

The Prevalence of Atopic Dermatitis in Korean Children

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Atopic dermatitis (AD) is a chronically relapsing inflammatory skin disease that causes severe pruritus and sleep disturbance.^{1,2} Most cases of AD occur in infants and children younger than five years of age.² AD is caused by the interplay between various genetic and environmental factors. The gene encoding filaggrin (*FLG*) has been most consistently reported as being responsible for AD,³ although Korean children have a lower frequency of *FLG* mutations than European populations.^{4,5} Environmental factors such as physical trauma, allergens, and environmental tobacco smoke are also known to contribute to the development of AD.^{2,6} However, the exact pathogenesis is still under investigation. Because of its high prevalence, low quality of life, and possible progression to asthma, AD is regarded as one of the major health problems in children.

For global epidemiologic research into asthma and allergies, the International Study of Asthma and Allergies in Childhood (ISAAC) program was initiated in 1991 by establishing a standardized methodology of a questionnaire survey.⁷ Since then, ISAAC Phases One, Two, and Three have been conducted worldwide to estimate the regional and international prevalence of asthma and allergic diseases and to investigate the temporal trends in symptom prevalence of allergic diseases in children.⁸ The prevalence of AD was also evaluated using the ISAAC protocol. The lifetime prevalence of AD is 10%-20% in children and 1%-3% in adults.² A study involving children aged 6-7 years from 35 countries (n=187,943) and children aged 13-14 years from 55 countries (n=302,159) was conducted to examine the change in prevalence between Phases One and Three. This study showed an increasing prevalence of AD in many developing countries, although the epidemic of eczema had reached a plateau or was decreasing in some countries with previously high prevalence rates.⁹

The first nationwide, population-based, cross-sectional study on AD prevalence in Korea was conducted in 1995 by the Korean Academy of Pediatric Allergy and Respiratory Diseases with a Korean version of the ISAAC questionnaire.¹⁰ At that time, children aged 6-12 years from 34 elementary schools (n=

27,404) and children aged 12-15 years from 34 middle schools (n=15,481) were randomly selected for the analysis. Symptom prevalence of flexural eczema in the last 12 months was 7.3% in 6-12 years olds and 3.9% in 12-15 years olds.

The second and third nationwide surveys were conducted using the same ISAAC protocol in 2000 and 2010, respectively.^{11,12} In 2010, a stratified two-stage cluster-sampling design was used to randomly select children aged 6-7 years or 12-13 years. Among 4,003 children aged 6-7 years, the prevalence of 'itchy eczema, ever' was 27.0%, and the prevalence of 'itchy eczema, last 12 months' was 20.6%. Among 4,112 adolescents aged 12-13 years, the prevalence of 'itchy eczema, ever' and 'itchy eczema, last 12 months' was 19.9% and 13.1%, respectively. When AD prevalence was compared between 2000 and 2010, the lifetime prevalence of itchy eczema in children aged 6-7 years increased from 17.1% to 27.0%, and that of itchy eczema in the last 12 months increased from 13.4% to 20.6%. Children aged 12-13 years demonstrated a similar trend of increasing prevalence of eczema: from 8.4% to 19.9% for 'itchy eczema, ever' and from 6.7% to 13.1% for 'itchy eczema, last 12 months.' Therefore, we noted that the prevalence of AD is still increasing in Korean children, but it is not clear why the prevalence has increased during the past 10 years.

The ISAAC survey in Korean children was a very important turning point that drew attention to AD in Korea by revealing its high prevalence rate, especially in infants. However, a questionnaire survey is a limited method for epidemiologic studies because of the possibility of recall bias and sampling error. To overcome this issue, the use of national statistics was attempted in order to estimate AD prevalence in Korea from 2003 through 2008.¹³ This could be an alternative method because the Na-

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tional Health Insurance Corporation in Korea has covered all parts of medical fees for the whole population as a compulsory social insurance system. The authors found that the prevalence of physician-diagnosed AD in children aged less than 18 years in 2008 was 6.9%,¹³ a slight decrease from 7.2% in 2003. However, national statistics data still have a limitation in diagnostic accuracy due to inter-observer variability.

In this issue of the AAIR journal, Lee *et al.*¹⁴ report the prevalence of AD in Korean children using data from the Korean National Health and Nutrition Examination Survey. They analyzed 8,947 children aged 18 years or younger across the country and demonstrated that 13.5% of children had ever been diagnosed with AD by a physician. Importantly, the authors have provided another method to examine AD prevalence in a general population, although it should be noted that this is not the first nationwide, population-based study on AD prevalence.^{10,11,13} In addition, the authors provided a lifetime prevalence of AD rather than point prevalence and were dependent on parental reports for the diagnosis of AD, showing that methodological limitations of the previous studies still remain.

Determination of the true prevalence of AD is crucial to evaluate the current status and prepare an appropriate strategy for primary, secondary, and tertiary prevention of AD. However, we need to understand the limitations of epidemiologic studies and that the different methodologies used so far are complementary and do not replace one another. We also have to recognize the necessity of prevalence studies performed on a regular basis in order to cope with common pediatric diseases such as AD.

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