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Some Aspects of Head Lice Infestation in Iranshahr Area (Southeast of Iran)

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Abstract

Head louse infestation is common in various parts of the world. Baluchestan area in southeast of Iran is one of the most infected areas. We studied the head louse infestation among the girls in primary schools of Iranshahr, which is the largest city of the province during November 2002 to May 2003. Totally 918 pupils, between 6-14 years old from 12 urban primary schools were randomly selected by multistep method. Inspection was carried out by dividing the scalp to four sections with rat-tail comb in a well lighted area for about 3-5 minutes. Those suspected of having lice were subjected to comb with a fine – toothed comb for about 7 minutes over a white paper of 60 × 75cm size. Children, whose hair had at least one of the developing stages of parasite including only nits located ¼ inch from the scalp, were considered positive. Children's age and some hair characteristics including wavy, hair etc in addition to hair oil usage and presence of dandruff were shown to be associated with infestation. The prevalence rate was shown to be 27.1%. Our study indicates that older pupils were more infested than the younger ones. Negative association between infestation rate and dandruff was observed, but application of oil and infestation rate indicated positive correlation. According to our research, using hair oil make scale suitable for infestation, but hair cut, as School authorities recommends has no effect.

Keywords: *Head lice, Iranshahr, Prevalence rate, Iran.*

Introduction

Head louse is not known to be vector of any disease but it causes irritation, annoyance and sleepiness apart from psychological and social distress. It was observed that secondary bacterial infection could occur at the scratch sites. Being infested by head louse in an endemic area is very common but it seems that children are more susceptible due to their life style (1, 6). Since pediculosis is one of the major hygienic problems in Baluchistan area (unpublished document), its infestation rate in different groups of local students as well as effect of hair oil usage on pediculosis was not clear, so this kind of research must be carried out. Data were analyzed to determine the effects of age, dandruff, application of hair oil, hair length and hair style on distribution of pediculosis among girls in the primary schools.

Materials and Methods

Study area Iranshahr city is located in southeast of Iran, in Beluchistan area which borders with Pakistan. The native people share more or less the same culture and life style with Baluchi people in Pakistan. The latitude of this area is 26º 55′ - 28º 40′ N and its longitude is 58º 59′-61º 14′ E. Since the area is dry and warm (subtropical weather), it has the least population density in Iran (6.6 person/dq. Kilometer). Iranshahr is the largest city of Sistan and Baluchistan province. There were approximately 6093 girl pupils enrolled in 23 primary schools of this city. Totally, 918 pupils from 12 urban primary girl specific schools were randomly selected by multistep method from November 2002 to May 2003 (Confidence interval 95%). Hair inspection was carried out by dividing the scalp to four sections with rat-tail comb and hair clips in a well lighted area for about 3-5 minutes. Those suspected of having lice were subjected to

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comb with a fine-toothed comb for about 7 minutes over a white paper of 60 × 75 cm size. The removed lice were observed, collected by sellotape. Children whose hair had at least one of the developing stages of parasite including only nits located ¼ inch from the scalp were considered positive (2). Age data was obtained from "pupil's files available in school office" and other data related to hair length, hair dressing, presence of dandruff, and application of hair – dressing oil were obtained by visual examination. Most native females use hair- dressing oil in order to facilitate combing and better hair growing. These oils produce traditionally in Pakistan in which the major ingredient is coconut oil. Since some long hair pupils plaited their hair after bathing, but performed no further grooming for several days, we studied this factor, too. The hairs were categorized as short (hair not touching ears or shirt collar), and medium (hair touching ears but not collar) and long (hair touching shoulder). Standard statistical method including Chi-square test was used in order to analyses the data. For all statistical analyses, a significance level was 95%.

Results

Totally, 248 pupils had active infestation. So Prevalence rate (active infestation) of head lice was found to be 27% regarding the 918 pupils examined from 12 primary schools. In 91 (10.1%) of pupils only egg residues were found. Prevalence rate by age is shown in Table 1. The prevalence rates varied from 8.6% to 44.3% with maximum infestation in older group (12- years). So an increase in the prevalence rates with the increase of age, up to13 years was observed. This difference was highly significant (χ^2 = 37.2, *d.f* = 7, *P*<0.0001). The prevalence rate of long hair group was 16.7%, medium 28% and short hair group 26.3%. The difference infestation rates for these three categories weren't significant so the length of hair was shown as an unimportant factor in distribution of head louse. Head louse distribution and application of hair – dressing oil showed significant difference (*P*<0.0001). Prevalence of lice in relation to plaited hair after bathing was analyzed (Table 2), but there wasn't any significant difference between the plaited hair and infestation. Analysis of dandruff data, classified by presence or absence of dandruff and infestation indicated a significant negative association between dandruff and prevalence of head lice (Table 2) (*P*<0.05).

Table 1: Prevalence of head lice in primary girl specific schools in Iranshahr by age (2002 – 2003)

Age	Positive/examined	Prevalence rate
6	3.35	8.6
7	42.151	27.8
8	40.156	25.6
9	40.169	23.7
10	56.184	30.4
11	33.131	25.2
12	27.61	44.3
13	3.8	37.5
14	0.1	0
Missing data	4.22	18.1
Total	248.918	27
Result	*P*<0.0001	

Table 2: Frequency distribution of Head lice infestation in primary schools pupils in Iranshahr according to different factors (2002- 2003)

Different factors		No. of Examination	No. of Infestation	Prevalence %	Result
Using Dressing	Yes	304	101	33.2	
Hair oil	No	532	118	22.2	*P*<0.001
Dandruff	Present	154	28	18.2	
	Absent	636	173	27.2	*P*<0.05
Plaited	Yes	186	46	24.7	
Hair	No	732	202	27.6	*P*=0.432

Discussion

The prevalence rate encountered in the present work (27%) is among the highest observed in other different parts of the world including 35% in Brazil (3), 49.7% in Ghana (7), 48.7% in France (8) and 33% in Australia. Differences in the head lice distribution rates between age groups (6 to 13 years) are supported by many studies (3, 5, 9). It seems those younger groups are dependent on parents and guardians for combing and washing or cleaning their hair. This helps to early detection of infestation before its establishment. The absence of significant differences between the prevalence rates of pediculosis and hair length are in agreement with articles reported (5, 10, 11) although a common association of long hair and head lice exists in the public mind. In spite of school authority's opinion, hair cut doesn't have any effect on reducing the infestation. There wasn't also any significant difference between plaited hair and infestation rate but (5, 7, 12, 13) suggested that hair style was an important factor in transmission. Obtained data clearly showed that children without dandruff were more infested than those with dandruff. Patobiology of dandruff showed presence of fungi (*Pterosporium ovalle*) that probably isn't suitable for head life survival and nutrition. This view seems in line with the observation of reports (14, 15). A direct relationship between pediculosis and using of hair oil was seen. It seems that frequent application of hair dressing oil make scalp and hair more suitable for head lice, however Burgess and Buxton (5) showed that application of these oils has no effect on the incidence of head louse infestations or their survival. The data showed that using of hair dressing oil and presence of dandruff, have negative effect on pedicolusis. So, it is suggested to advise the parents and pupils to refuse application of these oils.

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