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Original Research Article

"Prevalence of Atopic dermatitis among children in Jaipur"

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Abstract: Atopic dermatitis is a chronic, itchy inflammatory skin disease of childhood characterized by papules. Its etiology is unknown and genetic and environmental factors play a role. This study was conducted to find out the changing trends in prevalence of atopic dermatitis. A questionnaire based study was conducted among 927 school going children of age group 4-18 years from November to December 2016. Out of 927 children, 79(8.52%) had atopic dermatitis with 49 males (62.03%) and 30 females (37.97%). Atopic dermatitis is still less prevalent in developing countries due to its environmental and socio economic status.
Keywords: atopic dermatitis; prevalence; personal history; family history; rhinoconjuctivitis

INTRODUCTION

Atopic dermatitis (atopic eczema) is mainly a disease of childhood. It is defined as an itchy, chronic, or chronically relapsing, inflammatory skin condition. The rash is characterized by itchy papules (occasionally vesicles in infants) which become excoriated and lichenified, and typically have a flexural distribution [1].It is a disease of unknown etiology with genetic and environmental factors playing an important role in determining the prevalence, age of onset and severity of disease. Immunologically, it is predominantly a Th2 mediated disease with elevated levels of IgE in about 88% of atopics [2]. Atopic dermatitis is considered to be a common disease. However, the exact determination of its prevalence has been difficult due to different time periods of conducting various studies, methods of recording and differences between the environmental factors of various countries [3]. The disease has been reported to be less prevalent in developing countries than developed nations, may be due to difference in environmental factors [1,3]. On reviewing the literature, there were few studies regarding prevalence of atopic dermatitis in India and its association with personal or family history of atopy but a recent study was needed to access the current status.

AIMS & OBJECTIVES

The aim of this study was to know the current trends of prevalence of atopic dermatitis in north India.

MATERIAL AND METHODS

A questionnaire based study was conducted in the schools of urban areas. Children of age group 4 to 18 yrs, attending the school, were included in the study. The study was conducted from November to December 2016. Permission was obtained from the school authorities to conduct the survey. All students, within the age group, attending the school on the day of survey were included in the study. The questions were to be answered by parents in case of younger children (<12 yrs) and by students themselves or parents in case of older (>12 yrs) ones. A total of 1000 questionnaires were distributed out of which 927 were received with a response rate of 92.7%.

The questionnaire consisted of multiple questions including questions related to atopic dermatitis and personal and family history of allergic diseases. Questions asked related to atopic dermatitis consisted of any complaint of chronic itching, involvement of flexural areas or joints and complaint of dry skin. To evaluate the presence of other allergic diseases they were asked for complaints of recurrent rhinitis, sneezing, blocked nose, itching sensation in

nose and wheezing. They were also asked for presence of similar dermatoses or allergic symptoms in family members. Patients who fulfilled the Hanifin & Rajka criteria [4] were diagnosed with atopic dermatitis.

RESULTS AND DISCUSSION

Out of 927 children, 79(8.52%) had symptoms of atopic dermatitis. In these there were 49 males (62.03%) and 30 females (37.97%), the male to female ratio being 1.63:1. In these 79 children, personal history of atopic allergic disease was found positive in 47 children and negative in 32 children, while, family history was positive in 26 children and negative in 53 children.

Table 1: Prevalence of atopic dermatitis in various studies

Study author	Publ. year	Population studied	Method	Sample size	Prevalence
Rashmi Sarkar, Amrinder J Kanwar [5]	2004	Children visiting pediatric dermatology clinic	Skin examination	418	29.9%
Sandipan Dhar *et al.;* [6]	2001	Children visiting dermatology OPD at hospital	Skin examination	18,285	0.55%
Sandipan Dhar, Amrinder J Kanwar [7]	1998	Children visiting dermatology OPD	Skin examination	1,57,389	0.42%(incidence)
P K Sinha[8]	1972	Bihar	-	-	0.38%
Tay *et al.;* [9]	2002	Survey of school children, Singapore	Survey	12323	20.8%
Werner *et al.;* [10]	2002	Survey of school children in Hannover	Survey	4219	10.5%
Mortz *et al.;* [11]	2001	Survey of school children in Odense	Survey	1501	21.3%
Fung & Lo[12]	2000	Survey of school children in Hong Kong	Survey	1006	6.8%

In a 12-month study of prevalence of symptoms of asthma, allergic rhinoconjuctivitis and atopic eczema in the International Study of Asthma and Allergies in Childhood (ISSAC, phase 1), the prevalence of atopic eczema in 56 countries had been found to vary between 3-20.5% [19]. Some studies showing prevalence of atopic dermatitis in various countries including India had been shown in above table. The prevalence is seen increasing in recent years either due to better diagnosis or observer variations. In our study the prevalence of atopic dermatitis was found to be 8.52 %(79 out of 927 children) which is low than the most recent study [5].

A positive personal history of atopic allergic disease has ranged from 19.97% to 60% in various western studies [4,15-17]. In Indian studies the personal history of atopic allergic disease has been found positive in 18.5% [18] and 54 % [6] respectively. In our study, the personal history of atopic allergic diseases was found positive in 47 children (59.49%) out of 79. It was positive in 26 male children out of total 49 males (53.06%), while in females it was positive in 21 out of 30 (70%). The percentage of children with positive personal history of atopic allergic diseases in India is comparable to western countries but the prevalence of atopic dermatitis is less. The low prevalence in our study been attributed to various factors. Firstly, environmental factors in developed countries have been found to be more favorable for manifestation of atopic dermatitis in genetically predisposed individuals than developing countries [1]. Secondly, it may be due to hygiene hypothesis [13] which states that exposure to microbial infections in

childhood prevents development of atopic dermatitis. This may be because allergic diseases are thought to occur when the developing immune system is deprived of the obligatory stimulation through certain microbial antigens [14]. The children in developing countries are more exposed to microbes due to poor socio economic status.

Regarding positive history of atopic allergic disease in family, it has ranged from 43% to 70% in various western studies [4, 15-17]. In studies done in India it has been found positive in 40% [18] and 65% [6]. In our study, family history of atopic allergic diseases was found positive in only in 26 (32.91%) of 79 children, but was positive in 23 males and only 3 females. So the presence of positive family history of atopy in male children might be a significant risk factor for atopic disease.

In earlier studies the prevalent atopic diseases in children with positive history of atopic allergic diseases, have been allergic rhinitis (12.3 %-21%) and bronchial asthma (4.7% - 33%)[6,15-18]. In our study while all 47children with positive personal history of atopic allergic diseases presented with complaint of rhinoconjuctivitis, while wheezing was present only in 9 (19.15%) children. Thus, respiratory allergic diseases were found to be less prevalent than allergic rhinitis as in other studies.

CONCLUSION

Atopic dermatitis is still less prevalent in developing countries due to its environmental and socio economic status. Since the lifestyle of children living in urban & rural children is different, the data might be different in both conditions and needs further studies. There was no conflict of interest.

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