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ORIGINAL ARTICLE

Study of the Relationship Between Blood Parameters with Skin Mycoses

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ABSTRACT

Objectives: The aim of the study was to investigate the relationship between some blood parameters and types of infection in patients with skin mycoses.

Methods: Blood samples were collected for thirty-seven patients with dermatophytoses and superficial mycoses who visited hospitals and private clinics in the holy cities of Karbala and Babel. Then was done ABO and Rh tests and record all information about them.

Results: Thirty-seven patients aged between 8 to 61 years with skin fungi were among them 17 males(46%) and 20 females(54%), there is a significant difference ($P < 0.05$) between males and females and the result indicate to females more likely to these diseases with significant differences. Most patients with mycoses were from the blood group O with 59% , and the patients of Rh⁺ are the most susceptible in mycosis contagion with 95% while the Rh⁻ with 5% of patients. It was established that most patients are those who animate in Urban with a percentage 73%. The results showed tinea versicolor is the most clinical manifestation of a patient with 70% of study sample. Patients aged between 17 - 25 years were the most susceptible to superficial and cutaneous mycosis infections.

Conclusion: There is a relationship between factors such as age, sex, blood groups, Rh and housing with skin mycoses.

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INTRODUCTION

All medically significant fungus belongs to one of four taxonomic groups. Groups are called Zygomycetes, Ascomycetes, Basidiomycetes, and Deuteromycetes. Deuteromycetes, Which also called "fungi imperfect," have no recognized sexual cycle of reproduction. Many of the significant human pathogens are included in this group¹.

Dermatophytes Fungi infecting stratum corneum, hair, and nails. In a serious manner, colonies often offering superfine or fine texture and are dim colored or white. Grow reasonably rapidly to slowly and have narrow, septate hyphae².

The disease caused by skin fungal infections:

- Tinea Corporis and Variants: the classic 'ringworm', is a dermatophyte infection of the Shiny skin of the trunk and Limbs of the body.
- Tinea Pedis: happens in four main patterns: Between the digital fold, ulcerative and Vesicular vesicular.
- Tinea Manuum: may present as widespread hyperkeratosis with a tendency to the palmar creases of palms and digits.
- Tinea Cruris: ordinarily only happens in the groins and does not include the axillae or submammary folds. The infection occurs more in males.
- Tinea Unguium: Both dermatophytes and non-dermatophytes can rise onychomycosis.
- Tinea Capitis: commonly occurs mostly in Pre-puberty children. It can be acquired from infected whelps and kittens and by close contact with infected children.
- Pityriasis Versicolor: occurs most considerably in hot and humid tropical climates. The lesions characterized by multiple white, pink to brown, oval to round grain granulation and splatter with mild and fine scaling fundamentally found on the seborrheic areas, in particular, the upper trunk and shoulders.
- Malassezia (Pityrosporum) Folliculitis: distinguished by inflammatory follicular papules spotted mostly on the back, thorax and upper arms.
- Candidiasis: cutaneous candidosis is less common than dermatophytosis.
- Tinea Nigra: an unfamiliar superficial dermatomycosis produced by the dimorphic fungus *Exophiala werneckii*.
- Black Piedra: the infections of hair ends due to the dematiaceous fungus, *Piedraia hortae*, and these are rare.
- White Piedra: the infections of hair shaft ends due to *Trichosporon beigeli* ³.

In one study, in the sanctifying city of Karbala, the results of this study showed that there was a significant difference between the clinical appearances of blood groups and dermatophytoses. Statistical analysis of the results showed that tinea pedis was a more significant association with blood groups, where blood groups B and O were the most affected by this clinical manifestation, followed by tinea capitis also had a significant correlation with the blood group O, as this group is the most vulnerable to these clinical manifestations. The other clinical appearances indicated no significant correlation between them and blood groups ⁴.

MATERIALS AND METHODS

Samples Collection

Blood samples were collected for thirty-seven patients with dermatophytoses and superficial mycoses who visited hospitals and private clinics in the holy cities of Karbala and Babel after being diagnosed with the disease and Know it by a specialist doctor dermatology and then was taking blood samples from a vein of the patients in the lab where we used both of the cotton,

disinfected, syringe and tornica and then we used tubes anticoagulant EDTA to save the samples. The age, genus, and residence type of patients are recorded in addition to type of infection which determined by doctor ⁵.

Examination of Blood Groups and Rh

Tests of ABO and Rh were utilized by a method of glass slide ⁵.

Statistical Analysis

Chi Square (X^2) procedure was used. α that used is 0.05 to recognize significant variations ⁶.

RESULTS

The current study, thirty-seven patients with mycoses who visited hospitals in the holy city of Karbala and Babel, the patient include male and female. The result in **Figure 1** show that percentage between male and female is very close, the female of this was 54% and the male of this was 46%. As such in the **Table 1** that there is a significant difference between males and females in this study and the result indicate to the females more likely to these diseases with significant differences and on a probabilistic level 0.05.

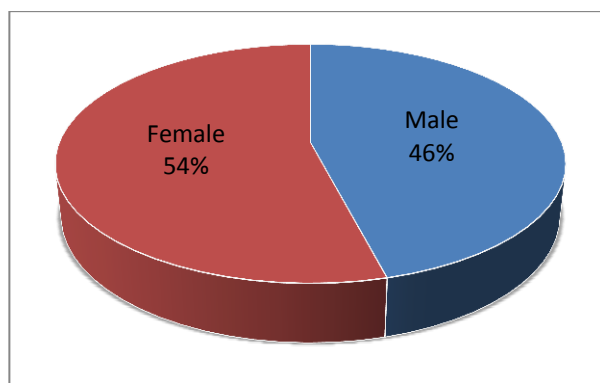


Figure 1: The percentage of sex of infectious persons with mycoses.

Table 1: Distribution of mycoses patients according to sex.

Sex	Number of patients	$X^2_{(0.05)}$
Male	17	0.243
Female	20	

The result in **Figure 2** showed that here was a relationship between the infection of mycosis and blood group. Patients of the blood group O were the most susceptible to mycosis infections with 59% of the study sample, followed by patients of A blood group with 35%. A blood group B and AB patients were the lowest with 3% for both.

As such in the **Table 2** the results indicate to the blood group type O was more blood type with significant differences than other blood type and followed by blood type A.

The result of this study proved that superficial and cutaneous mycosis is associated with the Rh, showed the Rh+ is the most susceptible with mycosis infection with 95% while the Rh- with 5% of patients and **Figure 3** and **Table 3**.

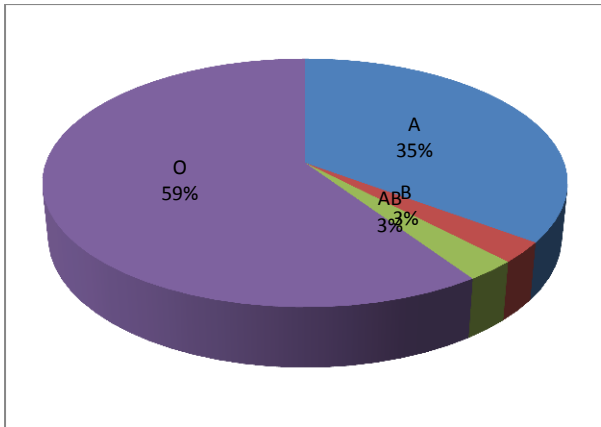


Figure 2: The percentage of blood groups of patients with superficial and cutaneous mycoses.

Table 2: Distribution of mycoses patients according to blood groups.

Blood group	Number of patients	$X^2_{(0.05)}$
A	13	33.81
B	1	
AB	1	
O	22	

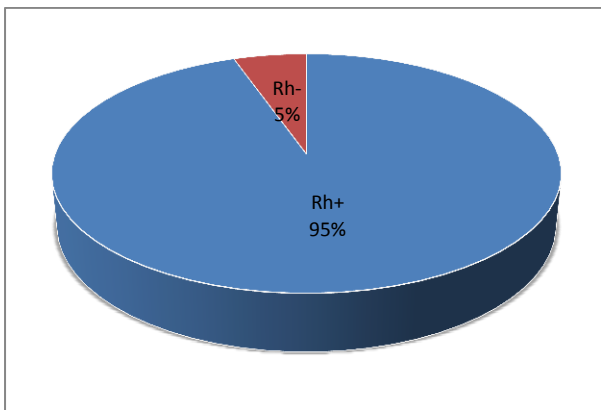


Figure 3: The percentage of Rh of the patients with superficial and cutaneous mycoses.

Table 3: A distribution of mycoses patients according to Rh.

Rh	Number of patients	$X^2_{(0.05)}$
Rh ⁺	35	14.716
Rh ⁻	2	

The results in Figure 4 showed the relationship between the distribution of mycoses and housing, the percentage of urban was 73% of study sample and the outskirts were 27% of patients. the result of statistical analysis show difference between a patient of urban and outskirts as in the Table 4.

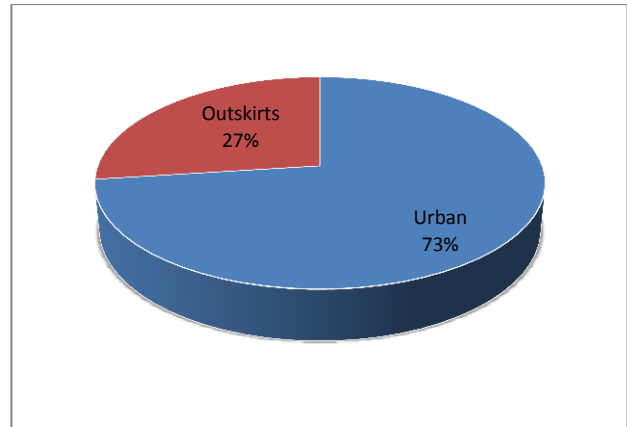


Figure 4: The percentage of accommodation of patients with superficial and cutaneous mycoses.

Table 4: Distribution of mycoses patients according to accommodation.

Accommodation	Number of patients	$X^2_{(0.05)}$
Urban	27	7.81
Outskirts	10	

In this study, the statistical analysis, Table 5 show the Tinea versicolor is the most clinical manifestation of a patient with 70% of study sample, followed by Tinea corporis with 16% of the sample, while the other clinical manifestation of mycosis was a slim case Figure 5.

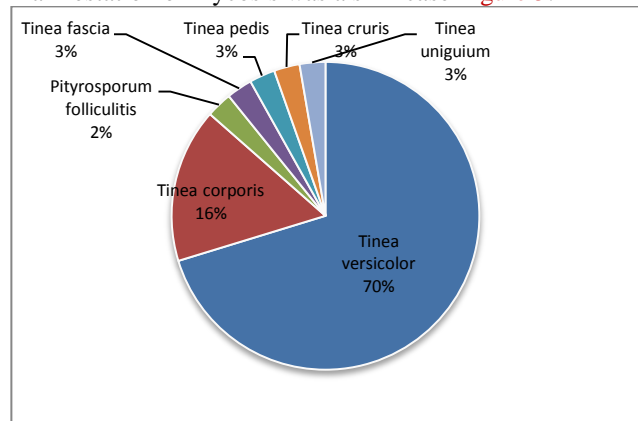


Figure 5: The percentage of superficial and cutaneous mycoses.

Table 5: Distribution of mycoses patients according to a type of infection.

Type of infection	Number of patients	$X^2_{(0.05)}$
Tinea versicolor	26	98.661
Tinea corporis	6	
Pityrosporum folliculitis	1	
Tinea fascia	1	
Tinea pedis	1	
Tinea cruris	1	
Tinea unguium	1	

The study included aged between 8 to 61 years old, were gained. The results in Table 6 exhibit that the age group 17–25 was the most susceptible to superficial and

cutaneous mycosis infections as the number of this group was 13 patients followed by age group 8–16 where the number was 8 patients from the sample obtained.

Table 6: **The number of patients with superficial and cutaneous mycoses according to age group.**

Age groups(year)	Number of patients	$X^2_{(0.05)}$
8 – 16	8	
17 – 25	13	
26 – 34	7	14.08
35 – 43	5	
44 – 52	2	
53 – 61	2	
Total	37	

Discussion

Researchers have studied the relevance between blood factors and mycosis infections. Out of a study in Korea, the authors investigated for epidemiological characterization of skin fungal infections between the years 2006 and 2010, found the prevalence of men and females similar. However, they found the prevalence of men slightly higher than that in women (7.0 vs 6.26) ⁷. Also through the study in Nigeria, the authors investigated for the superficial mycosis in relation to age and gender, found 45.6% of infection occurred in males and 54.4% in females ⁸ and these results agree with current study. Through the study in karbala city hospital, the authors investigated for the association between dermatophytoses and groups of blood of men in Karbala, found that a men patients of a blood group O are the most infected with dermatophytoses and they found all patients were Rh+ ⁴. In the other study that occur in Tehran, Iran, the authors investigated for epidemics' science and spread of superficial fungal infections among dormitory students, found the students with A blood group were more susceptible to dermatophytosis than other groups of blood ⁸. Through the study in Tehran, Iran, the same study in the above, the authors found the Tinea cruris was the most mutual form of dermatophytosis 23.5% followed by Tinea corporis 22% and Tinea pedis 13.6%, no nail infections were particular in this study [9] while in the study in Negeria in the above, the authors found the pityriasis versicolor and candidiasis were found in 4.2% and 2.2% respectively, among infected patient 7.8% had dermatophytic infection while 21.2% had pityriasis versicolor and 11% had candidiasis ⁸. While in the other study in Babylon the authors investigated an association between an ABO blood group and superficial mycosis, found the highest incidence of cutaneous candidiasis followed by pityriasis versicolor was found ¹⁰. Through the study in the west Bengal, India, the authors investigated for study on superficial fungal infections, found that bisection of study entrants are affected by tinea corporis type followed by pityriasis versicolor and tinea capitis, less than 10% of the entrants are affected with other tinea types – cruris, manuum, unguium and

pedis ¹¹. Through the study in south –western Nigeria, an authors investigated for the prevalence and pattern of superficial fungal infections among school children in Ile-Ife, found the highest prevalence was found among the age group 9–12 years ¹², while In the current study 17-25 years is the most infected of age group.

The other study in Sri Jayewardenepura, the authors investigated for the infection ratio of superficial mycoses through members of the purifying staff, found forty-four 54% participants were between 40-60 years and encompass the majority. The mean age was 54 years ¹³. The difference in the current study from other studies may be due to different the Geographical location or a causative factor of disease or size of study sample or the date of performed study.

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