concluded from this study that patients with psoriasis are at risk; although low; of developing type II DM. These patients should therefore be screened routinely to diagnose and managed diabetes to prevent diabetes related morbidity and mortality is to be prevented.

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