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**Allergies in Pregnancy and Allergy Prevention of the Offspring (Allergy Prevention, Something Old, Something New, Something Borrowed, Something blue)**

*Dr Claudia Gray (MBChB, FRCPC (London), MSc (Surrey), Dip Allergy (Southampton), Dip PaedNutrition (UK), PhD (UCT).*

Many different factors have been suspected to cause the increase in the prevalence of allergic disease in the past few decades. Even in South Africa, the prevalence is rising (Gray and Kung, 2012). Maternal factors basically include genetic inheritance and behaviour; such as mode of delivery, breastfeeding, age of introduction of foods, content of the introduced foods, microbial and medicinal exposure. These exposures of the infant can directly influence the offspring's development of allergic disease or by altering the offspring's epigenome and thus making him/her more susceptible to being allergic.

For example, the increased washing of infants with soaps could increase skin permeability and enhanced allergy exposure through the weaker skin barrier (Platts-Mills, 2015). In concordance, the discovery of the role of filaggrin gene variants in children having eczema and becoming food allergic and/or asthmatic later in life, strengthens this hypothesis (Venkataraman et al., 2014). Another interesting recent observation, that food allergies are a rare phenomenon in societies in which allergenic foods such as peanuts are introduced early, led to the concept that avoidance of food may be detrimental (Du Toit et al., 2008). Furthermore, the old "hygiene hypothesis" are being revisited, but it seems that the actual role player is the microbial diversity that the offspring is exposed to.

The role of the epigenetic changes due to environmental influences were highlighted by first generation offspring of migrant populations having higher allergy rates than the local populations (Koplin et al., 2012, Koplin et al., 2014).

Factors that seemed to have been ruled out as playing a role, is the later introduction of solids (from 17 weeks is thought to be ideal) (Burr et al., 1989, Group, 2004) and avoiding allergenic food during pregnancy and lactation.

Breastfeeding is still recommended as an allergy preventing strategy and no formula milk has been found to be more beneficial than breastfeeding as such a strategy. However, if breastfeeding is not possible, evidence suggests that hypoallergenic hydrolysed cow's milk based formulas with proven

clinical efficacy should be used in high risk infants for the first 4 months (von Berg et al., 2013, von Berg et al., 2003). There are not yet convincing evidence that probiotic and fish oil supplements have beneficial effects.

Thus there seem to be multiple factors involved in the development of allergy in infants, and that early exposure in the first few months and years is important, leading to either reactivity or tolerance.

### **Up to date with coeliac disease and gluten sensitivity**

*Dr Cathy van Rooyen (MBChB, FCPATH)*

Reactions to wheat can be classified into intolerance, allergy or autoimmune disease, of which coeliac disease falls under the latter. Coeliac disease is most common in Northern Europe with a prevalence of 1:70 to 1:300. It is usually diagnosed between 10 and 40 years, depending on the severity of symptoms, but a more serious infantile form also occur. Symptoms include flatulence, diarrhoea and duodenal pain and are caused by damage to the villi of the small intestine. An important disease association to take note of is miscarriage which can be prevented if coeliac disease can be diagnosed before conception. First degree relatives should be screened and it should also be kept in mind that coeliac disease patients have a higher risk for other autoimmune diseases. If coeliac disease is diagnosed, a life-long gluten-free diet should be followed.

The disease is diagnosed by specific antibodies (tissue transglutaminase [TTG] and endomysial antibodies [EMA]), genetics and a duodenal biopsy (Husby et al., 2012). The HLA-DQ2 allele is found in 90-95% and the HLA-DQ8 allele in 5-10% of patients with coeliac disease. If these are negative, wheat allergy or intolerance should be suspected.

Wheat allergy may present as food or respiratory allergy, food protein induced enterocolitis syndrome (FPIES), contact urticaria, allergic eosinophilic gastrointestinal disease, co-factor induced anaphylaxis or oral allergy syndrome (OAS). Wheat or gluten allergy is mostly caused by the  $\Omega$ -gliadin or  $W$   $\alpha\beta$ -gliadin proteins. If clinical symptoms suggest allergy, skin prick tests or Immunocap screening blood tests should be performed. If screening tests are positive, specific IgE should be performed to improve clinical management. If IgE tests are negative, a CAST analysis should be performed to determine if the allergy could be non-IgE mediated. However, these all confirm sensitization and the only definitive test to determine a food allergy is a food challenge test.

It is important that both allergy and coeliac disease are diagnosed, since both of these lowers quality of life and can be life-threatening.

BURR, M. L., BUTLAND, B., KING, S. & VAUGHAN-WILLIAMS, E. 1989. Changes in asthma prevalence: two surveys 15 years apart. *Archives of disease in childhood*, 64, 1452-1456.

DU TOIT, G., KATZ, Y., SASIENI, P., MESHER, D., MALEKI, S. J., FISHER, H. R., FOX, A. T., TURCANU, V., AMIR, T., ZADIK-MNUHIN, G., COHEN, A., LIVNE, I. & LACK, G. 2008. Early consumption of peanuts in infancy is associated with a low prevalence of peanut allergy. *J Allergy Clin Immunol*, 122, 984-91.

- GRAY, C. & KUNG, S.-J. 2012. Food allergy in South Africa: joining the food allergy epidemic?: review articles. *Current Allergy & Clinical Immunology*, 25, 24-29.
- GROUP, C. W. 2004. Weaning and the weaning diet. *London: COMA Working Group*.
- HUSBY, S., KOLETZKO, S., KORPONAY-SZABÓ, I. & DIAGNOSIS, E. W. G. O. C. D. 2012. European Society for Pediatric Gastroenterology, Hepatology, and Nutrition. European Society for Pediatric Gastroenterology, Hepatology, and Nutrition guidelines for the diagnosis of coeliac disease. *J Pediatr Gastroenterol Nutr*, 54, 136-160.
- KOPLIN, J. J., DHARMAGE, S. C., PONSONBY, A. L., TANG, M. L., LOWE, A. J., GURRIN, L. C., OSBORNE, N. J., MARTIN, P. E., ROBINSON, M. N., WAKE, M., HILL, D. J., ALLEN, K. J. & HEALTHNUTS, I. 2012. Environmental and demographic risk factors for egg allergy in a population-based study of infants. *Allergy*, 67, 1415-22.
- KOPLIN, J. J., PETERS, R. L., PONSONBY, A. L., GURRIN, L. C., HILL, D., TANG, M. L., DHARMAGE, S. C., ALLEN, K. J. & HEALTHNUTS STUDY, G. 2014. Increased risk of peanut allergy in infants of Asian-born parents compared to those of Australian-born parents. *Allergy*, 69, 1639-47.
- PLATTS-MILLS, T. A. 2015. The allergy epidemics: 1870-2010. *J Allergy Clin Immunol*, 136, 3-13.
- VENKATARAMAN, D., SOTO-RAMIREZ, N., KURUKULAARATCHY, R. J., HOLLOWAY, J. W., KARMAUS, W., EWART, S. L., ARSHAD, S. H. & ERLEWYN-LAJEUNESSE, M. 2014. Filaggrin loss-of-function mutations are associated with food allergy in childhood and adolescence. *J Allergy Clin Immunol*, 134, 876-882 e4.
- VON BERG, A., FILIPIAK-PITTOFF, B., KRAMER, U., HOFFMANN, B., LINK, E., BECKMANN, C., HOFFMANN, U., REINHARDT, D., GRUBL, A., HEINRICH, J., WICHMANN, H. E., BAUER, C. P., KOLETZKO, S., BERDEL, D. & GROUP, G. I. S. 2013. Allergies in high-risk schoolchildren after early intervention with cow's milk protein hydrolysates: 10-year results from the German Infant Nutritional Intervention (GINI) study. *J Allergy Clin Immunol*, 131, 1565-73.
- VON BERG, A., KOLETZKO, S., GRÜBL, A., FILIPIAK-PITTOFF, B., WICHMANN, H. E., BAUER, C. P., REINHARDT, D. & BERDEL, D. 2003. The effect of hydrolyzed cow's milk formula for allergy prevention in the first year of life: The German Infant Nutritional Intervention Study, a randomized double-blind trial. *Journal of Allergy and Clinical Immunology*, 111, 533-540.