

COMMITTEE ON TOXICITY OF CHEMICALS IN FOOD, CONSUMER PRODUCTS AND THE ENVIRONMENT

Review of risks arising from the infant diet and the development of atopic and autoimmune disease: Systematic review C Part II – avoidance or exposure to specific dietary patterns, food groups or nutrients during infancy, pregnancy and lactation and the risk of developing atopic or autoimmune disease (intervention studies) (reserved business)

Introduction

1. The COT has been asked by the Department of Health (DH) to provide advice on the risks arising from the infant diet that are related to the development of atopic and autoimmune disease. This is in support of a review being undertaken by the Scientific Advisory Committee on Nutrition (SACN) Sub-group on Maternal and Child Nutrition (SMCN) of UK Government recommendations on breastfeeding and the introduction of solid foods into the infant diet.

2. To facilitate the COT evaluation, in March 2013 the Food Standards Agency (FSA) commissioned Imperial Consultants to conduct three separate systematic reviews to assess comprehensively and systematically the existing literature on the relationship between early dietary exposures and risk of developing atopic and autoimmune disease. The first of these reviews, systematic review A, was considered at the COT meeting in June. The minutes from this meeting, along with subsequent minutes, will be published once all of the reviews are finalised and published in the peer-reviewed literature.

3. Systematic review C part II explores the evidence concerning the avoidance or exposure to specific dietary patterns, food groups or nutrients during infancy, pregnancy and lactation and risk of developing atopic and autoimmune disease. The FSA has also commissioned Imperial Consultants to systematically review evidence on hydrolysed infant formula and the risk of atopic and autoimmune disease and the report of the review will also be presented at the September COT meeting. This systematic review will not be considered as part of the SACN review and will have a stand-alone COT statement.

4. Due to its complexity, systematic review C part II will be considered in two parts. At this meeting, the committee are asked to consider the intervention studies only. The observational studies will be considered at a later date. This item is to be discussed as reserved business because the results of systematic review C have yet to be accepted for publication in a peer-reviewed journal. Annex 1 contains the overarching report and annexes 2-6 contain the individual reports for each dietary

This is a background paper for discussion.
It does not reflect the views of the Committee and should not be cited.

component for systematic review C. These will be withheld from publication on the Food Standards Agency's website at this time.

5. Further background to this topic can be found in the cover paper for the COT discussion of Review A at their meeting in June¹

Systematic review C

6. The main purpose of systematic review C part II (intervention studies) was to investigate the role of exposure to specific dietary components during pregnancy, lactation and infancy in the development of atopic and allergic disease. The systematic review presents data on five interventions: omega-3 and omega-6 polyunsaturated fatty acids, probiotics, prebiotics, multifaceted interventions and maternal allergenic food avoidance. Systematic review C aimed to address the following research questions:

- Does the maternal diet during pregnancy and lactation influence children's future risk of atopic disease, allergic sensitisation or autoimmune disease?
- Does the diet at weaning and during the first year of life influence children's future risk of atopic disease, allergic disease or autoimmune disease?

Results of systematic review C part II (intervention)

7. An overview of the results of systematic review C (intervention studies) is presented in Annex 1 (overview document). The results of systematic review C part II (intervention) have been analysed according to dietary component (i.e. polyunsaturated fatty acids (PUFA's), prebiotics, probiotics, multi-faceted interventions and maternal allergenic food avoidance). Five separate systematic review analyses have been conducted by Imperial Consultants, the results of each of these analyses are presented in the following annexes:

- Annex 2: Probiotic supplementation during pregnancy, lactation or infancy and risk of allergic sensitisation or disease
- Annex 3: Prebiotic supplementation during pregnancy, lactation or infancy and risk of allergic sensitisation or disease
- Annex 4: PUFA supplementation during pregnancy, lactation or infancy and risk of allergic sensitisation or disease
- Annex 5: Maternal allergenic food avoidance during pregnancy, lactation or infancy and risk of allergic sensitisation or disease
- Annex 6: Multifaceted interventions during pregnancy or lactation and risk of allergic sensitisation or disease

8. The individual reports are summarised in on pages 12-16 of the overview document and a summary table of the findings is provided on pages 37-38 (Annex 1). Overall conclusions can be found on page 29 of Annex 1.

¹ <http://cot.food.gov.uk/cot-meetings/cotmeets/cot-meeting-30-june-2015>

This is a background paper for discussion.
It does not reflect the views of the Committee and should not be cited.

9. Dr Boyle and Dr Garcia will attend the Committee meeting on the 8th September. They will present the results of systematic review C and address any questions the Committee may have. Dr Boyle hopes to submit a version of this work for publication in the peer reviewed literature and therefore the annexes will not be made publically available.

Questions on which the views of the Committee are sought

10. Members are invited to comment on systematic review C part II (intervention) and to consider the following questions:

- i. Do Members consider that the review provides evidence of a link between maternal exposure to the individual dietary components during pregnancy or lactation and subsequent development of atopic disease or autoimmune disease in the child?
- ii. Do Members consider that the review provides evidence of a link between exposure to individual dietary components during the first year of life and subsequent development of atopic disease or autoimmune disease?
- iii. If Members consider there is evidence to support a link in either of the above cases, they are asked to comment on whether this link applies to the general population, those at increased risk of developing atopic or autoimmune disease, or both.
- iv. Do Members have any other comments on systematic review C part II (intervention) or wish to raise any other matters arising from it?

**Secretariat
August 2015**

COMMITTEE ON TOXICITY OF CHEMICALS IN FOOD, CONSUMER PRODUCTS AND THE ENVIRONMENT

Review of risks arising from the infant diet and the development of atopic and autoimmune disease: Systematic review C part II – avoidance or exposure to specific dietary patterns, food groups or nutrients during infancy, pregnancy and lactation and the risk of developing atopic or autoimmune disease (intervention studies) **(reserved business)**

The following annexes are attached to this report:

- Annex 1 – An overview of the results of systematic review C (intervention studies).
- Annex 2: Probiotic supplementation during pregnancy, lactation or infancy and risk of allergic sensitisation or disease
- Annex 3: Prebiotic supplementation during pregnancy, lactation or infancy and risk of allergic sensitisation or disease
- Annex 4: PUFA supplementation during pregnancy, lactation or infancy and risk of allergic sensitisation or disease
- Annex 5: Maternal allergenic food avoidance during pregnancy, lactation or infancy and risk of allergic sensitisation or disease
- Annex 6: Multifaceted interventions during pregnancy or lactation and risk of allergic sensitisation or disease

Note: The Committee were provided with a pre-publication copy of the work of Imperial Consultants. This was received in confidence and will not be released when this paper becomes publicly available. As indicated, above the work will be submitted for publication following peer review.