

Lessons Learned from the Prevalence of Childhood Asthma in Korea

Ha-Baik Lee*

Department of Pediatrics, Hanyang University College of Medicine, Seoul, Korea

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Asthma is a chronic disease in childhood that affects virtually every facet of a patient's life and school activities, and every member of the family. It imposes a substantial socio-economic burden and demands many special considerations. Despite frequent updates on the current concepts of asthma management and its natural history, the prevalence of childhood asthma has increased worldwide in recent decades. More recently, however, comparable data on the prevalence of childhood asthma showed little change or a plateau in the incidence in some countries, including Korea. For example, the prevalence of asthma symptoms in the past 12 months in 13- to 14-year-old school children was 8.7% in Korea, compared with 8.8% in the entire Asia-Pacific region.¹ As part of collaborative international studies in 1995, 2000, and 2005, national and regional cross-sectional surveys of asthma were performed using the Korean versions of the International Study of Asthma and Allergies in Childhood (ISAAC) written and video questionnaires. The ISAAC involves epidemiological studies enthusiastically carried out by the contributing members of the Korean Academy of Pediatric Allergy and Respiratory Diseases. There is little doubt regarding the prevalence of asthma determined by the ISAAC using the Korean versions of the written and video questionnaires.^{2,3}

The lifetime prevalence of wheezing fell from 19.3% in 1995 to 14.4% in 2000 in Korea, whereas the number of affected children increased during this period in other countries.⁴ In addition, the prevalence of wheezing in the previous 12 months decreased from 10.5% in 1995 to 5.2% in 2000 in Korea.⁴ In contrast to the increased prevalence of asthma in 13- to 14-year-old children in Japan, the prevalence decreased in Korea. This decrease was partially attributable to a greater awareness of symptoms, early diagnosis, and proper management of childhood asthma by caregivers and physicians, following a successful Nationwide Asthma Campaign. In this issue, Kwon et al.⁵ showed that there was little change in asthma prevalence between 2005

(13.0%) and 2008 (11.7%) based on the results of an epidemiological study conducted in metropolitan Seoul in 2008, using the same methodologies. A comparison of asthma prevalence among sequential phases of the ISAAC revealed similar trends. The rate for any diagnosis of asthma ever was 8.7% in 1995, 9.4% in 2000, 7.6% in 2005, and 7.9% in 2008. The prevalence of asthma treatments during the previous 12 months was 3.5% in 1995, 3.3% in 2000, 3.0% in 2005, and 2.7% in 2008.

Several risk factors are important in the development of asthma in children, and although some childhood asthmatics 'out-grow' the disease, asthma more commonly persists throughout adulthood. Both genetic susceptibility and environmental factors contribute to the development and persistence of asthma symptoms in children.⁶ Arruda et al.⁷ reported that risk factors for asthma include early sensitization to airborne allergens, a history of atopic dermatitis or allergic rhinitis, maternal smoking during pregnancy, passive smoking, lower respiratory infections, air pollution, and various genetic polymorphisms. The risk factors for asthma symptoms in Korean children are similar to those identified in Phase Three of the ISAAC; these include body mass index, passive smoking, and pets.⁸ In this paper, striking risk factors for asthma development were male gender; a history of atopic dermatitis, allergic rhinitis, or viral bronchiolitis; parental asthma; use of antibiotics during infancy; exposure to molds in the house during infancy; and moving to a new house, especially in genetically susceptible individuals.⁵ These results offer an opportunity to better understand asthma development.

Correspondence to: Ha-Baik Lee, MD, PhD, Department of Pediatrics, Hanyang University College of Medicine, 17 Haengdang-dong, Seongdong-gu, Seoul 133-792, Korea.

Tel: +82-2-2-2290-8385; Fax: +82-2-2297-2380; E-mail: hablee@hanyang.ac.kr
Received: November 27, 2010; Accepted: December 3, 2010

• There are no financial or other issues that might lead to conflict of interest.

In general, medical research has made progress in many human diseases, and advances in asthma research have reduced the toll of the disease. Nevertheless, much work remains. One common goal is to refocus attention on the prevalence and risk factors based on epidemiological studies of childhood asthma. However, efforts must still be directed toward better prevention and management of the disease, with a goal of minimizing the potential deterioration of lung function. It is important to educate the public and the medical community regarding more effective preventive measures and therapies for asthma.

REFERENCES

1. Lai CK. Burden of asthma and allergies in Asia Pacific [abstract]. 8th Asia Pacific Congress of Allergy, Asthma and Clinical Immunology; 2010 Nov 6-9; Singapore. p. 60.
2. Hong SJ, Kim SW, Oh JW, Rah YH, Ahn YM, Kim KE, Koh YY, Lee SI. The validity of the ISAAC written questionnaire and the ISAAC video questionnaire (AVQ 3.0) for predicting asthma associated with bronchial hyperreactivity in a group of 13-14 year old Korean schoolchildren. *J Korean Med Sci* 2003;18:48-52.
3. Lai CK, Chan JK, Chan A, Wong G, Ho A, Choy D, Lau J, Leung R. Comparison of the ISAAC video questionnaire (AVQ3.0) with the ISAAC written questionnaire for estimating asthma associated with bronchial hyperreactivity. *Clin Exp Allergy* 1997;27:540-5.
4. Lee HB, Shin SA, Oh JW. New patterns of childhood asthma prevalence in six Asian countries: comparison of ISAAC phases I and III. *Pediatr Allergy Respir Dis* 2008;18:70-7.
5. Kwon JW, Kim BJ, Song Y, Seo JH, Kim TH, Yu J, Kim HB, Lee SY, Kim YK, Kim KW, Ji HM, Kim KE, Kim H, Hong SJ. Changes in the prevalence of childhood asthma in Seoul from 1995 to 2008 and its risk factors. *Allergy Asthma Immunol Res* 2011;3:27-33.
6. Bisgaard H, Bønnelykke K, Sleiman PM, Brasholt M, Chawes B, Kreiner-Møller E, Stage M, Kim C, Tavendale R, Baty F, Phipper CB, Palmer CN, Hakonarsson H. Chromosome 17q21 gene variants are associated with asthma and exacerbations but not atopy in early childhood. *Am J Respir Crit Care Med* 2009;179:179-85.
7. Arruda LK, Solé D, Baena-Cagnani CE, Naspitz CK. Risk factors for asthma and atopy. *Curr Opin Allergy Clin Immunol* 2005;5:153-9.
8. Hong SJ, Lee MS, Sohn MH, Shim JY, Han YS, Park KS, Ahn YM, Son BK, Lee HB, Korean ISAAC Study Group. Self-reported prevalence and risk factors of asthma among Korean adolescents: 5-year follow-up study, 1995-2000. *Clin Exp Allergy* 2004;34:1556-62.