
The Rate of Superficial Fungal infections among Patients with Different Skin Diseases in Diyala IRAQ

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ABSTRACT

Background: Superficial fungal infections of the skin are relatively common skin diseases all over the world including Iraq, caused by a distinct kingdom called fungi, which are of two types, the moulds and the yeasts. The fungal infections of the skin are divided into superficial and deep infections according to the level of skin involvement.

Objectives: The aim of this study is to evaluate the rate of superficial fungal infections of the skin among patients with different skin diseases in Diyala province, Iraq.

Patients and Methods: A total number of 9027 patients with different skin diseases was seen and examined in a private and out patient clinic of Baquba Teaching Hospital, during the period, from the first of July 2005 to the end of September 2006. Only 893 patients with superficial fungal infections were involved in this study, they were 596 males and 297 females. The diseases were diagnosed clinically and or by investigations.

Results: The results revealed that the rate of superficial fungal infections was 9.9 % (893), among patients with different skin diseases (9027) and 36.7% among those with different skin infections (2435). Dermatophytosis was the most common type 509 patients (57%), then the pityriasis (tinea) versicolor 241 (27%) and the candidiasis was the least common 143 patients (16%). Tinea corporis was the most common type of dermatophytosis 121 patients (23.8%), and then the tinea capitis and both were the diseases of male's children. Pityriasis versicolor was more common in adult males, while candidiasis was more common in adult females.

Conclusion: It was concluded that the superficial fungal infections of the skin were a common diseases among Iraqi patients with different skin diseases, dermatophytosis was the most common type, tinea corporis was the most common type of dermatophytosis and male's children were more liable to develop the infections.

Keywords: fungal infection, dermatophytosis, candidiasis, tinea.

Introduction:-

Fungi are typical eukaryotic cells, representing a distinct kingdom, estimate one quarter of a million species, only few are pathogens to humans, or other warm-blood animals^[1].

Fungi may be broadly divided into two basic forms, the moulds and the yeasts. The moulds are made up of long multinucleated filaments called hyphae, which can infect the skin, hairs, nails and the internal organs. The yeasts are made up of unicellular ovoid to globes cell, which usually reproduced by budding or more rarely by fission, which can infect the skin, nails, mucous membrane and the internal organs^[1-4].

Fungal infections of the skin may be divided into two types according to the level of skin involvement, the superficial and deep infections. The superficial infections, which are confined to the stratum corneum, hairs and the nails, which include: - dermatophytosis, candidiasis and other non-dermatophyte infections.

The deep infections, also called subcutaneous mycoses, which infect the dermis and the subcutaneous tissues and including a different subtypes for e.g. Sporotrichosis, coccidioidomycosis ...etc^[1-4].

Fungal infections of the skin are diagnosed by clinical criteria's and confirmed by laboratory methods, which include:-

1. Direct light microscopical examination of KOH prepared skin scraping, hairs and nails clipping for dermatophytosis and swab sampling from mucosa for yeast infections.
2. Samples cultured on Sabouraud's dextrose agar.

3. Wood's light examination of the skin lesion by UV light of 365nm and skin biopsy for histopathological changes and 4. PCR^[5,6].

The prevalence of different types of superficial fungal infections of the skin is variable among different age group, gender, socio-economic levels and countries, in UK and other Western Europe countries, the prevalence is 5.1% and in USA is 8.1% and in general it is more prevalent in male's children^[1,4,7,8]. In Iraq two studies was done, one in Baghdad and the other in Diyala province, showed that the prevalence was 9.9% of all skin diseases^[9,10].

Regarding the different types of superficial fungal infections of the skin, tinea capitis and corporis are more prevalent in males children aged 3-14 years and more in African countries, while tinea barbae is a disease of adult males only, particularly in rural settings among farmers or ranchers. Tinea cruris is the second most common dermatophytosis worldwide, it is three times more common in males than in the females and more in adults than in children, while tinea pedis is the most common dermatophytosis with prevalence of approximately 10%.

The prevalence of onychomycosis is 2-8% in general, in Europe 27% and in USA 13.8%^[1,4,7,8].

Candidiasis is more prevalent in adult females, while pityriasis (tinea) versicolor is more prevalent in adult males^[1,4]. The aim of the present study is to estimate the rate of different types of superficial fungal infections of the skin in Diyala province.

Patients and Methods:-

This case-series study was conducted in a private and out patient's clinic of Baquba Teaching Hospital, Diyala province during the period from the first of July 2005 to the end of September 2006. Nine thousands and twenty seven patient were seen and examined, they were four thousands five hundred and thirty three males and four thousands four hundred and forty nine females, their ages ranged from seven days to eighty two years.

They had different skin diseases which were diagnosed clinically and or by investigations including Wood's light and scraping for microscopical examination, two thousands four hundred and thirty five patients had different types of skin infections.

The study included only eight hundred ninety three patients with different types of superficial fungal infections of the skin and the patients with other skin diseases were excluded.

Results:-

The study revealed that the rate of different skin infections and superficial fungal infections among

skin diseases was 2435 patients (29.97%) and 893 patients (9.9%) respectively, while the rate of different types of superficial fungal infections of the skin was explored in the table-1, which showed that the dermatophytosis was the most common type 509 patients (57%), then the tinea versicolor 241 patients (27%) and the candidiasis was the lest common type 143 patients (16%). Tinea corporis was the most common type of dermatophytosis 121 patients (23.8%) and the others tineas as in table-2.

Regarding the gender the dermatophytosis (except tinea unguum and manum) and tinea versicolor were more common in males (359 and 201 patients respectively) than in the females (155 and 40 respectively) and vice-versa regarding the candidiasis (41 male and 102 female).

Regarding the age, tinea capitis and corporis were more prevalent in children than in adults and vice-versa regarding the other types. Regarding the seasonal and areas variations, all types were more prevalent in summer time and dermatophytosis was more common in rural areas and the others were more common in urban areas.

Table-1: The rate of different types of superficial fungal infections of the skin in relation to the age, gender and the total number of patients with skin infection.

Type of infection	No. of patients			Mean age years	% out of fungal infections	% out of skin infections
	Males	Females	Total			
Dermatophytosis	359	155	509	24.7	57	20.9
Tinea versicolor	201	40	241	22.2	27	9.9
Candidasis	41	102	143	30.1	16	5.9
Total	596	297	893	-----	100	36.7

Table -2: The rate of different types of dermatophytosis in relation to the age, gender, total fungal and total skin infections.

Type of dermatophyt.	No of Patients			Mean age years	% out of dermatophyt.	% out of fungal infections	% out of skin infection
	Male	Female	Total				
Tinea corporis	71	50	121	14	23.7	13.5	5
Tinea capitis	82	31	113	10	22.2	12.7	4.6
Tinea Incognito	46	30	76	20	15	8.5	3.1
Tinea unguim	58	12	70	35	13.6	7.8	2.9
Tinea pedis	42	18	60	32	12	6.7	2.5
Tinea faciei	20	9	29	12	5.6	3.2	1.2
Tinea cruris	20	4	24	28	4.7	2.7	1
Tinea manium	9	1	10	30	2	1.1	0.4
Tinea barbae	6	0	6	35	1.2	0.7	0.2
Total	354	155	509	----	100	57	20.9

Discussion:-

This study showed that the rate of superficial fungal infections among skin diseases was (9.9%) which was concordant with that of USA (8.1%) and more than that of UK (5.1%). This variation may be due to the difference in life style, habits and the

socio-economic status of the people in these countries^[1,4,7-9].

The study revealed that the tinea corporis and tinea capitis were the most common types of dermatophytosis (23.8% and 22.2% respectively)

which was different from that of other countries, in which the tinea pedis and tinea cruris were the most common types, while the age and gender prevalence was similar to that in other countries, i.e. both were a diseases of male children.

Tinea barbae was the less common type and it was the disease of adult males living in rural settings which go with the results in other studies, also the rate of onychomycosis (tinea unguim) (7.8-13.7%) was concordant with that of other countries . Tinea cruris and tinea pedis were more common in adult males, which was similar to other studies. This may be due to the style and type of under wear clothes and shoes, as well as to the defense mechanism of the body^[1,4].

It was reported in this study that tinea incognito (steroid modified tinea) was common among patients with dermatophytosis (15%), which represent the third most common type, this was not reported in other countries and studies, this was most probably due to misuse of corticosteroid and misdiagnosis of the disease^[1,4].

In general this study revealed that the dermatophytosis and tinea versicolor were more common in males and the candidiasis was more common in females, which was also concordant with that of other countries^[1,4].

In conclusion from this study the tinea corporis and tinea capitis were the most common types of dermatophytosis, which was the most common type of superficial fungal infections of the skin.

Tinea incognito was also common, which represent a new report, differed from other countries, most probably due to misdiagnosis and misuse of corticosteroids, while the prevalence of tinea pedis and tinea cruris was low compared with other countries

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