



A REVIEW ON SKIN INFECTIONS AMONG CHILDREN AND ITS PREVALENCE IN SCHOOL ENVIRONMENT

Mohammad Ali Shakeri Hosseinabad^{1*}, Farzad Abdolhazadeh²

1. Resident of Dermatology, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Islamic Azad University, Young Researchers and Elite Club, Boukan Branch, Boukan, Iran

ARTICLE INFO

Received:

07th Jan 2017

Received in revised form:

22th Jun 2017

Accepted:

25th Jun 2017

Available online:

14th Aug 2017

Keywords: Fungal infection, schools, Students, Prevalence, Early treatment, health education.

ABSTRACT

Skin problems are common among students of which the vulnerable age group are children who are in a close and continuous contact with each other in school environment and prone to these skin disease. Some limited information about the prevalence of infectious skin diseases among students is available. In this study we have tried to review articles associated with the prevalence of infectious skin diseases and disorders caused by fungal infections in school environment.

Material and method: The study was carried out by searching with the following Keyword: Fungal infection, schools, practices, early treatment, children, and diagnosis. Database used includes Google Scholar, PubMed, Scopus, Meg Iran, and Iran Seed Doc. Articles from 1990 to 2016 articles related to this issue were identified and analyzed. Of the 90 articles, 40 papers were related to fungal skin infections and eczema.

Findings: The first review of the literature associated with these disease, investigating the fungal skin infections among children in school and early diagnosis make a great help in the treatment and prevention of outbreaks. (Consider changing these)

Conclusion: Dry skin diseases and fungal infection is common among children due to their contact with their peers. And in the meantime should try to diagnosis, prevention and treatment for these individuals, according to review articles carried out on children of different ages indicates the more attention to school children and the early diagnosis and treatment of these skin disease among them To stop the outbreak, And to avoid the physical cost and psychological effects, health centers provide a basic health education programs between parents and educators at schools.

Copyright © 2013 - All Rights Reserved - Pharmacophore

To Cite This Article: Mohammad Ali Shakeri Hosseinabad*, Farzad Abdolhazadeh, (2017), "A review on skin infections among children and its prevalence in school environment", *Pharmacophore*, **8(4)**, 62-65.

Introduction

The skin is a vital organ that without it no creature is able to survive. Skin as the largest living member of the body, In fact is also considered as one of the most complex, most interesting and most prolific member. Achievements and research in understanding the structure and function of the skin in the body over the past decade has been more and more effective than studies carried out during the last two centuries. Skin is one of the effective barrier against the invasion of microorganisms and chemical and biological agents and its disorders that is present as various skin diseases which can involve the body with various microorganisms, resulting in various skin diseases including fungal infections like dermatophytes, eczema and so on. Superficial fungal infections are the common skin infections which occur in various forms, affects the skin and mucous membranes. The most important and frequent cutaneous fungal infections which involve the skin and its appendages, are dermatophytes [1,2].

A number of skin diseases such as scabies and pediculosis, warts, fungal infections and impetigo due to their nature can be contagious and create numerous health problems, especially in the vulnerable age group of children [3]. Skin diseases are common in children, but there is little information about them. Disorders related to fungal infection and dry skin and eczema imposes many problems to students, families and the government [4]. Infectious disorders among school students which are in close contact with each other, can be potentially dangerous and problematic. Atopic dermatitis and eczema are common in children. This issue has been confirmed in many studies [6, 3]. It seems that the epidemic is increasing which Home allergens

and air pollution are involved [7, 2]. Since the treatment of these dermatosis is often long and in some cases, full recovery can not be made [7, 6, 5], Health education and health advice for prevention and control and forming good health habits in children and adolescents is very important. So, In order to plan an appropriate health education, the rates of incidence and prevalence of infectious and non-infectious fungal dermatitis and eczema seems necessary [9, 8].

Investigating the types of fungal infections, infectious dermatosis and eczema

Variety of skin fungi

• Dermatophyte infection

Clinically dermatophytes are named based on involved position that includes Piedra of head, feet, groin/trunk, beard, hands and nails [10, 9]. Superficial fungal cell orientate to Stratum corneum of skin and the feed from that. This layer consists of soft stratum corneum of the skin and the hard stratum corneum like hairs and nails. Due to the different orientation of each superficial fungal to soft or hard stratum corneum, different forms of fungal infections of the nails and hair occur [11, 10].

To diagnose and fight against dermatophytes knowledge about Ringworm-dermatophytes and its prevalence rate is required. Knowing the ecology and epidemiology of dermatophytes and affecting factors in their prevalence make a great help to understand the history of dermatophytoses [13].

According to numerous studies conducted in various countries suggests that, the not only geographical distribution of dermatophytes is different from region to region but is also changing in consecutive years [15, 14, 13].

• Other symptoms of skin fungus

These symptoms depend on the type of fungal infection and that body is involved. Skin fungus can cause skin rashes, red, flaky and be itchy and it seems that the skin is dry. Fungal infections of the scalp can cause hair loss. Skin rash caused by the fungus may be confused with symptoms of other skin problems such as psoriasis and eczema [16].

• Infectious dermatitis and eczema

Eczema is a general term that indicates inflammation of the skin. Eczema which other name is dermatitis has no particular form but occurs in different forms and in some cases more than one type have seen. Common forms include:

1. Atopic dermatitis 2. Contact dermatitis 3. Hand dermatitis 4. Neurodermatitis 5. Occupational dermatitis 6. Seborrheic dermatitis 7. Stasis dermatitis 8. Nummular eczema 9. Dyshidrotic Dermatitis

The difference between eczema and atopic dermatitis

One of the most common forms of dermatitis is atopic form which approximately in 20-10% of people is diagnosed with chronic itching, recurrent and very itchy spots in childhood. Fortunately, in most cases, the disease can be overcome with age. In general, atopic dermatitis is reciprocating and often caused by an environmental factor. Although the cause is unknown but the main problem is the abnormal reaction of the immune system [18, 17, 16]. In people with eczema, inflammatory response to provocateurs agents' acted excessively and cause itching and scratching the skin. Although eczema may vary from person to person, but is often determined with itchy, red and dry patches. Eczema may be seen on one part of body but in more babies can be seen in the forehead, cheeks, upper arms, thighs, scalp and neck. In children and adults, mostly can be seen on the face, neck and around the elbows, knees and ankles and in some individuals occur with release scattered throughout the body. In the discussion. Most types of dermatitis among children has been spread [19].

- Atopic Dermatitis: Atopic dermatitis in children is common, it seems to be hereditary because always there is a Family history of dermatitis or asthma in these people. Symptoms of this type of dermatitis include: Dry skin with itching, rash on the face, Inner elbows, behind the knees, and on the hands and feet. Itchy skin causes redness, swelling, cracks, drainage, thickened skin and flake –off [20].

- Dry skin

- Infectious dermatitis: it seems to be affected by bacterial infection (impetigo) or fungal infections [21].

Based on the above discussion, the main objective of this review is to try to identify diseases, ringworm, eczema, etc. And the prevalence and the diagnosis and treatment among children in elementary and secondary schools.

Discussion

Children are the vulnerable group of society, Skin diseases are common in this group. 15% of people referring to pediatric clinics, have skin diseases [22, 10]. Usually Without any complaint of skin disease by themselves. So the role of parents and teachers and educators in early diagnosis of infectious disorders and dermatitis and eczema is important. Little epidemiological studies on skin diseases among school children is available. After reviewing the resource, it was consider that fewer studies have been conducted on school children in Iran. The present article aims to review the studies on this topic in consecutive periods, to determine an estimate of the prevalence of infectious fungal disease and infectious dermatitis and disorders of the skin dryness and eczema To determine a plan and an action based on the most common skin problems in order to prevent and treat them and prevent potential complications for the individual and community. The first epidemiologic studies was done on children's diseases in 1974 in Johannesburg, South Africa on thousands of children [11]. And after it, similar epidemiological studies was done in several states of America and Singapore. Most studies have been done in this field in the referral centers, this means that children and their parent's refer to this centers to see a doctor to treat their skin condition. In Studies had been performed in Hong Kong, on 1006 student by a medical team consisting of a dermatologist and two nurse examiner [23]. Before the examination they asked some questions about the signs and

symptoms of skin diseases, that the prevalence of skin diseases was noted 3.31 percent, and the highest rate was related to acne [24,12] Studies of Mali [14,13], East Africa (25,15), Nigeria [26,16], Ethiopia [18,17] and India [28,27,19] is available indicates that, In these countries the most common skin disease in children is infectious diseases (30,29). But in published studies of Thailand [31, 20], China and Hong Kong [21], Singapore [22], America and European countries [32, 22] and Kuwait [11] dermatitis and eczema is the most common. . In Mexico, the prevalence of the disease was similar in both groups [23]. In Mali the prevalence of infectious diseases was 2/41 [33, 13] or nearly 50 percent of children in Nigeria were infected to infectious skin diseases [16].

Atopic dermatitis and dry skin is the most common symptom found in children [35, 34, 21]. And its cause was consider Due to air pollution and allergens at home environment [36, 5]. In a study that was conducted in Turkey the prevalence of dry skin 11.85 percent, Pilar keratosis 12.5 percent and pityriasis alba 12 percent. In a study conducted on 12,000 children of 6-14 years old in northern India the prevalence of eczema is 5.2 percent. In studies conducted children of 9 years old in Italy the prevalence of Pityriasis Alba 2.5 percent, Pilar keratosis 2.3 percent and eczema was 16 percent [37,4] In studies conducted in Italy the prevalence have been reported that it's prevalence among 6 aged children was 5.4 percent [4]. The prevalence of infectious diseases comes down with increasing age [25]. Atopic dermatitis make a lot of problems in the relationship between children and their peers And causes the excessive dependence of children to parents, Children irritability, parents nervousness and most importantly sleep disorders in children [26]. As well as its treatment imposes heavy costs for the government and families [38, 7]. Results of studies on skin infection in children indicates a high prevalence of dry skin and symptoms of atopic dermatitis.

Conclusion

According to the results of review of studies which investigated several articles on the subject, it can be said that, the prevalence of this disease among children in elementary and secondary schools Due to frequent contact with each other and not respecting true health principles in some schools was higher. Despite the relatively low prevalence of infectious diseases in recent decades that more health principles follow-up [40, 39], However, should be more considered due to the contagious nature of this disease and near contact of children at school environment. And primary level education to parents and people who are in contact with these children seems essential as health care [38, 7].

According to review studies conducted on 40 technical papers in the field can be said that most studies suggest that, Most of these patients are children aged 5 to 10 years and its prevalence in schools is more due to not respect true health principle well and children are more in touch with each other. By the way with the spread of this fungal infection among infants and children is better to avoid the cost of material and psychological effects, a basic health education programs and between parents and coaches be provided by health centers at schools, and well-pointed simple advice to parents of children.

References

1. Philpot CM. ome aspects of the epidemiology of tinea. *Mycopathologia*. 1977 Nov 30; 62(1):3-13.
2. Holden.CA, Parish.W.EAtopic dermatitis .In:Champin.R.H, Burton.JL, Burns.D.A, Breathnach.S.M, (Eds).Rook/wilkinson textbook of dermatology. Sixth ed. London: Blackwell Science.1998.PP:681 -708.
3. Tay, YK, Kong, KH, Khoo L.The prevalence and descriptive epidemiology of atopic dermatitis in Singapore School children. *BJ Dermatol*, 2002; 149(1): 101- 106.
4. Girolomoni.G, The epidemiology of atopic dermatitis in Italian school children. *Allergy*.2003; 58:420 -425.
5. Martin Fernandez Mayoralas D, Martin Carball ero JM. Prevalence of atopic dermatitis in school children from Cartagena (spin) and relationship with sex and pollution. *Ann Pediatr*. 2004; Jun; 60(6):555 -60.
6. Laughter D, ItevanYA, Tofte SJ, Hanifin JM. The prevalence of atopic dermatitis in Oregon school children .*J Am Acad Dermatol*.2000; 43(4):649 – 55.
7. Kawada T. Risk factors and prevalence of asthma or atopic dermatitis in young children by a questionnaire survey. *J Nippon Med Sch*. 2004 Jun; 71(3):167 – 71.
8. Emerson RM, Wolliams HC, Alla B. What is the cost of atopic dermatitis in preschool children. *Br J Dermatol* 2000 Mar; 144(3): 514 -22.
9. Ben -Gashir.Ma, Seed.PT, Hay RJ, Are quality of family life and disease severity related in children atopic dermatitis *J EADV* 2002; 16:454 -462.
10. Inanir I, Sahin mt, Gunduz, D, G; Turel, Arsisay.A, Ozturkca S.Case report. Tinea pedis and onychomycosis in primary school children in Turkey. *Mycoses*.2002.45 (5 -6):198 -201.
11. Artil: N.B.E.Fowzia AL-Hasawi, fowzia AL-Hasawi, AL-Hasavi: Qasem A.Alsaleh. A prospective survery of pediatric dermatology clinic patients in Kuwait: An analysis of 10000 cases. *Pediatr Dermatol* 1999.16(1):6 -11.
12. Fung, W.K: MSC: K.LO:F.R.C.Prevalence of skin disease among school children and adolescents in a student health service in Hong. *Pediatr Dermatol*.2000. 17(6):440 -446.
13. Mahe A. prual A., Konate M, Bobi P. Skin disease of children Mali ,a Public health problem . *Med Hyg* 1995 Sep-Oct: 89(5): 467 -70.

14. Mha, Ciss Lah, Fayeo. N, Diage HT .Niampap. Skin disease in Bmako (Mali), Institute Marchoux. Bamako Republic of Mali.
15. Schmellen W Community health workers reduce skin disease in East Africa children. I J Dermatol 1998 May 37(5):370 -377.
16. Oduoko OM, Onayemio, Ojedj GA. A prevalence survey of skin disease in Nigeria children. Niger J Med 2001 Apr-Jun 10(2):64 -67.
17. Dagnew MB, Cunther E. Epidemiology of communicable skin disease in school children of a rural area in North Ehtiopia. Dermalol Monature 1990; 176(4):219 -23.
18. Dagnew MB, Erwin G. Epidemiology of common transmissible skin disease among primary school children in North West Ethiopia. Trop Geog Med 1991 Jan-Apr: 43(1 -2):152 -155.
19. Sunil Dorga, D.N.B and Bhushun Kumar. Epidemiology of skin disease in school children: A study from nor Th India. Pediatr Dermatol 2003, 20(6): 470 -473.
20. Wisuth. Sarewong W. vir avan S. Analysis of skin disease in referral pediatric dermatology clinic in Thailand. J Med Assoc Thai.2000 Sep; 83(9):999 -2004.
21. Kamlun Hon, Leung TF, Wongy, et al. Skin disease in Chines children at a pediatric dermatology center.Pediatr Dermatol 2004,21 (2): 109.
22. Xhristen wenk, peter H. Itin. Epidemiology of pediatric dermatology and allergology in the region of Aargau, Switzerlan. Pediatr Dermatol .2003; 20(6):482 -487.
23. Ruiz- Maldondo. R T amayo Sanchez L. Velazquez E. Epidemiology of skin disease in 10000 pediatric. Bol Med Hospinfant Mex. 1977 Jan-Feb; 34(1):137 -61.
24. Inanir, I; sahin, MT; Gunduz; Dinc, G;Turel, ;Arsisay, ;Ozturkca, S.Casereport. Tinea pedis and onychomy cosis in primary school children in Turkey. Mycoses.2002.45 (5 -6):198 -201.
25. JL. Burtion, R.A. Harrad. The skin and the eyes in : R.H.Champion :JL Burton, D.A. Burns , S.M. breathnaach,editors Rook/ Wiliknson textbook of dermatology sixth, edition .London:Blackwell Science LTD; 1998:2975-3012.
26. Bernice R.Kreafechik. Eczematous Dermatitis in: Lawrence A. Schachnner, ronalad C. Hansen, editors. Pediatr Dermatol. New York: Churchill Livingston; 1988:69.
27. Ajello L. Natural history of the dermatophytes and related fungi. Mycopathol Mycol Appl. 1974 Aug 30; 53(1):93-110.
28. Philpot CM. Geographical distribution of the dermatophytes: a review. J Hyg (Lond). 1978 Apr; 80(2):301-13.
29. Rippon JW. Forty four years of dermatophytes in a Chicago clinic (1944-1988).Mycopathologia 1992 Jul; 119(1):25-8.
30. Tan CS, Wintermans RG, de Hoog GS, et al., [Shifts in the species spectrum of mycoses in The Netherlands from 1970-1990]. Ned Tijdschr Geneesk 1992 Mar 28; 136(13):631-7.
31. Bronson DM, Desai DR, Barsky S,et al., An epidemic of infection with Trichophyton tonsurans revealed in a 20-year survey of fungal infections in Chicago. J Am Acad, Dermatol 1983 Mar; 8(3):322-30.
32. Bocobo FC, Eadie GA, Miedler LJ.Epidemiologic study of Tinea capitis caused by T. tonsurans and M. audouinii. Public Health Rep. 1965 Oct; 80(10):891-8.
33. Lunder M, Lunder M. Is Microsporum canis infection about to become a serious dermatological problem Dermatology. 1992; 184(2):87-9.
34. Kumari S, Bagga GR, Singh R, et al., A clinico-mycological study of dermatomycoses in Delhi. J Commun Dis. 1985 Mar; 17(1):68-71.
35. Rippon JW. The changing epidemiology and emerging patterns of dermatophyte species. Curr Top Med Mycol. 1985; 1:208-34.
36. Aly R. Ecology and epidemiology of dermatophyte infections. J Am Acad Dermatol.1994 Sep; 31(3 Pt 2):S21-5.
37. Taplin D. Superficial mycoses. J Invest Dermatol. 1976 Jul; 67(1):177-81
38. Roberts DT. Prevalence of dermatophyte onychomycosis in the United Kingdom: results of an omnibus survey. Br J Dermatol. 1992 Feb; 126 Suppl 39:23-7.
39. Karaoui R, Selim M, Mousa A. Incidence of dermatophytosis in Kuwait. Sabouraudia. 1979 Jun; 17(2):131-7.
40. Devliotou-Panagiotidou D, Koussidou-Eremondi T, Karakatsanis G, et l.,Dermatophytosis due to Trichophyton rubrum in northern Greece during the decade 1981-1990.Mycoses 1992 Nov-Dec;35(11-12):375-80.