

The Relationship between Serum Insulin Levels in Dermatophytosis Affected Patients

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Abstract

Original Research Article

Objective: In this study our main aim is to estimate the relationship between serum insulin levels in dermatophytosis affected patients. **Methodology:** This cross-sectional study was conducted at tertiary hospital Dhaka district from two years, February 2015-February 2017 among 100 patients where data was noted in predesigned data collection sheet using various parameters. Interviews conducted using direct questionnaire and all information will be noted in pre from data collection sheet. **Results:** In our study among 100 patient's male patients 26.8% higher than female also in both male and female, most of them belongs to (31-40) year's group, which was higher than other age group. Also, among all patients most of the patients had dermatophytosis and fungal infections, were more prevalent in patients who had serum insulin level for more than ≥ 1153 pmol/L than in those with serum insulin level for less than >30 mIU/L (all $P < 0.05$). **Conclusion:** From our result, we can say that, inadequate level of serum insulin is highly common in dermatophytosis patients. Further examination regarding this result is needed for better outcome near future.

Keywords: Serum insulin levels, dermatophytosis diabetic.

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INTRODUCTION

Dermatophytosis is a common skin disease, affecting millions of people worldwide. These infections happen in both healthy and immune compromised patients. Dermatophytes are accountable for most cutaneous fungal infections and the assessed lifetime risk of acquiring dermatophytic infection is between 10– 20%. Dermatophytosis includes numerous distinct clinical manifestations. The severity of the disease depends on strain or species of infecting fungus, the sensitivity of the host and the site of infection [1, 2].

Dermatophytosis includes several distinct clinical manifestations. This verity of the disease depends on strain or species of infecting fungus, the sensitivity of the host and the site of infection [3]. Dermatophytes consist of three genera—Trichophyton, Microsporum, and Epidermophyton [3, 4]. Worldwide the most common cause of tinea pedis, tineaunguim (onychomycosis), tinea cruris, tinea mannum, tinea corporis, and tinea faciei is Trichophyton rubrum. Other frequently implicated agents include Trichophyton

mentagrophytes, Microsporum canis, Microsporum gypseum and Epidermophyton floccosum.

Recently skin disorders are found quite common and diverse. In patients with inadequate serum level dermatophytosis is usually more severe and recurrent. In one study reported that, the influence of short and long term hypoinsulinemia-hyperglycemia (HH). The incidence of any dermatologic disease during the course of abnormal serum insulin level has been stated to range from 30.0 to 91.2 %. Pathogenesis of the skin modifications detected in abnormal serum insulin level is yet to be elucidated. Hyperglycemia mainly targets the vascular endothelial cells, and developing endothelial dysfunction is the major cause of the transformation to diabetic macroangioplasty.

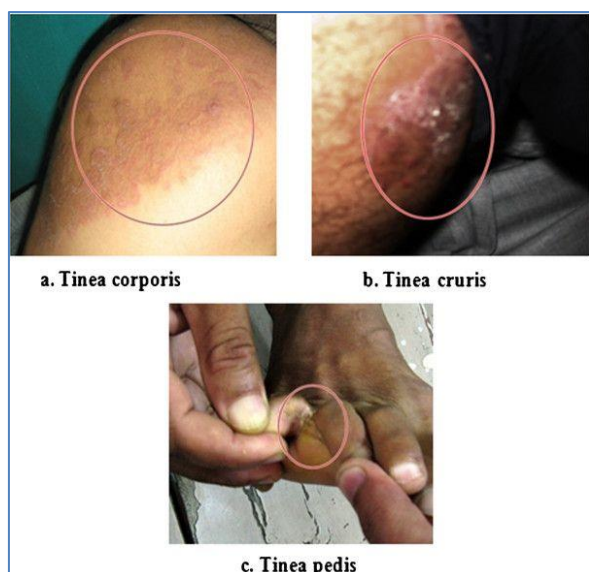


Fig-1a, 1b, 1c: Dermatophytosis patients

Micro vascular complications, including neuropathy, nephropathy, and retinopathy correlate with the glycemic control and duration of disease. [3, 4] In this study our main goal is to evaluate the relationship between serum insulin levels in dermatophytosis affected patients.

OBJECTIVE

General objective

- To evaluate the relationship between serum insulin level in dermatophytosis affected patients.

METHODOLOGY

Study type

- This was a cross sectional study.

Study period and place

- This study was conducted at tertiary hospital Dhaka district from two years, February 2015-February 2017 among 100 patients.

Method

- A total of 100 consecutive patients who were treated and followed up in the Department of Dermatology and Venereology. Dermatological examinations of all patients were carried out in the Dermatology Out-patient Clinic. Patients who were younger than 30 years, who had abnormal serum insulin level for 1 year or less, or dermatoses due to physical factors such as burns and trauma were excluded from the study. Consent was taken from all the patients before the inclusion into the study. All patients had fulfilled the diagnostic criteria. Detailed demographic details such as age, gender, previous clinical and medical history were noted for all the patients.

Data collection and analysis

- Data will be collection in predesigned data collection sheet using various parameters. Interviews conducted using direct questionnaire and all information will be noted in pre from data collection sheet. Data were compiled and appropriate statistical package for social science (SPSS).

RESULT

In figure-2 shows gender distribution of the patients, where among 100 patient's male patients 26.8% higher than female. The following figure is given below in detail:

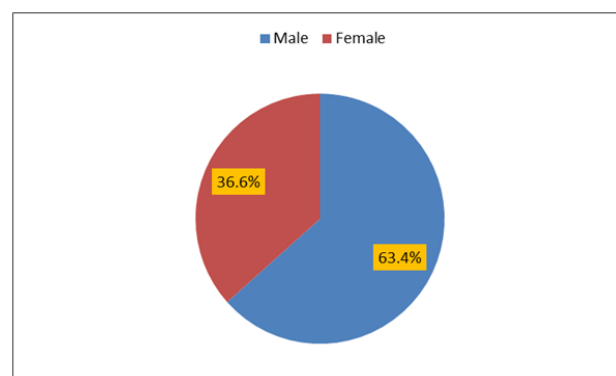


Fig-2: Gender distribution of the patients.

In table-1 shows age distribution of the patients where in both male and female, most of them belong to (31-40) year's group, which was higher than other age group. The following table is given below in detail:

Table-1: Age distribution of the patients

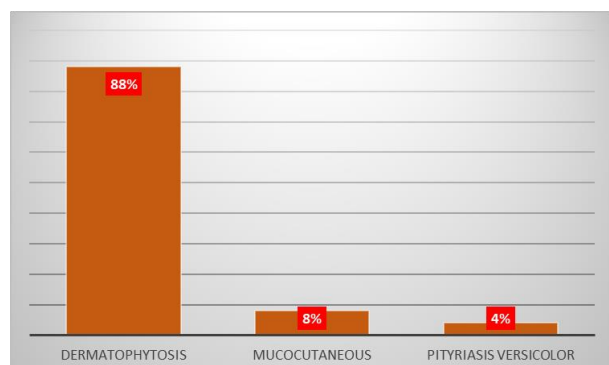
Age in years	Male,%	Female,%
31-40	45%	56.21%
41-50	39%	28.79%
51-60	16%	15%

In table-2 shows demographic profile of the patients. At least one skin disease was diagnosed in 82 % of the patients. The following table is given below in detail:

Table-2: Demographic profile of the patients

Variable	%
<u>Skin disease:</u>	
• Yes	82%
• No	18%
<u>Family History</u>	
• Yes	33%
• No	67%
<u>Over weight:</u>	
• Yes	40%
• No	60%
<u>Obese:</u>	
• Yes	26%
• No	74%
<u>CAD:</u>	
• Yes	29%
• NO	71%
<u>Hypertension:</u>	
Yes:	45%
No:	55%

In figure-3 shows skin diseases diagnosed after dermatologic examinations and their frequencies among all patients where most of the patients had dermatophytosis. The following figure is given below in detail:

**Fig-3: Skin diseases diagnosed after dermatologic examinations and their frequencies among all patients**

In table-3 shows dermatologic syndromes associated to serum insulin level where any dermatologic disease, fungal infections, bacterial infections, and PPD were more prevalent in patients who had serum insulin level for more than ≥ 1153 pmol/L than in those for less than >30 mIU/L (all $P(0.05)$). The following table is given below in detail:

Table-3: Dermatologic syndromes associated to serum insulin level

Variable	Serum Insulin level >30 mIU/L ≥ 1153 pmol/L		P value
Fungal infections,	55%	60%	0.020

DISCUSSION

Dermatophytosis is one of the most common cutaneous infections all over worldwide and is cosmopolitan in spreading, but previously most dermatophyte strains had relatively restricted geographical distribution. Dermatophytosis cannot be easily identified on the basis of clinical manifestations as a number of other conditions mimic the clinical presentation. The differential identifies of dermatophytosis includes seborrhoeic dermatitis, atopic dermatitis, contact dermatitis, psoriasis, eczema etc. Further it is more difficult to diagnose dermatophytosis in immunocompromised patients as clinical presentation is often atypical.

In our study, male patients 26.8% higher than female. This is similar with the report of other researchers from India, Bangladesh and Iraq [5, 6]. Most of the patients in the present study were in the (31-40) year's group which was higher than other age group. This result is in accordance with the results of other article [7,8]. Overall, many issues such as weather conditions, occupation, social class, living environment and occurrence of travel are implicated in dermatophytic infections [9].

The lower frequency in females rather than male in present study may be also due to underreporting of the female patients to the hospitals as in Bangladeshi community. Elevated serum insulin level may affect various organ systems, including the skin. Skin symptoms may be the first manifestation of abnormal serum insulin or may arise during the course of the disease. Although skin symptoms may not be life threatening, they may seriously affect quality of life, causing morbidity. Furthermore, skin symptoms may serve as external markers of extra cutaneous difficulties.

The commonness of skin symptoms in diabetic patients has been reported to range from 30.0 to 91.2 % in different studies. In our study, 82 % of patients had some form of skin disease.

In our study we noticed that the occurrence of dermatologic diseases grows as the abnormality of serum insulin level is prolonged. Similar to our results, one article reported that the frequency of fungal infections and diabetic foot was higher in patients who had abnormality of serum insulin level [11].

CONCLUSION

From our study we can conclude that inadequate level of serum insulin is highly common in dermatophytosis patients. Further examination regarding this result is needed for better outcome near future.

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