

RELATIONSHIP BETWEEN BLOOD GLUCOSE LEVEL AND SKIN FUNGI INFECTION

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الخلاصة

من اجل تثبيت مدى العلاقة بين سكر الدم والإصابة بالفطريات الجلدية . انتخبت مجموعتين من المرضى كانت الأولى وعدد مرضاها (١١٥) مريض مصاب بالفطريات الجلدية والثانية وعددها (١٠٠) مريض مصاب بداء السكري . أظهرت النتائج احتواء كلا المجموعتين على أعداد قليلة من المرضى وذوي فروق معنوية مقارنة مع العدد الكلي , كما تميزت الإصابة بسعفة الجسم (Tinea corporis) أكثر أعداد المرضى المصابين في المجموعة الأولى باحتواء دمهم على نسبة عالية من السكر , أما مرضى سعفة القدم (Tinea pedis) فتميزت في المجموعة الثانية بأكثر عدد من المرضى المصابين بالفطريات الجلدية

Abstract

Two groups were study in this work , first one content (115) patients with skin fungi infection , secondly content (100) patients with diabetes mellitus disease . First group was showed a few number of high glucose levels (7) , whereas second group was also showed a few number of fungus infection (15) and both of them revealed no significant difference from total number . Tinea corporis has a great number of patients with glucose level in the first group , whereas Tinea pedis has a great number in the second group with fungus infection .

Introduction

The relationship between blood glucose concentration and microorganisms infection is alternated which means the increase of blood glucose concentration will supply a susceptibly condition to growth of pathogenic microorganisms (1) and from other side , some type of microorganisms , such as virus , are responsible for this elevation by destroying the insulin forming cells (2) . Tinea versicolor and dermatophytosis are most known skin disease in Iraq country (3 , 4) which are caused by different species of fungi and there are a large number of factors facilitated this type of infection like age , races , sweating, personal hygiene (5) and metabolic disorder as with high concentration of blood sugar (Diabetes mellitus) (1) , that may play a role via fungi infection (5) . This study is trying to confirm if the fungi infection is encouraged by increasing of individual blood sugar and becomes a susceptible factor to support this type of disease .

Materials and methods

Group I patients with fungi disease :

We seek in this state for high blood glucose level when one hundred and fifteen (115) patients suffering from Tinea versicolor (23) and dermatophytosis (92) infection (Tinea corporis , Tinea pedis , Tinea cruris ,and Tinea capitis)(Table1) were diagnosed as a positive fungi infection by skin scraping and direct examination under the light microscope with 20 % KOH to show the fungi hyphae and spores .

Only patients with a positive slides examination was included in this study .

Fasting blood sugar concentration was determined (Table 2) by using GOD method (glucose oxidase determination) (Randox company U.K) and as mention in the companies procedure with normal range (75 – 115 mg / dl) for the normal individual .

Group II Patients with diabetes mellitus disease:

In this state , we screening for skin fungus infection , especially for Dermatophytosis and Tinea versicolor disease , in one hundred (100) Diabetes mellitus patients .

Variance analysis was used to show the significant difference from the total number of patients of two state .

Results

From (115) patients with skin fungi infection , ranging from 3 – 65 years (mean , 34) ,Dermatophytosis patients (92) were distributed between 33 patients with Tinea corporis , 28 Tinea pedis , 21 Tinea cruris , whereas other 23 patients were have Tinea versicolor disease (Table 1) and only seven patients were shown a high concentration of blood glucose which distributed between Tinea corporis (3) , Tinea pedis (2) , Tinea cruris (1) and Tinea versicolor (1) to form a very small number, in contrast with the total patients number (Table 1) .

The other 108 patients were shown a normal concentration of blood glucose .One hundred Diabetes patients in group II were revealed infection by Dermatophytosis in (13) patients which Tinea pedis was the largest number of them (10) , while Tinea versicolor was diagnosis in two patients (Table 2) .After statisitically analyses of the two groups results , non of them was show significant different from the total number of each state .

Discussion

Glucose is a very important compound used by fungi to support their growth as energy source like other types of microorganisms (2) which is supposed to be facilitated the infection by this type of microorganisms .

Relationships between fungi skin infection and high level of blood glucose can explained by two view , first one depended on the occur of high level of blood glucose in patients with fungus infection and second was depended on presenting of fungi infection in patients with diabetes disease .

Through group I , we can thought that patients with dermatophytosis and Tinea versicolor disease are not depended on the blood glucose elevation and this inclusion is supported by tow facts , in addition to what another study recorded (6) , firstly , the small number of patients with a high blood glucose concentration and secondly ,no significant difference from total number of patients and for each fungus disease , in spite of the fasting state and the infection by this microorganisms are result from other factors such as skin lipid (7) and genetic (5) for Tinea versicolor and racial factor with genetic for dermatophytosis (6 , 8) .

In group II , Tinea pedis was exhibited largest number which result from chronic nature of this type of Dermatophytosis and persisten for a long time (6) , furthermore no significant difference of fungal infection with the total number of diabetes patients (Table 2) , which may due to regular treatment of this disease or blood glucose has no role for increasing fungi infection rate , but result from other factors such as hormone , age (9) .

From results of two groups we can concluded there are no relationships between the level of blood glucose and skin fungus infection .

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Table (1) : Number of high blood glucose levels patients with skin fungi infection (115).

Tinea type	Total No.	Number of high Sugar level
Tinea corporis	33	3 -
Tinea cruris	21	1 -
Tinea capitis	10	zero
Tinea pedis	28	2 -
Tinea versicolor	23	1 -
Total no.	115	7 -

(-) No significant difference from the total number of patients.

Table (2) : Number of skin fungi infection in one hundred patients with diabetes mellitus disease .

Fungi disease	Patients No.
Tinea pedis	10 -
Tinea corporis	1 -
Tinea cruris	1 -
Tinea barbae	1 -
Tinea versicolor	2 -
Total No.	15 -

(-) no significant difference from total number of patients .