



The prevalence of scalp fungi among asymptomatic children in primary schools and children attending primary care clinic at KKUH in Riyadh



Deanship of Scientific Research

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INTRODUCTION

Tinea Capitis (TC) is a fungal scalp infection that poses a universal concern due its common spread among children especially primary school children ^{1,2}.

Prevalence of TC is higher in the developing countries e.g. Ivory coast (13.9%) and Nigeria (31.2%) ^{2,3} than in the developed ones e.g. London (2.5%) ⁶. This variation in the pattern is believed to be due to many reasons such as the lifestyle, geographical region and climate situation ^{2,8,9}.

Many studies were conducted in the Middle East to determine the prevalence of tinea capitis; 209 samples out of 1568 (Prevalence= 13%) were positive for scalp fungi in Tehran 2006 ¹.

Since TC is highly contagious and can be transmitted by close contact, it is important to identify asymptomatic carriers in order to minimize its spread between siblings and school children and to avoid underestimation of TC prevalence ^{1,12,13}.

In a retrospective study in Greece screening for scalp fungi carriers among the immigrant population who live with index cases, the prevalence was very high (97%) which adds to the significance of screening asymptomatic individuals as an important approach in preventing TC.

Tinea capitis has a variety of clinical presentations based on the causative organism and the immunity status of the host ¹⁴. The most common clinical features are: patchy hair loss, scaly scalp skin, pruritus and erythema. TC may be characterized by other features such as kerion, patchy black dot and dandruff like pattern ¹⁵.

There are many risk factors which contribute to the development of TC in each geographical region. Screening children from both urban and rural areas have revealed higher prevalence of TC among the latter. This supports the evidence from many studies that low socioeconomic status predisposes children to TC.

The effect of hygiene on the prevalence of TC is controversial. After reviewing the literature, some studies suggested that poor hygienic habits have no effect on developing TC. On the other hand, some studies have related low socioeconomic conditions with the poor hygiene making the two factors parallel to each other in terms of TC predisposition ¹. Sharing beds, combs, personal equipment and animal contact have been highly associated with TC in several studies. ^{15,5} Locally, there is a lack of data regarding the prevalence of scalp fungi among asymptomatic individuals.

OBJECTIVES

To determine the prevalence of colonization with scalp fungi (dermatophytes) among asymptomatic children aged between 2 -15 years in primary schools and children attending primary care clinic at KKUH in Riyadh.

MATERIALS AND METHODS

A quantitative, observational cross-sectional study was carried out from February to March 2016 in pediatric primary care clinic at KKUH and a number of primary schools in Riyadh, Saudi Arabia including children aged from 2-15 years from both genders with no signs and symptoms of Tinea capitis whose parents agreed to fill in the questionnaire and allow their children to be screened.

A total of 932 children were included in the study. Concerning the pediatric primary care clinic, Parents accompanying their children for several reasons e.g. Vaccination, follow-up, check up & vital signs were asked to take part in the study by filling the questionnaire and allowing their children to be screened after explaining the procedure and gaining their consents. Regarding children from primary schools, Simple random sampling was used to select certain public schools (n=7) for both males and females from different parts of the city (southern, northern and western areas). In each school, lists of students were used to choose 200 subjects randomly by systemic random sampling.

Samples were collected using moist sterile cotton swabs which has been proven to be effective, easy, atraumatic, inexpensive, specific, painless and reliable tool (32,33, 34) by rubbing and rotating the cotton swab on the scalp on a surface area of 5 cm². for 10 seconds. The samples were inoculated onto a selective media Dermatophyte test medium (DTM) by streaking and rotating the swab on the surface of the medium.

Laboratory method:

The cultures were incubated at 28 °C and were examined twice a week for growth. Positive cultures are those with growth of filamentous fungi and change in the color of media to pink. If no growth after 14 days, the samples were considered negative.

Statistical analysis:

Data were analyzed using the statistical package for social science (SPSS) version 23.0 statistical software.

Descriptive statistics were used to summarize the qualitative variables.

Chi-square was used to test the statistical association between multiple risk factors and presence of certain diseases.

RESULTS

The total number of subjects enrolled in the study was 932 and due to incomplete surveys 60 were excluded.

The prevalence of dermatophyte carriers among the total sample size (n=872) turned to be Zero percent since no growth was reported in any of the cultured samples.

Table1 shows the distribution of Tinea capitis different risk factors. Risk factors were classified into associated problems with the disease, environment and behavior.

Table1

Variables	No (%)
Associated problems	
Diabetes mellitus	28 (3.2)
Immunological disease	21 (2.4)
Skin disease	66 (7.6)
Dandruff	190 (22.4)
Hair loss	173 (20.5)
Lice	49 (5.8)
Itching scalp	191 (22.4)
Family history of Tinea capitis	48 (5.8)
Family history of hair loss in childhood	91 (11.2)
Environmental risk factors	
Contact with animals	87 (10.1)
Swimming pool at home	70 (8.2)
Behavioral risk factors:	
Number of showers per week:	
0	9 (1.0)
1-3	627 (72.9)
4-6	224 (26.0)
Use of shampoo	840 (98.2)
Use of comb:	
Personal	637 (73.9)
Shared	180 (20.9)
Awareness about Tinea capitis	268 (31.3)
Awareness about Alopecia areata*	661 (77.3)

CONCLUSION

The prevalence of Zero percent that was found in the present study is not unpredictable and we believe that this may be reassuring about the carrier state of the fungi in this region of the kingdom, or this may be a misleading result due to some of the variables and factors which differ when compared to other studies.

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