EAT Study: early introduction of allergenic foods to induce tolerance

Maes o ddiddordeb ymchwil: Food hypersensitivity
Hyd yr astudiaeth: 2008-01-01
Cwblhau arfaethedig: 1 Awst 2015
Cod prosiect: FS231063 (T07051)
Cynhaliwyd gan: Kings College, London

Background

The EAT Study was commissioned to investigate when is the best time to introduce allergenic foods into the infant diet in order to minimise the risk of development of later allergic disease, including food allergy.

Whilst it is widely accepted that breast milk is best for feeding babies, it is currently unclear whether excluding allergenic foods from the diet before six months of age, is the best way to prevent the development of food allergy and other allergic diseases such as eczema and asthma.

The results from this study will be extremely important in helping to answer the question of whether regular consumption of allergenic foods alongside continued breastfeeding in early life could be a preventative strategy for food allergy.

Research Approach

The key objective of this randomised controlled intervention study was to investigate whether the early introduction of six allergenic foods (milk, peanut, sesame, fish, egg, wheat) into the infant weaning diet, alongside continued breastfeeding, reduced the number of children developing food allergies and other allergic diseases (such as eczema) in childhood.

The EAT study recruited 1,303 mothers and their infants onto the study. All mothers on the study were to breastfed exclusively until their infants were three months of age at which point they were randomly split randomly into two groups.

One group (the Standard Introduction Group) followed standard UK government advice and were asked to exclusively breastfeed for around six months, after which introduction of allergenic foods was a matter of parental choice.

The second group (the Early Introduction Group) was asked to introduce six allergenic foods from the age of three months alongside continued breastfeeding with the help of a dietician and support from the study team.

It was important that breast milk remained an important part of all infants' diet during the first year of life, so all mothers in the study were encouraged to breast feed for at least six months regardless of study group.

All infants were closely monitored until three years of age when the impact of the intervention on food allergy and other secondary allergy endpoints (such as eczema and asthma) were assessed and compared between the two study groups.

Results

The EAT Study has found that introducing allergenic foods into the infant diet from three months may be effective in food allergy prevention when sufficient amounts of allergenic foods are consumed.

Overall, food allergy was lower in the group introduced to allergenic foods early but the difference was not statistically significant. Early introduction of all the foods was not easy but it was safe. Among the infants who did manage to consume the recommended quantity of the allergenic foods there was a two-thirds reduction in overall food allergy.

For those who fed their infant the recommended amount of peanut there was a significant reduction in peanut allergy, 2.5% in the standard introduction group compared to no cases in the early introduction group . (0%).

There was also a significant reduction for egg allergy- 5.5% in the standard introduction group compared to 1.4% in the early introduction group.

The EAT study suggests that cooked egg can be a safe way to introduce egg into infants' diets before six months of age which contrasts with previous studies which have used raw egg powder.

The study found that the prevention of food allergy could be achieved with weekly consumption of small amounts of allergenic food- about 1½ teaspoons of peanut butter and one small boiled egg.

Breastfeeding rates were the same in both groups with over 96% of infants still being breastfed at six months of age and over 50% in both groups at one year of age.

A final report summary can be found at the link below or read the full final report on the New England Journal of Medicine website (report due to be available from 8pm Friday 4 March 2016).

Summary and full report

England, Northern Ireland and Wales

PDF
Gweld Enquiring About Tolerance (EAT) Study as PDF(Open in a new window) (61.57 KB)

England and Northern Ireland

PDF
Gweld A randomized controlled trial of early introduction of allergenic foods to induce tolerance in infants as PDF(Open in a new window) (10.26 MB)

Additional information

Advice on breastfeeding and weaning your baby can be found on the NHS Choices Website: NHS Choices website

Note: Whole peanuts or nuts are not to be given to children under 5 years of age, because they could choke on them.

Published Papers

Logan K, Perkin MR, Marrs T, Radulovic S, Craven J, Flohr C, Bahnson HT, Lack G. Early Gluten Introduction and Celiac Disease in the EAT Study: A Prespecified Analysis of the EAT Randomized Clinical Trial. JAMA Pediatric 2020.

Marrs T, Perkin MR, Logan K, Craven J, Radulovic S, Mclean IWH, Versteed SA, van Ree R, Lack G. Bathing frequency is associated with skin barrier dysfunction and atopic dermatitis at three months of age. Journal of Allergy and Clinical Immunology: In practise 2020. 8(8): 2820-2822.

Perkin MR, Logan K, Bahnson HT, Marrs T, Radulovic S, Craven J, Flohr C, Versteeg S, van Ree R, Lack G, EAT Study Team. Efficacy of the EAT study amongst infants at high risk of developing food allergy. Journal of Allergy and Clinical Immunology 2019. 114(6):1606-1614.

Perkin MR, Bahnson HT, Logan K, Marrs T, Radulovic S, Knibb R, Craven J, Flohr C, Versteeg S, van Ree R, Lack G, EAT Study Team. Factors influencing adherence in a trial of early introduction of allergenic food. Journal of Allergy and Clinical Immunology 2019. 144(6):1595-1605.

Voorheis P, Bell S, Cornelsen L, Gideon L, Perkin MR, EAT Study Team. Challenges experienced with early introduction and sustained consumption of allergenic foods in the Enquiring About Tolerance (EAT) study: A qualitative analysis. Journal of Allergy and Clinical Immunology 2019. 144(6):1615 -1623

Marrs T, Logan K, Craven J, Radulovic S, Irwin McLean WHA, Lack G, Flohr C, Perkin MR, EAT Study Team. Dog ownership at three months of age is associated with protection against food allergy. Allergy 2019. 74(11):2212-2219.

Fisher H, Du Toit G, Bahnson HT, Lack G. The Challenges of Preventing Food Allergy: lessons learned from LEAP and EAT. Annals of Allergy Asthma and Immunology 2018.121(3):313-319.

Perkin MR, Bahnson HT, Logan K, Marrs T, Radulovic S, Craven J, Flohr C, Lack G. Association of early introduction of solids with infant sleep: a secondary analysis of a randomized clinical trial. JAMA paediatrics 2018, 172(8), e180739.

Perkin MR, Logan K, Tseng A, Raji B, Ayis S, Peacock J, Brough H, Marrs T, Radulovic S, Craven J, Flohr C, Lack G; EAT Study Team. Randomized Trial of Introduction of Allergenic Foods in Breast-Fed Infants. N Engl J Med. 2016. 5;374(18):1733-43.

Perkin MR, Logan K, Marrs T, Radulovic S, Craven J, Flohr C, Lack G; EAT Study Team. Enquiring About Tolerance (EAT) study: Feasibility of an early allergenic food introduction regimen. Journal of Allergy and Clinical Immunology 2016. 137(5):1477-1486.e8.

Perkin MR, Craven J, Logan K et al. The association between domestic water hardness, chlorine and atopic dermatitis risk in early life: A population based cross-sectional study. Journal of Allergy and Clinical Immunology 2016. 138(2):509-516.

Flohr C, Perkin M, Logan K, et al. Atopic dermatitis and disease severity are the main risk factors

for food sensitization in exclusively breastfed infants. J Invest Dermatol 2014. 134:345-50.

Flohr C, England K, Radulovic S, et al. Filaggrin loss-of-function mutations are associated with early-onset eczema, eczema severity and transepidermal water loss at 3 months of age. Br J Dermatol 2010. 163(6):1333