Pediatric allergy and immunology in Asia – coming of age

Bee Wah Lee and Hugo Van Bever

We are much honored to be guest editors for this themed issue of the Asia Pacific Journal of Allergy and Immunology. The theme 'Pediatric Allergy and Immunology' is intended to commemorate the 16th annual meeting of the Asia Pacific Association of Pediatric Allergy, Respirology and Immunology (APAPARI) in Bangkok in October this year.

APAPARI is the brain child of Professor Sang Il Lee of Seoul, Korea, Professor Chen Yuzhi of Beijing, China and Professor Pakit Vichyanond of Bangkok, Thailand.[1] These pioneers had great foresight in recognizing the importance of collaboration within the region on a pediatric subspecialty that is till now relatively 'new'. It has been an important means to foster education, clinical exchange, academia and research. The inaugural meeting was hosted by Professors Sang Il Lee and Hae Ren Lee in Seoul in 1997. In 2012, APAPARI became a member of the World Allergy Organization (WAO) and this marks another important milestone for APAPARI as it will have the support and collaboration of a larger global body.

A hotspot in allergy research is the influence of early life events shaping the development of allergic diseases. We have derived much insight from the European farming studies and the protective factors of allergy development.[2] However, the mechanisms through which these protective outcomes are achieved are less obvious than the outcomes observed. The influence of the environment on the genes resulting in epigenetic changes is a tantalizing explanation. However, challenges of this field of research, which is elegantly described in this issue,[3] has hindered original work to back up this hypothesis.

From Department of Paediatrics, University Children's Medical Institute, Yong Loo Lin School of Medicine, National University of Singapore
Corresponding author: Bee Wah Lee
E-mail: bee_wah_lee@nuhs.edu.sg

Much of the environment in Asia does not mimic those of the farming lands in developed Europe. Yet, it appears that most of this part of the world is also not as badly affected by the global allergy epidemics as the urban counterparts in the west. For example, peanut and tree nut allergy is only a fraction of those reported in North America, United Kingdom and Australia.[4] The reasons for these differences are not obvious and await further more research. Asian cultural practices which impact on nutrition in pregnancy and early childhood may be one factor. Vitamin D, omega oils and folic acid are some of the nutrients which have gained prominence in the area of allergy, and their tentative roles in the development of allergic disorders and asthma are discussed in this issue.[5]

Allergen immunotherapy is the bedrock of allergy practice. It is timely that dust mite sublingual immunotherapy (SLIT) in children of tropical and subtropical regions of Asia is reviewed in this issue.[6] This region is unique in that house dust mites are the predominant and often the only inhalant allergies in children with allergic rhinitis and asthma. It is disappointing that this review could not provide definitive conclusions, mainly due to the lack of consistent protocols and the inclusion of adults in some studies. Results from Turkey reported in the issue indicates that beneficial objective results of sublingual dust mite immunotherapy could be discerned only after 2 years of therapy and not in the first.[7] These data signal the need for a concerted collaborative effort from academics in the Asian region to improve quality of research on immunotherapy.

We are in the midst of a paradigm shift in the management of food allergy. From a policy of focused on strict allergen avoidance shifting to the introduction of allergen by means of oral and SLIT to induce desensitization, and ultimately immune tolerance. Although immunotherapy is an attractive treatment modality with positive results in numerous clinical trials, experts in the field caution about overzealous use in clinical practice because of the relatively high frequency, and occasionally serious

adverse events during this therapy.[8] Food allergy has a significant impact on the quality of life of sufferers and their families. We look forward to the day that safe and effective immunotherapy for food allergy becomes available worldwide.

There is a constant search for new players in allergy. We are just beginning to understand the role of the microbiome in the modulation of immune responses and the role of viruses in asthma development.[9] The microbiota of the skin in eczema,[10] airways in asthma, and the gut in the overall immune responses,[11] as well as the challenges in tackling the impact of respiratory viruses (human rhinovirus C and respiratory syncytial virus) in asthma and wheezing illnesses are all exciting new fields. However, muchresearch effort is still needed before these advances can be translated to management breakthroughs.

In this special issue on Pediatric Allergy and Immunology, there are four contributions from Thailand. This is testimony to the intense and good quality of research in pediatric allergy in Thailand. The development of a simple asthma score (i.e. the Siriraj Clinical Asthma Score) is an example of good clinical research, useful in daily practice,[12] while identifying new risk factors for asthma severity give better insight into the pathogenesis of asthma.[13] Studying conjunctival provocation testing and comparing with nasal provocation testing is a way to get better insights into the mechanisms of house dust mite allergy.[14] Finally, an epidemiological study, performed between 2004 and 2009, emphasizes that increasing asthma severity is associated to allergic sensitization.[15]

Not to be missed in this issue is the review on primary immunodeficiency diseases (PID) by Lee et al.[16] from Hong Kong University. The description of the unique spectrum of infections and genetic PID disorders seen in the Asian region is testimony to the immense contribution by the Professor Lau Yu Lung of Hong Kong University and his collaborators from the region. The significant proportion of disseminated BCG infection questions the practice of universal BCG vaccination in this region. Although tuberculosis is endemic in this region, the efficacy of BCG as a vaccine is also questioned.

We like to opine that pediatric allergy and immunology as a subspecialty in Asia has 'come of age'. We now have institutes of excellence practicing state of the art allergy and immunology. Emerging societies have set up new allergy centers, such as in Laos. Research is thriving which sustains many regional journals. APAPARI has contributed to this progress and has become a global player providing leadership to steer education, clinical practice and research. Our ultimate goals are obvious - to benefit all children with allergic disorders and their families.

References

1. Asia Pacific Association of Pediatric Allergy, Respirology and Immunology (APAPARI) [Internet]. [updated 2004; cited 2013 Jul 23]. APAPARI; [about 1 screen]. Available from: http://www. apapari.org/about/history.asp.
2. Genuneit J. Exposure to farming environments in childhood and asthma and wheeze in rural populations: a systematic review with meta-analysis. Pediatr Allergy Immunol. 2012;23:509-18.
3. DeVries A, Vercelli D. Epigenetics of human asthma and allergy: promises to keep. Asia Pac J Allergy Immunol. 2013;31:.
4. Thalayasingam M, Lee BW. Allergies in Asia: are we facing an allergy epidemic?. Asia Pac Allergy. 2013;3:1-2.
5. Amarasekera M, Prescott SL, Palmer DJ. Nutrition in early life, immune-programming and allergies: the role of epigenetics. Asia Pac J Allergy Immunol. 2013;31:175-82.
6. Lee M, Lee BW, Vichyanond P, Wang JY, Van Bever H. Sublingual immunotherapy for house dust mite allergy in Southeast Asian children. Asia Pac J Allergy Immunol. 2013;31:190-7.
7. Yukselen A, Kendirli SG, Yilmaz M, Altintas DU, Karakoc GB. Two year-follow-up of clinical and inflammation parameters in children monosensitized to mites undergoing subcutaneous and sublingual immunotherapy. Asia Pac J Allergy Immunol. 2013;31:233-41.
8. Wang J, Sampson HA. Oral and sublingual immunotherapy for food allergy. Asia Pac J Allergy Immunol. 2013;31:198-209.
9. Hansel TT, Johnston SL, Openshaw PJ. Microbes and mucosal immune responses in asthma. Lancet. 2013;381:861-73.
10. Kong HH, Segre JA. Skin microbiome: looking back to move forward. J Invest Dermatol. 2012;132:933-9.
11. Hörmannsperger G, Clavel T, Haller D.Gut matters: microbe-host interactions in allergic diseases. J Allergy Clin Immunol. 2012;129:1452-9.
12. Vichyanond P, Veskitkul J, Rienmanee N, Pacharn P, Jirapongsananuruk O, Visitsunthorn N. The Development of Siriraj Clinical Asthma Score. Asia Pac J Allergy Immunol. 2013;31:210-6.
13. Papwijitsil R, Pacharn P, Areegarnlert N, Veskitkul J, Visitsunthorn N, Vichyanond P. Risk factor associated with poor controlled pediatric asthma in a university hospital. Asia Pac J Allergy Immunol. 2013;31:253-7.
14. Anantasit N, Vilaiyuk S, Kamchaisatian W, Supakornthanasarn W, Sasisakulporn C, Teawsomboonkit W. Comparison of conjunctival and nasal provocation test in allergic rhinitis children with house dust mite sensitization. Asia Pac J Allergy Immunol. 2013;31:227-32.
15. Yuenyongviwat A, Koonrangsesomboon D, Sangsupawanich P. Recent 5-year trends of asthma severity and allergen sensitization among Thai children. Asia Pac J Allergy Immunol. 2013;31:242-6.
16. Lee PP, Lau YL. Endemic infections in Southeast Asia provide new insights to the phenotypic spectrum of primary immunodeficiency disorders. Asia Pac J Allergy Immunol. 2013;31:217-26.