Full Length Research paper

Tinea capitis in primary school children in Hamedan (West of Iran)

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Regarding the importance of tinea capitis as a world wide health problem, evaluation of this problem needs territorial epidemiologic studies. This disease is commonest in boys less than 15 years old, therefore this study was performed to determine the prevalence and aetiologic agents of tinea capitis among school children in Hamedan. We examined 1800 cases of children from Hamedan primary schools. The cases were divided in three areas of according with economical, social and cultural level in: poor, medium and rich. In 44 cases suspected to have tinea capitis with were realized collection from lesion for mycological diagnosis. The causative agents were identified macroscopically and microscopically after the clinical samples were subjected to potassium hydroxide examination and culture isolation. In 20 of these cases, the mycological exams demonstrate direct exam positive and 9 cases of them were culture positive. As a result, The incidence rate of tinea capitis among these cases were 1.11%, the highest rate (1.82%) in the poor area, the lowest rate (0.17%) in the rich area. The highest incidence rate of mycologically positive cases were in 7 year old children (25%). In the direct exam positive cases, 55% had Endothrix type and in the cultures, 44.45% was Trichophyton verrucosum, the most frequent isolate. Tinea capitis had the highest incidence rate in the poor areas. The incidence of tinea capitis in crowded families >5 is more than uncrowded families <5. The commonest type of lesion was gray patch (55%). Tinea capitis is still a public health problem in the world and any scalp lesion with itching and scaling should be considered as tinea capitis unless the opposite be proved through direct microscopy or culture tests.

Key words: Tinea capitis, epidemiology, primary school, Hamedan, Iran.

INTRODUCTION

In the history of medical sciences, dermatological diseases, because of being observable, have always received more attention (Rippon, 1988). Superficial fungal dermatophyte infections are considered important, because they consist of a high proportion of important dermatological diseases. Previous studies show that they cause 10 - 60% of dermatological diseases (Irwin et al., 1999). Among the diseases caused by dermatophytes, tinea capitis is the commonest fungal infection (Irwin et al., 1999; Omidinia et al., 1996; Chadegani et al., 1987; Rastegar et al., 2005; Shochohe, 1985; Rafiei, 1965; Azizie, 1988; Shadeganipour et al., 1997) and the important point is that it is very common in children between the ages of 4 and 14 years old (Irwin et al., 1999; Omidinia et al., 1996; Basiri and Khaksar, 2006). In one study tinea cruris was the most common type of superficial fungal infection in Iran (Aghamirian et al., 2007).

Regardless of great advances in preventing and treating the disease tinea capitis is still a public health problem in the world, especially in economically underdeveloped countries (Elewski, 1996; Enweani et al., 1996; Kemna and Elewski, 1996; Al Fouzan et al., 1993; Abdle and Nahata, 1997; Torres-Rodrigues and Balague-Meler, 1999; Patwardhan and Dave, 1999) and it is so important that in some studies it is concluded that any scalp lesion should be considered as tinea capitis, unless the opposite is proved through direct examination and culture tests (Deluol et al., 1985; Prevost, 1983).

Concerning the problems of treating tinea capitis, like mild forms of the disease, the symptomless vectors and the prolonged therapy with oral medicines, prevention and control of this fungal disease is quite urgent (Friden and Howard, 1994).

Because prevention and control of the disease requires comprehensive information about the epidemiology of the
disease, and familial, social and geographical factors affect tinea capitis as well, performing an epidemologic investigation is of high importance (Friden and Howard, 1994).

PATIENTS AND METHODS

This research is done sectionally-descriptively, investigating the prevalence of tinea capitis among primary school boys in Hamedan. Statistics in Hamedan and the model size formula are adjusted according to the previous statistics 3 - 5% (Hay et al., 1996; Malhotro et al., 1979; Nikpoor et al., 1979; Williams et al., 1995). The model size was estimated about 1800 persons, putting in the related formula. Sampling procedure has been done randomly.

On the basis of data issued by Program and Budget Department, the economic and cultural situations of different regions in Hamedan have been identified; Ostadan and Jahan Nama are rich areas, Sheshsad Dastgah is a medium one and khezr and Hesar are poor areas. 600 students from each area were examined clinically and some suspicious cases were referred to Farschian hospital laboratory for further evaluations as direct examination and culture tests. Diagnosis of superficial fungal infection in this study was confirmed by direct microscopic examination of skin scales and several hairs was epilated for identification of macro and micro morphology of the colonies in the culture medium( mycosel agar) containing cyclohexamide, chloramphenicol and sabouraud agar.

To gather data and filling the check lists, the students were interviewed. The data were analysed, using spss software.

RESULTS

Of the 1800 cases being examined, 44 cases with clinically suspected tinea capitis were introduced for direct examination and culture tests. Among these, 20 cases were mycologically positive for dermatophytosis by direct microscopic examination of skin scales and several hairs was epilated for identification of macro and micro morphology of the colonies in the culture medium( mycosel agar) containing cyclohexamide, chloramphenicol and sabouraud agar.

Among all the 20 mycologically positive cases 55% (11 cases) had gray patch, 30% (6 cases) had Kerion and 15% (3 cases) had favus type lesion (Figure 1).

This investigation shows that among 20 mycologically positive cases, 55% (11 cases) were endothrix and 25% (5 cases) were ectothrix and 5% (1 case) was Endothrix-Ectothrix and 15% (3 cases) were favus . It shows that Endothrix is the commonest type among cases of positive smear (Figure 2).

The study shows that of 9 positive culture cases, 44.45% (4 cases) had T. verrucosum, 22.22% (2 cases) had T. schoenleinii and 22.22% (2 cases) had T. Tonsurans and 11.11% (1 case) had T. Violaceum (Figure 3).

This proves that among all positive culture cases, T. verrucosum had the highest incidence rate and T. schoenleinii and T. tonsurans had the equal incidence rate.

The most common associated symptom was itching 95.45% and then scaling 68.18% and hair loss 56.82% (Figure 4).

This study shows that in poor area with family members ≤ 4 the incidence rate of tinea capitis is 1.05%, in a family with 5 - 8 members 1.64%, and in a family with 9 - 12 members 3.95% (p = 0.001).

It is proved that there is a direct relation between tinea capitis and the number of the family members .

DISCUSSION

The results of this study show that the incidence of tinea capitis has been 1.11%. This data do not match with the Omidinia's study in Hamedan (Omidinia et al., 1996), in Libya's schools 4.49% (Malhotro et al., 1979), in London's schools 2/5% (Hay et al., 1996), in Philadelphia-American 3% (Williams et al., 1995), in Iraq's schools 2.7% (Fathi and Al-Samarai, 2000) and in Kerman's schools 0%
Figure 2. Type of smears.

Figure 3. Isolated dermatophyte species.

Figure 4. Associated symptoms.
Tinea capitis is still a public health problem in the world and any scalp lesion with itching and scaling should be considered as tinea capitis unless the opposite be proved through direct examination or culture tests. 

There is a direct relation between tinea capitis and number of the family Members. The low cultural, economical and social level have a direct relation with the frequency of tinea capitis. Contact with animals (like sheep, cows or pets) increase risk of tinea capitis.

Therefore to prevent and control the disease the above conditions must be considered.

REFERENCES


