

EDITORIAL

The influence of early nutrition on allergy, and how sublingual immunotherapy imprints the immune system

This editorial is now a tradition presenting to the readers a selection of articles published in this issue of *Pediatric Allergy and Immunology*. Our educational review addresses a hot research topic by helping to decipher mechanisms of asthma. IL-33 is a cytokine expressed during inflammation in various diseases, including allergic inflammation. It has generated much interest recently, in particular in its modulation of early-life lung inflammation. Most interestingly, IL-33 could be an essential link between early-life viral respiratory infections and later development of asthma. If this short introduction has raised your interest, get the full information by reading this issue's review on the topic by Johansson and McSorley.¹ I also proudly highlight that this review is the result of a collaboration between PAI and the EAACI Junior members, as it has been commissioned to a junior/senior author team selected after a call for reviews. Additional information on mechanisms of asthma in PAI can also be found in a recent review on oxidative stress.²



Maresa Botha

It is a tradition of the editorial to comment on three original scientific communications published in this issue. Maresa Botha and colleagues have taken advantage of the large South African Food Allergy cohort (SAFFA), which allowed earlier identification of the large difference in food allergy prevalence between rural and urban communities, to explore the role of early infant feeding and nutrition.³ Patterns of breastfeeding were statistically different, with longer breastfeeding in the rural community. Also, introduction of the first weaning foods was done at a later time point than in urban communities. Feeding patterns of potentially highly allergenic foods were different between both communities, with urban black and white having the same feeding patterns. These findings correlated to a higher prevalence of sensitization to common aero and food allergens, and to a higher prevalence of allergic diseases. These findings do contradict a recently published article in PAI, although the results were from two cohorts of high-income populations.⁴ While genetic factors may intervene, as they have been explored in South African populations earlier,⁵ one might hypothesize that here the environment has played a prime role, possibly in relation to the "hygiene hypothesis," and more specifically to environmental parasites.^{6,7} Nevertheless, many questions remain on the role of early-life diet on later life development of allergic diseases.^{8,9}



Johanna Huoman

In the second article, Johanna Huoman et al have addressed the mucosal antibody response after sublingual immunotherapy (SLIT) to grasses, focusing on salivary IgA antibodies.¹⁰ Samples from a subgroup of 70 children in a SLIT study with grass extract tablets for prevention of asthma were analyzed for salivary sIgA levels, which were correlated to blood mononuclear cell cytokine and chemokine levels. Timothy grass SLIT induced specific immune-modulating effects on the oral mucosal immune system, as well as on circulating Th1-associated chemokines in treated subjects. It was also observed that salivary sIgA were higher in treated subjects than in the placebo group at the end of the 3-year treatment and that they returned to baseline levels two years later. This work nicely shows one aspect of the immune modulation induced by SLIT, with an emphasis on its effect on the mucosal part of the immune response. Mechanisms of SLIT, with a focus on antibody responses, have been published earlier in PAI.¹¹ Based on mechanistic as well as clinical data, SLIT with tablets¹² is increasingly part of the therapeutic options in children with respiratory allergies. In addition, various reviews and guidelines endorsed by the European Academy of Allergy and Clinical Immunology (EAACI) have documented and recommended treatment of respiratory allergies by allergen-specific immunotherapy.^{13,14}



Velat Celik

My next highlighted contribution in this issue is also related to nutrition and prevention of allergy. When exploring various types of diets and the rate of allergies in these communities, the Mediterranean area has always had a highly recognized record of a "healthy diet." Within this part of the world, Turkey has a very specific diet including various fermented foods such as dairy products, or fermented foods from wheat or from vegetables. Velat Celik and colleagues have hypothesized that a diet rich in fermented food might have an influence on allergic diseases. They recruited infants and young children diagnosed with atopic dermatitis (AD) and asked their mother to provide information about daily consumption of yogurt, fermented olive, cheese, and other fermented foods during pregnancy.¹⁵ Consumption of yogurt by mothers was strongly associated with protection from AD in children, while consumption of other fermented foods was also, although less, protective. It is well known that the early nutrition of the child,¹⁶ but also the mother's and child's diet, can be contributive to prevent allergies.¹⁷ In their discussion, the authors suggest a link between the nutritional pattern and microbial factors influencing allergy outcome. It is not a surprise that fermented milk products, rich in probiotics, may modulate allergies as shown earlier.¹⁸

The whole editorial team joins me in hoping that you will enjoy these, and the other articles selected for you in this issue of PAI.

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