Epidemiological trends of dermatophytosis in Tehran, Iran: A five-year retrospective study

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Summary
Objective. — Dermatophytosis is the most frequent fungal infection all over the world and its frequency is constantly increasing. The aim of this study was to evaluate clinical features and epidemiological trends of dermatophytosis over the years 2010 to 2014 in Tehran, Iran.

Patients and methods. — A total of 13,312 patients clinically suspected of cutaneous fungal infections were examined. Skin scales, plucked hairs, nail clippings and sub-ungual debris were examined by direct microscopy and culture. Dermatophyte species were identified at the species level by a combination of morphological and physiological criteria.

Results. — Direct microscopy confirmed a contamination rate of 19.7% (2622/13,312 cases) of which 1535 cases (58.5%) were culture positive distributed in male (1022 cases) and female (513 cases). The most commonly infected age group was the 30–39 years old. Tinea pedis (30.4%) was the most prevalent type of dermatophytosis followed by tinea cruris (29.8%) and tinea corporis (15.8%). Epidermophyton floccosum (31%) was the most prevalent causative agent, followed by Trichophyton rubrum (26.2%) and Trichophyton mentagrophytes (20.3%).

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Introduction

Dermatomycoses are considered as one of the most frequent superficial infections affecting public health worldwide [1]. Mycotic dermal infections are caused primarily by keratinophilic fungi of the dermatophyte family, the yeast species of the genera Candida and Malassezia, and more rarely by other mold and yeast species [29]. Since dermatophytes are the major pathogens causing dermatomycoses, the following article will focus on this group of pathogens.

The dermatophyte family includes over 40 species assigned to 3 genera: Trichophyton (skin, nail and hair), Microsporum (skin and hair) and Epidermophyton (skin and nail) [1,5,7,9,25,31]. They are able to infect the hair, nails and skin and are divided according to the source of infection into anthropophilic, zoophilic and geophilic species [8,25,28]. Members of all three groups can cause human infection. Dermatophytosis includes several distinct clinical manifestations. The severity of the disease depends on the strain or the species of infecting fungus, the sensitivity of the host and the site of infection. The pathogenicity of fungal strains is different; for example, one strain of M. gypseum was poorly pathogenic and another produced typical dermatophyte lesions after local infection [17,41,42]. It is believed that the causative agents of dermatomycoses have affected 20–25% of the world population and the disease is increasing every year [7,23,25,35,38].

A number of factors may contribute to this rise. First, as the population ages, there is a corresponding increase in chronic health problems particularly diabetes and poor peripheral circulation. Second, the number of persons who are immunocompromised (because of infections with human immunodeficiency virus and the use of immunosuppressive therapy, cancer chemotherapy or antibiotics) continue to expand. Third, better antibiotic therapy, leading to increased survival of patients who are predisposed to fungal infections, as well as inappropriate antibiotic therapy disrupting the normal microbial flora on the skin and mucosal surfaces. Fourth, avid sports participation is increasing the use of health clubs, commercial swimming pools and occlusive footwear for exercise [30,40].

The distribution of dermatophyte infections and their causative agents varies depending on geographical region and is influenced by a wide range of factors, such as seasonal migration, international travel, extreme weather, natural disasters, climatic factors and drug therapy [23]. In addition,
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