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STUDY OF PREVALNCE OF *PEDICULUS HUMANUS CAPITIS* AMONG PRIMARY SCHOOL PUPILS IN AL-NAJAF AL-ASHRAF PROVINCE

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ABSTRACT : Pediculosis is a health problem around the world especially in school children's in developing and advanced countries. The current study was conducted in AL-Najaf Al-Ashraf Province to determine the incidence of Pediculosis among elementary school girls. The study included 4 schools in the Province where 818 students were examined. The overall incidence was 22.9% and the highest incidence was recorded in the center of the city where it reached 28.4% the study also included some hair qualities, with the highest rate of infection among students with smooth and long hair reaching 86%.

Key words : Pediculosis, primary school pupils.

INTRODUCTION

Pediculosis is a disease caused by ectoparasite called *Pediculus humanus capitis*. It is live compulsory on the scalp of the human head. It cannot live away from its host and feeds on blood 4-5 times a day. Most of its eggs are placed at the end of the scalp near the neck and behind the ears (Mumcuoglu *et al*, 1991). The most common symptoms of the presence of lice are head itching, which may begin after a week of initial injury, causing skin irritation, itching and loss of sleep, as well as causing bacterial infectiontes resulting from scratching during the itching of the hair as well as skin ulcers and fever (Mumcuoglu, 1991; Sinclair, 2002). The itching usually from the effect of salivary antigens for thelice and faeces on the scalp (Mahmood, 2010).

Since head lice feed on human blood, chronic infections among schoolchildren may lead to anemia, which is manifested in fatigue, sleepiness during the lesson and learning disabilities (Speare and Buettner, 1999; Nutanson *et al*, 2008).

Infecation occurs through direct contact between children, from one child to another or from child to parent or vice versa as well as common combs, mattresses, towels, clothes and brushes. Factors contributing to injury are the number of children at home, overcrowding, social and economic staus and loss of health care (Mumcuoglu *et al*, 1996). Among the causes of lice infestation is the level of education of parents, the existence of pet animals, access to water and how to consume (Buczek, 2004).

Pediculosis infectsose children aged 3-14 years and infects girls more than males (Mahmood, 2010). The present study aims to investigate lice due to the health damage and social problems of the disease and the purpose of knowing the percentages of the total infection among primary school pupils for the purpose of spreading awareness to take the necessary measures to control the spread of these parasites through guidance and counseling for students and their families. The study was also conducted in order to determine the age at which the infection rate was high, in addition to other criteria included in the study.

MATERIALS AND METHODS

The study was conducted in 4 primary schools for girls in AL-Najaf AL-Ashraf Province, which included the countryside of Abbasiya, center of city and Al-Mukarama district. 818 pupils were examined between the ages of 7-12 years to the detect head lice. The lice were detected through inspections of the heads of pupils, with attention to the end of the neck and behind the ears, Some hair samples containing lice eggs as well as samples of adult lice by keeping them in a petri dish and the dish was covered with barra film. The samples were taken to the laboratory for examination by microscope and comparison of phenotypes with Matheson (1950). A questionnaire included school name, grade, hair type (smooth, curly), length of hair (long, short) and hair color (black, brown, blond) and number of family members. The results were statistically analyzed by using kai square test.

RESULTS

818 pupils from primary schools were examined for the incidence of head lice. The number of those infected was 187, with atotal infection rate of 22.9%. The highest incidence was in the city center school/1, which reached 28.4% followed by the region of the Abbasiya countryside reached 25.3%.

Relationship of head lice infestation to the grade

The relationship between the age of the students and the lice infection was studied. Table 2 showed that the highest percentage of infection was in the fifth grade, at the age of 10-11 years, 31.8%, with a significant difference of 5.3 under the probability level P <0.05.

The relationship between the incidence of head lice relative to the length, type and color of the hair of the students

Tables 3, 4, 5 shows that the highest incidence of lice was among girls students with long hair was (86%) compared with girls with short hair with a significant difference reached (4.9). The highest percentage of infection among girls with smooth hair was (86%) with a significant difference (4.9). As for hair color, the highest incidence of lice was found among girls with brown hair, reaching 62% with a significant difference of (2.3).

Table 1 : Prevalence of *pediculus humanus capitis* in primary school according to their region of AL-Najaf AL-Ashraf Province.

School location	Total number	Number of injured	Percentage
Najaf Center/1	183	52	28.4
Najaf Center/2	171	37	21.6
Al-Mukarama district	290	54	18.6
Abbassia countryside	174	44	25.3
Total	818	187	22.9
Kai square	Differences of significance of the center of Najaf / P <0.05		

Table 2 : Relationship of the grade and the incidence of head lice among primary school pupils.

The grade	Total number	Number of injured	Percentage
First	114	17	14.9
Second	160	28	17.5
Third	156	35	22.4
Fourth	126	32	25.4
Fifth	132	42	31.8
Sixth	130	33	25.4
Kai square	5.3 significant differences for the fifth grade P <0.05		

Table 3 : Relationship of hair length (long, short) and percentage of head lice.

Hair of length	Percentage	T-calculated	T table p < 0.05	Significant differences for long hair
Long	86	4.9	2.02	
Short	14			

Table 4 : Relationship of the type of hair (soft, curly) and percentage of head lice.

Type of hair	Percentage	T calculated	T table p < 0.05	Significant differences for soft hair
Soft	86	4.9	2.02	
Curly	14			

Table 5 : Relationship hair color (black, brown, blond) and the percentage of head lice

Hair color	Percentage	T calculated	T table p < 0.05	Significant differences for brown hair
Black	24	5.8	2.3	
Brown	62			
Blond	14			

The relationship of head lice to the number of family members

Table 6 shows that the highest rate of infection was recorded among families with 4 members at 35%, with a significant difference of 2.8.

Table 6 : Relationship of the number of family members and percentage of head lice among students.

Number of family members	Percentage	T calculated	T table p < 0.05	Significant differences for the family which number (4)
1	5.4	6.6	2.8	
2	8.1			
3	16.2			
4	35.2			
5	16.2			
6	8.1			
7	2.7			
8	8.1			

DISCUSSION

This study was conducted to determine the prevalence of lice among primary school pupils in AL-Najaf AL-Ashraf province and the results of this study showed that the AL-Najaf center/1 school recorded the highest percentage of infection compared to the rest of the schools, the reason may be attributed to some of the social and economic conditions and factors of the region, and the mixing of female students with each other is more intimate and long-term and this is consistent with (Speare and Buettner, 1999). The system in Iraq schools also uses

double chairs, which increases the physical contact between students, which increases the transmission the lice from the head to the head.

With regard to the difference in age for the incidence of head lice has reached the highest rate of infection at the fifth grade, *i.e.*, age 11 years compared to other ages and can be explained that small children are often under the care of parents in terms of cleaning hair and combing and arrangement and thus early detection of infection and treatment quickly. When older people are often self-reliant in cleaning hair and combing and independence entirely from the parents as an increase in cultural awareness and knowledge of personal cleanliness and how to avoid the causes of injury and this is consistent with Mahmood (2010).

As for the length of hair and its relationship to head lice infection, it is recognized that the longer the hair the longer the incidence of infection more and difficulty of getting rid of the insect during hair washing and combing may also be attributed to the short hair is easy to diagnose the infection and early treatment of lice (Counahan *et al*, 2004).

In this study, it was also found that students with smooth hair are the most injured compared to the curly hair. The reason may be due to the easy crawling of the lice on the smooth hair and the adhesion of eggs to it when laying eggs.

It was also noticed in this study that the percentage of infection increased among students with brown hair with significant difference more than black and blond hair and may be due to some genetic factors related to hair color.

The study found that the incidence of infection increased among families with more than 3 individuals. The reason was attributed to the sharing of hair combs, hats, scarves, woolen jackets, pillows between the members of the family and the risk of being exposed by their brothers, which less attention to hairand this is consistent with Menan *et al* (1999), it was alsofound that one of the factors contributing to the spread of infection is the number of children in the family and the amount of health care at home and school Such as the number of times the hair was washed and this is consistent with Wouden *et al* (2011).

COCLUSION

The study included some hair qualities, with the highest rate of infection among students with smooth and long hair.

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REFERENCES

AL-Shawa Rodina M (2008) *Pediculus capitis*, infestation according to sex and social factors in Gaza Governorate. *The Islamic University Journal* (*Series of Natural Studies and Engineering*) **16**(1), 75-83, 2008.

Buczek A, Markowska-Gosik D, Widomska D and Kawa I (2004) *Pediculosis capitis* among school children in urban and rural areas of astern Poland. *Eur. J. Epidemiol.* **19**, 491-495.

Counahan M, Andrews R, Büttner P, Byrnes G and Speare R (2004) Head lice prevalence in primary schools in Victoria, Australia. *J. Paediatr. Child Health* **40**, 616–619.

Dolianitis C and Sinclair R (2002) Optimal treatment of head lice: is a no-nit policy justifed? *Clin. Dermatol.* **20**, 94-96.

Mahmood Shayma A (2010) Head pediculosis among in Baghdad area elementary school children. *Iraqi Journal of Science* **51**(1), 49-55.

Matheson R (1950) *Medical entomology*. Second edition, Comstock publishing company Inc.

Menan E, Guessan G, Kiki-Barro P C, Nebavi N G, Adjetey T A and Kone M (1999) Scalp pediculosis in school environment in the city of Abidjan : prevalence and influence of socio-economic conditions. *Sante* **9**, 32.

Mumcuoglu K Y, Barker S C and Burgess I F (2007) International Guidelines for Effective Control of Head Louse Infestations. *Journal of Drugs in Dermatology* **6**(4), 409-414.

Mumcuoglu K Y, Galun R, Bach U, Miller J and Magdassi S (1996) Repellency of essential oils and their components to the human body louse, *Pediculus humanus* humanus. *Entomol. Exp. Appl*. **78**, 309-314.

Mumcuoglu K Y, Klaus S, Kafka D, Teiler M and Miller J (1991) Clinical observations related to head lice infestation. *J. Am. Acad. Dermatol*. **25**, 248–251.

Nutanson I, Steen C J, Schwartz R A and Janniger C K (2008) *Pediculus humanus* capitis : an update. *Acta Dermatovenerol Alp Panonica Adriat*. **17**(4), 147–154. 156–157, 159.

Speare R and Buettner P (1999) Head lice in pupils of a primary school in Australia and implications for control. *Int. J. Dermatol*. **38**, 285-290.

Wouden V D, Klootwijk T, Le Cleach L, Do G, Vander Stichele R, Knuistingh Neven A and Eekhof J A H (2011) Interventions for treating head lice (Protocol) Cochrane Database of Systematic Reviews, Issue **10**. Art. No.: CD009321. DOI: 10.1002/14651858.CD009321.