To eat or not to eat? - New advice on preventing food allergy

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www.herts.ac.uk/dietetics

Content:

- Allergen avoidance: pregnancy and lactation
- Breast milk vs infant formulas (hypoallergenic)
- Complementary feeding: early vs late weaning
- Trials of supplementations:
  - pre/probiotics: Vit D; Ω3 f.a.
- On-going research:
  - EAT, LEAP, EUROPREVALL studies

ALLERGEN AVOIDANCE:
Pregnancy
Lactation

Allergen avoidance: pregnancy and lactation

Background:

- Maternal antigens known to pass through the placenta and breast milk
- Possible route for sensitisation?
- Babies with peanut allergy at a very young age (no oral consumption) - ? due to peanut consumption during pregnancy/lactation

Hourihane et al (1996); Frank et al (1999)

Peanut avoidance: pregnancy and lactation

Dept. of Health/COT (England) (1998):

- "Pregnant women who are **atopic**, or for whom the father or any sibling of the unborn child has an atopic disease **<u>may wish</u>** to avoid eating peanuts and peanut products during pregnancy"

- "Breast-feeding mothers…. **<u>may wish</u>** to avoid eating peanuts and peanut products during lactation"

Peanut avoidance: pregnancy and lactation

Dept. of Health/COT (England) - August 2009

- "This review ** has shown that there is no clear evidence that eating or not eating peanuts (or foods containing peanuts) during pregnancy, whilst breastfeeding …….. influences the chances of a child developing a peanut allergy."

- "Pregnancy/breastfeeding if mothers would like to eat peanuts or foods containing peanuts during pregnancy or whilst breastfeeding, then they can choose to do so as part of a healthy balanced diet, irrespective of whether they have a family history of allergies."

** An extensive review of the scientific evidence was carried out in 2008 by the independent Committee on Toxicity, who advise the UK Government.

Allergen avoidance: pregnancy and lactation

Cochrane Review CD000133(2006)

1. “Prescription of an antigen avoidance diet to a high-risk woman during pregnancy is unlikely to reduce substantially her child's risk of atopic diseases, and such a diet may adversely affect maternal or fetal nutrition, or both.”
2. “Prescription of an antigen avoidance diet to a high-risk woman during lactation may reduce her child's risk of developing atopic eczema, but better trials are needed.”
3. “Dietary antigen avoidance by lactating mothers of infants with atopic eczema may reduce the severity of the eczema, but larger trials are needed.”

Kramer, MS & Kakuma, R (2006)

Allergen avoidance: pregnancy and lactation

American Academy of Pediatrics (AAP)- updated 2008:

- "Current evidence does not support a major role for maternal dietary restrictions during pregnancy or lactation."

British Dietetic Association (BDA)/ FAISG - revised 2009

- "There is no evidence to suggest that maternal avoidance of known food allergens during pregnancy or lactation reduces the risk of their offspring developing allergic diseases"

Greer et al (AAP) (2008) ; www.bda.uk.com

BREAST MILK VS INFANT FORMULA

Breast feeding - general population

- **WHO/UNICEF (2003):**
  - "As a global public health recommendation, infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health."
- **DH (England) 2003:**
  - "Exclusive breastfeeding is recommended for the first 6 months (26 weeks) of an infant's life"
- **ESPGHAN (2008):**
  - **"**Exclusive or full breast-feeding for about 6 months is a desirable goal."

Breast feeding: atopic population

American Academy of Pediatrics (AAP)- updated 2008:

- Exclusive breastfeeding for first 4-6months

British Dietetic Association (BDA)/ FAISG - revised 2009

- Exclusive breastfeeding for first 4-6months

EAACI (2008): Exclusive breastfeeding for 6 months but at least 4 months, combined with avoidance of solid foods and cow's milk.

Host et al (EAACI) (2008); Greer et al (AAP) (2008) ; www.bda.uk.com

Breast feeding: does it prevent allergies?

- **EAACI review (Muraro et al 2007)**
  - 3/12 excl. BF
  - Protective effect (at risk infants) on AD & asthma
  - No protective effect for allergic rhinitis

- **Kramer et al (2007)**
  - N=17000 mother infant pairs
  - 3-4/12 vs 6/12 excl BF
  - No protective effect of prolonged BF on AD & asthma

Hypoallergenic infant formulas - atopic population

Cochrane review CD003664 update (2006):

- "There is no evidence to support feeding with a hydrolysed formula for the prevention of allergy compared to exclusive breastfeeding. In high risk infants who are unable to be completely breast fed, there is limited evidence that prolonged feeding with a hydrolysed formula compared to a cow's milk formula reduces infant and childhood allergy and infant CMA."

NICE (2007) - Atopic eczema in children guidelines

- Advise mothers who choose not to breastfeed that there is insufficient evidence to suggest that infant formula based on partially or extensively hydrolysed cow's milk protein helps to prevent allergies

Osborn, DA & Sinn, J (2006)

Hypoallergenic infant formulas - atopic population

American Academy of Pediatrics (AAP) - updated 2008:

- ...modest evidence that the onset of atopic disease may be delayed or prevented by the use of hydrolyzed formulas compared with formula made with intact cow milk protein, particularly for atopic dermatitis. Comparative studies of the various hydrolyzed formulas also indicate that not all formulas have the same protective benefit.

British Dietetic Association (BDA)/ FAISG - revised 2009

- Partially hydrolysed or extensively hydrolysed infant formulas are recommended if BF is not possible

European Academy of Allergology and Clinical Immunology (EAACI) (2008)

- In case of a lack of breast milk, formulas with documented reduced allergenicity should be used for at least 4 months

Greer et al (AAP) (2008) ; www.bda.uk.com

Hypoallergenic infant formulas - atopic population

Von Berg et al (2008) - GINI Study:

Hydrolysed formulas vs cow's milk formulas for the first 4/12

- **At 3 years:**
  - significantly less atopic dermatitis (AD) seen with extensively hydrolyzed casein formula (eHF-C) & partially hydrolyzed whey formula (pHF-W) vs cow's milk formula (CMF).
- **At 6 years:**
  - As above but also for eHF-whey based.

COMPLEMENTARY FEEDING: Early vs late weaning

Complementary feeding – atopic population

- BDA - FAISG (2009)
  - "There is no evidence that delaying the introduction of highly allergenic foods beyond the age of six months is beneficial to at risk infants "
- ESPGHAN (2008)
  - "There is no convincing scientific evidence that avoidance or delayed introduction of potentially allergenic foods, such as fish and eggs, reduces allergies, either in infants considered at increased risk for the development of allergy or in those not considered to be at increased risk."
- AAP (2008)
  - "There is also little evidence that delaying the timing of the introduction of complementary foods beyond 4 to 6 months of age prevents the occurrence of atopic disease. At present, there are insufficient data to document a protective effect of any dietary intervention beyond 4 to 6 months of age for the development of atopic disease."

Greer et al (AAP) (2008) ; www.bda.uk.com

Early vs late weaning

- Tarin et al (2006)
  - Early (<4/12) introduction of solids in general population
  - No evidence for an increase in risk of atopic disorders
- Zutavern et al (2004)
  - Delayed weaning (>6/12) of egg & milk associated with increased risk of AD & asthma
- Kull et al (2006)
  - Delayed introduction of fish (>1yr) associated with increase in allergies
- Poole et al (2006)
  - Delayed introduction of wheat (>6/12) associated with an increased risk of wheat allergy

When to introduce peanuts?

DH (England)/COT (1998):

- *"..during weaning of these infants, and until they are at least three years of age, peanuts and peanut products should be avoided"*

When to introduce peanuts?

Revision statement DH (England)/ COT 2009:

- **"……**if mothers choose to start giving their baby solid foods before 6 months of age, they should not introduce peanuts or other allergenic foods (such as other nuts, seeds, milk, eggs, wheat, fish or shellfish) before this time, and when they do, these foods should be introduced one at a time so that they can spot any allergic reaction."

- "….additionally …..where a child already has another kind of allergy (e.g. diagnosed eczema or a diagnosed allergy to foods other than peanut), or if there is a history of allergy in the child's immediate family (parents, siblings), then mothers should talk to their GP, health visitor or medical allergy specialist before giving peanut to the child for the first time, because these children are at higher risk of developing peanut allergy."

TRIALS OF SUPPLEMENTATION OF:

Omega 3 fatty acids

Pre and Pro biotics

Vitamin D

Omega 3 fatty acids

- Capacity for immunoregulation:
  - Anti-inflammatory properties
  - Increased ratio of Ω6s : Ω3s → increased IgE
- Meta analysis (Gool et al 2004) found no beneficial effect of oral supplementation on AD
- Some studies show positive outcome on prevention of allergies e.g. asthma (Hodge et al 1996) & allergic rhinitis (Nafstad et al 2003)
- ? is it the effect of fish itself or omega 3
- Many infant formulas supplemented with fish oils

Pre biotics

- Moro et al 2006
  - Potential for reduction of AD in first 6/12 in high risk infants on hypoallergenic formulas

- Osborn & Sinn Cochrane Review 2007

  "There is insufficient evidence to recommend the addition of prebiotics to infant feeds for prevention of allergic disease or food reactions"

Pro biotics

- Betsi et al (2008)
  - Proven efficacy in atopic dermatitis prevention: Lactobacillus rhamnosus GG
- Boyle et al Cochrane review (2008)
  - "There is insufficient evidence to recommend the addition of probiotics to infant feeds for prevention of allergic disease or food reactions"

Vitamin D

Hata et al (2008)

- Deficiency may be involved in development and treatment of asthma
- Oral supplementation associated with decreased atopic dermatitis infections

ON-GOING RESEARCH

LEAP Study
(**L**earning **E**arly **A**bout **P**eanut allergy)

Based at Evelina Children's Hospital, London

P.I. = Prof Gideon Lack

- 7 year intervention trial (enrolment started 2006)
- N = 640
- 4–11 months of age with eczema+/egg allergy
- Randomised:
  - peanut avoidance (was the current DH advice) OR
  - early introduction of peanuts
- Due to complete 2013-14

University of Hertfordshire UH

www.leapstudy.co.uk

EAT Study
(**E**nquiring **A**bout **T**olerance)

Based at Evelina children's hospital, London

P.I. = Prof Gideon Lack

- Å 5 year intervention trial (enrolment started Nov. 2009)
- Å N=2500 babies of 3months of age
- Å Randomised:
  - Å 6/12 exclusive breast feeding (current DH advice) OR
  - Å Breast feeding + early introduction of allergens:
    - ï cow's milk
    - ï egg
    - ï fish
    - ï peanuts
    - ï sesame
    - ï wheat

www.eatstudy.co.uk

University of Hertfordshire

Euro Prevall Study

European wide - prevalence, costs & causes of f. a.

- UK = PIFA (**P**revalence of **I**nfant **F**ood **A**llergy)
- Winchester area & University of Southampton

PIFA Aims:

- To look at why some young children develop allergies whilst others do not.
- To document infant feeding practice during the first year of life in the UK and how that effects health and disease.

www.europrevall.org

Summary:

- No evidence for avoiding allergens in pregnancy and lactation
- Breast is still best BUT no strong evidence of allergy prevention
- If not breastfeeding use hypoallergenic formula
- DO NOT delay weaning
- No magic nutritional supplement
- Induction of tolerance research is on-going