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Editorial

Evolution of Diseases or Disease Manifestations

With the advances in medical technology, we are experiencing changes in disease spectrum or disease manifestations. Based on the "hygiene theory", allergy is likely in part related to urbanisation. Children in Amazon forest, rural area of Beijing, and the farmland of Netherlands seldom have asthma, eczema or allergic rhinitis as compare to their counterparts living in the city (*Prof. Le Souëlf PL, Elaine Field Lecture 2007*). The essence of this theory is that early exposure to common pathogens will switch on the "T-helper 1 lymphocytes" response which targets at foreign invaders. While delay exposure to these pathogens will switch on the "T-helper 2 lymphocytes" response which is usually associated with allergic reaction. Now we know that such T-helper cells polarisation is consists of 5 different types and each of them have distinct function, including either immuno-stimulatory (i.e. Th-1, Th-2 or Th17) or immuno-tolerant (i.e. T-reg) in nature. In this issue, the article by Kim HH, et al. is supporting this theory. House dust mite is virtually present in all modern household and in some countries, the rise in the house dust mites in winter season is caused by the use of warmer and decrease in air ventilation within the room due to the cold weather. The association of elevated house dust mite specific IgE levels in those presenting with asthma suggests house dust mite sensitisation as a risk factor for their exacerbation in winter. We all noticed that the prevalence of allergic illnesses has been on a rising trends and how can we prevent it from occurring will be our next challenge.

The improvement of the medical therapy also modifies the disease manifestation of some classical chronic illnesses. Patients with either cystic fibrosis or thalassaemia died early in the past due to recurrent chest infection or heart failure. But both of these conditions have been under control with the implementation of preventive and therapeutic approaches. For cystic fibrosis, the evolution of the care is beautifully illustrated by Prof. Wilmott's article. The discovery of the CFTR gene with the subsequent implementation of newborn screening; the application of comprehensive pulmonary (i.e. aerosolised mucolytic agents and aerosolised antibiotics) and nutritional therapies; the availability of lung transplantation, and the discovery of CFTR modulator therapies such as ivacaftor have all led to a significant increase in median life expectancy nowadays. However, having a longer life span also leads to the emergence of a new set of health issues that we previously unaware of. One of the problems is osteopenia or osteoporosis. This is exemplified by the article of Mohseni F, et al. on the bone mineral density of transfusion dependent thalassaemic patients. It was found that children with thalassaemia have comparable bone mineral density to their age matched control. But once these thalassaemic patients reach their adulthood, a significant decrease in bone

mineral density up to the osteopenic range has been identified. Bone mineral density is affected by a variety of factors, the weight bearing activity level and the duration of sun light exposure are two important determinants that may be negatively affected in patients with chronic illnesses such as thalassaemia or cystic fibrosis. So when we improve our prevention or intervention strategy on known chronic illnesses, we have to be aware of the newly emerged health issues associated with prolongation of life span.

For the bone mineral density related health issues, it appears that it is not only affecting the patients with chronic illnesses. It is becoming a prevalent problem in most developed countries. The Korean group has previously presented their study on Korean adolescents in our Journal (*Kim MS, et al. HKJP 2015;20:3-9*). They found a high prevalence of Vit D deficiency in their youth population, especially among girls during winter season. This finding has been duplicated in another population as shown by the article of Ozhan B, et al. in this issue of HKJP. It was shown that among the Turkish children and adolescent population, almost as high as 40% of them fell into the range of Vit D deficiency (<20 ng/ml). And more than 60% of them are within the range of Vit D insufficiency (<30 ng/ml). This is more common among girls in Autumn season and the findings are almost identical of that of the Korean population. In Hong Kong, our autumn or winter seasons are not as cold and we have more abundant sunshine, but whether our children or adolescent are engaging in adequate outdoor activity remains to be answered.

Facing with the changing patterns of diseases or disease manifestations, we have to pay attention not only in identifying these problems but also prepare ourselves as of how to prevent and treat them. Among the newly emerged, highly prevalent health related problems in paediatric populations are obesity, osteopenia, allergic disorders or even autoimmune diseases. On the other hands, we also have to be aware of the longer survival of some previously known chronic illnesses. In fact, it is becoming a transitional care problem for adult physicians are not familiar in taking care of adult patients with congenital heart diseases, primary immunodeficiency, inborn error of metabolisms, cystic fibrosis or thalassaemia, etc.... They tend to die early in the past but they can survive much longer nowadays, yet with a new set of medical problems emerging. Therefore, frequent updating ourselves of new knowledge is mandatory for caring of our patient population. This does not confine to the time when they are young, we also have to prepare them and assist them when reach their adulthood.

GCF Chan
Chief Editor