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PREVALENCE OF PEDICULUS HUMANUS CAPITIS INFESTATION AND SOCIO-ECONOMIC STATUS IN SCHOOL CHILDREN; A REVIEW

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Abstract

The human head louse, *Pediculus humanus capitis* are a universal health problem for children and their families. Lice are ectoparasitic insects that can be found on human's head, and bodies, including the pubic area. *Pediculus capitis* are perennial, holoparasite that run through their complete life cycle on the host. Head lice infestation inspired by *Pediculus humanus capitis* is a general problem which infests children at 5 and 13 years of age. Infestations of lice that live on skin cause anxiety, this infestation do not require clinical interest but can cause crucial depression. Head lice may cause unpleasant feeling and may disturb the schooling work. The spreading of this problem is more common in poor countries and the area that are highly populated and the areas where there is no awareness of personal hygiene, poor health facilities and non awareness of school health educator. To promote the management of head lice admonishing efforts from public health authorities should focus to reach all persons at risk

Key words

Pediculus humanus capitis, Prevalence, School children, infestation, Socio-economic Status.

Introduction

Lice are ectoparasitic insects that can be found on human's head, and bodies, including the pubic area. Human lice survive by feeding on human blood. Lice are parasites of humans for long time and vary to their domain on the host (Light J. E et al., 2008). Lice found on each area of the body are different from each other. Head lice are insects belong to arthropod family and order Anoplura. Worldwide, more than 550 species have been classified (Durden LA, Musser GG, 1994). The three types of lice that live on humans are: *Pediculus humanus capitis* (head louse), *Pediculus humanus humanus* (body louse). Body lice are main vectors of epidemic typhus, trench fever, and relapsing fever (Noble and Noble, 1961; Service, 1986) and *Phthirus pubis* (crab louse) (Goldstein and Goldstein, 2006). Pubic lice usually are found in the genital area on pubic hair; but they may be found on other body hair, such as hair on the legs, armpits, eyebrows, or eyelashes. Pubic lice are most commonly spread during sexual activity. (Mimouni D et al., 2001, Pierzchalski JL et al., 2002, Flinders DC et al., 2004, Bignell C, 2005). Pubic lice are not a serious health problem because they are not known to be vectors of any illness (Anderson AL, Chaney E, 2009).

The adult head lice are small, narrow heads and oval, flattened bodies and have no ocelli, and their compound eyes are taper in size or absent (Capinera, John L, 2008)). Head louse is seen by naked eye. Head lice are gray-brownish in color (Meinking T.L., 1999). Female body length ranges from 2.4 - 3.3mm. Male body length is 2.1 - 2.6mm. Antenna shape is shorter and wider. There are 3 segments of antenna which are as long as wide (Veracx A, Raoult D, 2012). Lice do not fly or jump, they crawl (Ibarra J, 1996). It has 6 legs (Buxton, Patrick A, 1947). They suck small amounts of blood from the scalp of the host between 3 and 10 times a day (Speare R et al., 2006), without a blood meal adult lice die within two days (Takano-Lee M et al., 2003). The life span of the female louse 3 to 4 weeks and when they mature, can lay 10 eggs per day (Meinking T, Taplin D, 1995). Lice transfer through head to head during close contact (Canyon DV et al., 2002).

Pediculus capitis are perennial, holoparasite that run through their complete life cycle on the host (Butler, 1985). Head lice have three developmental stages: egg (egg to nymph stage 6 – 12 days), nymph (nymph to adult 7 – 14 days) and adult (7 – 10 days) (Sauer GC, 1996, Eichenfield LF et al., 1998). The eggs, commonly called nits, tightly adhered to the base of the hair shaft and observe near the scalp, most commonly near the ears and the back of the neck and difficult for remover. After hatching the egg, they grow by molting three times before reaching adulthood (Speare R et al., 2006). Nymphs are grey or brown, wingless insects approximately 1/8 inch in length (Jahnke et al., 2009, Frankowski, et al., 2010). If not treated, the cycle repeated again roughly every 3 weeks (Meinking T, Taplin D, 1995).

Transmission

Lice are transmitting disease, often because inopportuneness to their hosts (Buxton, P. A., 1938). Infestation was seen in girl's not in boys at 10-14 years of girls age and infestation rate fall at age 15-18 years (Hodjati MH *et al.*, 2008). Lice infestation can be transferred due to close contact between children during playing, sharing personal items such as combs, brushes, scarves, caps, head phones or sports helmets. Head lice can infest people of all ages but children are prone to infestation because of their habit of playing in close contact, sharing hats ,head phones, combs, brushing and clothing(Rust *et al.* , 2001). Crowding is the main factor for the transmission of head lice. (Ali N, Ramzan F., 2004). The factors that affect such as age, race, sex, crowding at home, family size and socioeconomic status and distribution of the disease (Slonka *et al.*, 1975; Weems-Jr and Thomas, 1999). This infestation also occurs due to irregular washed hairs and cloths (Silva L *et al.*, 2008).

Many studies have showed the high risk of spreading among 8-14 age group which is possible due to close head contact between children as they become more friendly (Sinniah B *et al* 1982). The spreading of this problem is more common in poor countries and the area that are highly populated and the areas where there is no awareness of personal hygiene, poor health facilities and non awareness of school health educator. In recently year's resistance to pesticide have contributed to the increase of head lice prevalence (Nazari *et al*; 2006).

Infestation

Head lice infestation inspired by *Pediculus humanus capitis* is a general problem which infests children at 5 and 13 years of age (Hodjati *et al.*,2008 , Motovali-Emami *et al.* ,2008, Davarpanah *et al.*,2009).Ectoparasitoses are generally considered to be irking disorders, this disorder do not require clinical interest but can cause crucial depression. In fact that this ectoparasite is not known to be vector of illnesses, pediculosis causes irritability, difficulty sleeping, secondary bacterial infection, scalp pruritus excoriation, ophthalmitis and psychological distress (Malcolm, C.E., J.N *et al.*, 2007, Falagas, ME *et al.*, 2008, Parison, *et al.*, 2010). Ectoparasitic infestations can be spasmodic, pandemic and autochthonous (Takano-Lee M *et al.*, 2004).

Infestations of lice that live on skin cause anxiety, this infestation do not require clinical interest but can cause crucial depression. Head lice may cause unpleasant feeling and may disturb the schooling work (Chaudhry S *et al.*, 2012).

Infestation of lice is known as Pediculosis (Merck & Co, 2008, Maunder JW, 1983). . In each few hours the head lice sucking small amount of blood from the scalp of the host by inserting small amount of saliva into host .Because of excessive infestation and frequent feeding of the host blood may lead to iron deficiency and consequent anemia, myasis, plica, polonica and allergic reactions such as nasal obstruction, rhinorrhea and nightly whistles (Al-Shawa 2006;Cazorla *et al.*,2007;Tolozza *et al.*,2009).

Recent studies Nutanson *et al* (2008) showed that prevalence of head lice was more common in girls (87%) than Boys (14%) in all aged groups. (Nutanson I et al ., 2008).An increased rate of infestation was showed from number of countries including north and south America ,Europe ,Asia and Australia (gratz,1998;Burkhart 2000).

Prevalence

The prevalence of head lice infestation can be different from state and their region (Budak S *et al.*, 2007, Atambay M., 2007). The estimated of infestation percentage in reports were 2.4% in England (Donaldon, 1976), 10.7%-12.9% in Malaysia (Sinniah *et al* 1981)17.1% in Kenya (Chunge, 1986)12% in Saudi Arabia (Boyle, 1987). In D.I khan, Peshawar and Karachi are 26%, 45% and 25% respectively (Suleman and Fatima, 1988). Prevalence of *pediculosis* is 77.40% in Lahore district of Pakistan (Chaudhry S *et al.*, 2012). In Egypt, primary schools girls more affected (25.8%) than school boys. In Turkish school girls were 3.1 fold more affected than boys .in many other studies in turkey showed that female living with big families and low standard living of their parents increase the risk of this infestation approximately 41 folds, two folds ,73% and 45% respectively (Gulgun M *et al.*, 2013).

Recommendations

To promote the management of head lice admonishing efforts from public health authorities should focus to reach all persons at risk. Such research aids to provide information and planning to diminish infestation among school children and the encouragement of health education messages. Prevalence can be reduced by proper hygienic measures.

Conclusion

Head lice infestation affects millions of people throughout the world. It is common health problems in school children. Various factors promote this infestation. This infestation disturbs people socially and psychologically. Crowding is the main factor of this infestation. Infestation has different ratio among different socio-economic groups. To reduce this prevalence schools should make some kind of polices to aware the families about this social stigma.

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