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The Epidemiological Features of Fungal Infections of the Face in Patients Admitted the Medical Mycology Laboratory of the Special Clinic of Kermanshah University of Medical Sciences, During 1994-2011

Ali Mikaeili[1]* and Hakimeh Hashemi[2]

[1]Deparment of Medical Mycology, School of Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran, member of dermatophytosis research Centre Kermanshah, Iran.
[2]Hashemi, Hakimeh. Medical student of Kermanshah University of medical sciences, Kermanshah, Iran.

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The prevalence of superficial fungal cutaneous infections of the skin is different in different societies. The present study tended to conduct a retrospective review of the epidemiological features of fungal infections of the face skin in patients visiting the Medical Mycology Laboratory of the specialized clinic of Kermanshah University of Medical Sciences during 17 years in order to survey the conditions of the superficial fungal infections of the skin. To this end, the results of the direct microscopic vision, cultivation and other necessary information of all the admitted patients were extracted and investigated in terms of fungal infections of face skin from 1994 to 2011. Findings showed that 780 patients (%34), out of 2290 patients, suffered from Dermatophytosis; the most suffered age group belonged to the age range 20 to 29 years old patients. Pityriasis Versicolor disease with 101 cases (%41.04) got the second rank. The most patients aged under 20 years old. The disease had the most frequency i.e. most prevalent, among the students. Trichophyton Verrucosum was the most common form of dermatophyte isolated. In both diseases, the factors such as the active age group, the warmer months of the year and the males were reported as the most frequent disease cases due to the fact that they have the requisite hot and humid conditions for the creation and the development of the diseases. These diseases are more prevalent in unsanitary environments, poor sanitation and inappropriate skin conditions. As a consequence, it is recommended that regular skin wash and appropriate clothing be cautiously considered to control these diseases.

Keywords: Face; Fungal Infections; Kermanshah; Epidemiology.

The fungal infections of the face skin mainly include Tinea Faciei and Pityriasis Versicolor. These superficial cutaneous fungal infections are the most prevalent fungal diseases and are mostly observed in adults. Tinea Faciei is caused by Dermatophyte species. Dermatophytes have diverse species of three genera including Epidermophyton, Microsporum and Trichophyton genera. Dermatophytes have Human, Animal and Terricolous caches.

Pityriasis Versicolor is one of the most rampant superficial cutaneous fungal infections of the skin. It is highly frequent among youth and middle-age people living in environments with the presence of humidity and fat. Pityriasis Versicolor lesions are the spots paler or darker than the host skin complexion, without any itching irritation or inflammation. Pityriasis Versicolor is mostly witnessed on the upper parts of the body including

* To whom all correspondence should be addressed.
E- mail: dramikaeli@yahoo.com

face, neck, back, chest (breast), arms and shoulders while it is less observed in the lower parts of the body. Pityriasis Versicolor often cause dandruff on the scalp of the patients. This disease is usually caused by Malassezia Furfur (Zaini & Mehbod, 2004; Aghamirian *et al*, 2007).

METHODOLOGY

The lesions were antisepticised using an alcohol-soaked cotton wool. Then, the skin lesions were gently collected using a sterile scalpel blade. The collected samples were prepared for a direct microscopic vision using a slide of Potassium Hydroxide (%10) in order to identify and detect the Dermatophytosis. In addition to the moist slide of Potassium Hydroxide, a scotch tape (transparent cellophane tape) slide was collected as well from the patients suspected to Pityriasis Versicolor. Next, the prepared slides were scrutinized under light microscopic lenses 10 and 40.

The observation of the circle or oval-shaped yeast fascicles (clump) together with short and curved Hyphae on either the potassium slide or scotch tape slide were indicative of Pityriasis Versicolor disease in the suspected patients. On the other hand, the observations of fungal filaments with Arthroconidia, Ectothrix or Endothrix, and the fungal filaments in hair shaft were indicative of the Dermatophytosis and Tinea Faciei.

Furthermore, the lesion samples collected from the patients were cultivated in Mycology culture media, Sabouraud Dextrose Agar containing or lacking Cycloheximide, and the incidence of any kind of the fungal colony growth was identified and detected for four weeks. Otherwise the result of the cultivation would be negative.

In addition to the results of the direct microscopic vision and cultivation, the other information about the patients' clinical conditions were collected using questionnaires and interviewing the patients.

RESULTS

According to the results, out of 2290 patients suspected to Tinea Faciei (Face Fungus), almost 780 (%34) patients suffered from Tinea Faciei among which %56 were male and %44 were female patients, nonetheless, %92 and %0.8 of the patients lived respectively in urban and rural areas.

Tinea Faciei (Face Fungus) was most prevalent (%43.8) among students; whereas the Unemployed individuals (%32), Housewives (%12.5), Self-employed (%3), Employees and Farmers, Militaries and Drivers, Workers and Ranchers got the successive ranks in the classification of disease risk frequency occurrence.

Tinea Faciei had the highest risk of incidence in winter (%34) and autumn (%32) while spring (%21) and summer (%14) got the other levels of occurrence. In the current study, the prevalent Dermatophyte species isolated from Tinea Faciei showed that Trichophyton Verrucosum with a frequency of (%45.32) indicated the most cases of Tinea. However, the other consecutive levels of risks belonged to Trichophyton Mentagrophytes (%22), Trichophyton Rubrum (%17.12), Trichophyton Violaceum (% 6.4), *Microsporum Canis* (%5.42) and *Epidermophyton Floccosum (%3.45) in succession.*

Findings showed that out of the 2290 patients under study, almost 101 patients (%41.04) suffered from Pityriasis Versicolor among which %73 were male, %27 were female and %97 of patients lived in urban areas while only %3 lived in rural areas. The most cases of the disease was reported to be prevalent in the age group 10 to 19 years old (%46.15) (Table 1). In terms of the employment, the disease cases were observed to be most frequent in students' group (%58.28). Unemployed, employees, farmers, drivers, housewives, self-employed, soldiers, and other types of employment got the lower ranks in the classification of disease risk frequency occurrence.

Nevertheless, it was concluded that, in terms of the frequency of the seasonal patient visitors, Pityriasis Versicolor was most prevalent in autumn (%28) whereas summer, winter and spring were placed at the other ranks as %27, %23 and %22 respectively.

DISCUSSION

The prevalence of the fungal infections is different at different age groups. Pityriasis Versicolor mostly occurs and/is prevalent during

puberty and middle-age (15-45) (Zaini & Mehbod, 2004).

The results of the present study revealed that the most frequent cases of Pityriasis Versicolor was observed in age group 10-19 while the age group 60 and above (Ã60) had the least frequent cases of disease. In a study in Hamedan, it was concluded that Tinea Faciei (Face Fungus/Tinea) had got the fifth place after the other frequent cases such as Tinea Cruris (Groin), Tinea Corporis (Body), Tinea Unguium (Nails) and Tinea Pedis (Feet) (Aghamirian *et al*, 2007).

Age factor plays the most crucial role in catching the types of Tineas; for instance, a research investigation on children has shown that Tinea Capitis (Head/Scalp) was the most prevalent disease among children age group (Basiri Jahromi, 2009). Studies done in India and Venezuela concluded that Face and Chest (Breast) were consecutively the most susceptible parts of the body to this disease i.e. Tinea (Jena *et al*, 2005; Acosta Quintero & Cazorlperfetti, 2004).

A study in Ahwaz showed that the frequency of Tinea Faciei was only %4 (Omidian, 1999). In the current study, %24 of the patients had lesions on the face i.e. they suffered from Tinea Faciei (Face).

In a study conducted by Alizadeh *et al*. (2004) in Guilan, Tinea Faciei (Face ringworm) was reported to be the least frequent cases of disease amongst the diverse types of Tinea infections.

Pityriasis Versicolor was mostly common in autumn while it was the least common disease in spring; the results of a study in India indicated that the most cases of this disease was observed in summer (Jena *et al*, 2005).

Asadi *et al* (1999) found that Trichophyton Mentagrophytes were the most prevalent species whereas the results of the present research showed that the most isolated factor was Trichophyton Verrucosum.

The most common cases of Pityriasis Versicolor were observed amongst students, in terms of employment, which is remarkably justified probably due to the outbreak of this disease in puberty and adolescence and that most population of the society include the young age range. Yaghoobi *et al*. (2000) concluded that almost half of the slaughterhouse workers in Ahwaz suffered from either Tinea or Pityriasis Versicolor. Fortina *et al* (2005) in Italy found that Pityriasis Versicolor was the second disease amongst transplant recipients.

Raci (2001) studied 100 cases of Pityriasis Versicolor patients whose average age was 24, he found that there was not any statistically significant difference between patients' sex and their vulnerability to the disease.

According to Talary *et al*. (2000), amongst 213 patients with Dermatophytosis, 3 patients (%1.4) had Tinea Faciei. Rahmati *et al* (2006) studied 1270 dormitory students in the University of Shahid Behesti, they found that %8 of the students suffered from Pityriasis. The frequency of Pityriasis Versicolor reach to %30-%40 in tropical areas. Research has shown that Geographical factors have significant effects on the occurrence of the diverse species isolated form Pityriasis Versicolor (Nazeri *et al*., 2011).

Occupation has a critical role in the incidence of the Skin Infections. For instance, in military centers, due to the predisposing factors, the patterns of skin infections differ from the patterns in society (Davari *et al*., 2011). Bassiri *et al*. (2006) found that Tinea was more frequent in the age range 10 – 20. Salari (2002) studied the textile workers in Yazd, he concluded that Pityriasis Versicolor was almost %21.3 widespread.

It has been approved that occupation plays the most crucial role in the occurrence of the Superficial Cutaneous Infections/diseases. Accordingly, Qaedinia *et al*. (2001) found that fishermen and shrimp farmers who are always in direct contact with seas and the shrimp farming pools and are working in the southern regions of the country in summer are more prone to the

Table 1. The Frequency Distribution of Tinea Faciei and Pityriasis Versicolor in terms of Age Group

Disease Age Group	0-9	10-19	20-29	30-39	40-49	50-59	>60	Total (%)
Tinea Faciei	42.56	32.56	13.58	5.51	2.3	1.79	1.53	100
Pityriasis Versicolor	20	46.15	20	5	4	3	1.20	100

superficial cutaneous fungal infections.

Even though the most opportunistic fungal infections observed in patients taking immunosuppressive drugs are associated with urinary tract and kidney infections, the outbreak of superficial cutaneous fungal infections are also noticeable in these patients (Diba *et al*., 2002). Living in the crowded environments such as camps increase the incidence of many diseases including superficial cutaneous fungal infections (Bineshian, 2006).

Nasrolahi *et al*. (2010) found that after Dermatophytosis, the second superficial cutaneous fungal infection is Pityriasis Versicolor.

CONCLUSION

According to the aforementioned reports, it seems that superficial cutaneous fungal infections yield different frequencies under different geographical, occupational, age, sex and other predisposing factors and circumstances. Consequently, further similar studies are recommended to be conducted in other different regions of the country.

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