The prevalence of allergic diseases and their socioeconomic cost in children have been increased over the past several decades, particularly in childhood. In order to elucidate the reasons of increasing prevalences of asthma and other allergic diseases and to develop methods for reducing the allergic diseases, it is necessary to determine their accurate changing patterns of allergic diseases, to understand their natural courses and to investigate their risk factors.

The International Study of Asthma and Allergies in Childhood (ISAAC), which Korea joined in 1995, 2000 and 2005, has enabled us to compare the prevalences between countries and to recognize the changing pattern of allergic diseases in Korea. In addition, we conducted 1 more cross sectional epidemiologic study in Seoul area as the Seoul City project of “Atopy-Free Seoul” in 2008.

The recent 12-month prevalence of wheezing decreased from 10.5% in 1995, to 5.2% in 2000, to 5.5% in 2005, and then to 5.5% in 2008 in elementary school children. The lifetime prevalence of asthma diagnosis was relatively stationary: 8.7% in 1995, 9.4% in 2000, 7.6% in 2005, and 7.9% in 2008. The recent 12-months prevalence of asthma treatment was stationary such as 3.5%, 3.3%, 3.0% and 2.8%, respectively.

In Korea, the first and second ISAAC surveys have demonstrated that risk factors for asthma are obesity, secondhand smoking, dietary patterns, raising pets, fever in infancy and the use of antibiotics. In 2008 study, the male gender, history of atopic dermatitis, history of allergic rhinitis, parental history of allergic diseases, history of bronchiolitis before 2 years of age, use of antibiotics during infancy for more than 3 days, asthma symptoms within 6 months after moving to a new house are independent risk factors for wheezing within recent 12 months.

The prevalences of recent 12 month AR symptom were 33.4%, 31.4%, 35.1% and 35.8% in 1995, 2000,
The prevalences of AR diagnosis were increased, such as 16.8%, 22.0%, 26.4% and 34.0%, respectively. The prevalences of AR treatment were also increased, such as 12.7%, 15.8%, 19.4% and 26.0%, respectively. Independent risk factors for AR symptoms within 12 months were male gender, diagnosed AD, diagnosed asthma, parental history of allergic disease, environmental tobacco smoking, use of antibiotics in infancy and history of bronchiolitis in the first 2 years of life. Breast milk feeding for more than 6 months was the only protective factor for AR symptoms within 12 months.

The prevalences of recent 12-month AD symptoms were increased, such as 8.8%, 12.0%, 16.0%, 17.5% in 1995, 2000, 2005 and 2008, respectively. The prevalences of AD diagnosis were also increased, such as 19.7%, 27.5%, 29.2% and 29.4%, respectively. The prevalences of AD treatment were 9.3%, 13.5%, 14.5% and 13.6%, respectively.

Parental history of allergic disease and move to new house during infancy, history of bronchiolitis within 2 years of age and presence of mold in the house during the last 12 months were associated with increased risk for current AD in primary school children.

However, since these studies are large-scaled and same directional long-term follow-up studies, but cross-sectional studies, prospective cohort studies on growth patterns from prenatal through postnatal periods are needed to elucidate accurate changing patterns of allergic diseases and their own risk factors.

In summary, the prevalences of wheezing and asthma in elementary school children were similar during the previous decades, but the prevalences of AR and AD were increased. The risk factors for asthma and AR were male gender, parental history of allergic disease, less breast milk feeding, ETS, use of antibiotics in infancy and history of bronchiolitis in the first 2 years of life. Parental history of allergic disease and move to new house during infancy, history of bronchiolitis within 2 years of age and presence of mold in the house during the last 12 months were associated with increased risk for current AD in primary school children. These findings suggest that exposure to environmental risk factors in early life and genetic background may be important in the development of allergic diseases in children.

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