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

COT statement on the potential risks from aluminium in the infant diet: lay summary

1. The Committee on Toxicity (COT) were asked by the Scientific Advisory Committee on Nutrition (SACN) to review the risks of toxicity from chemicals in the infant diet. This statement focusses on the potential risks from aluminium.

2. Infants may be exposed to aluminium compounds through inhalation of dust, ingestion of soil and from the diet. Use of aluminium-containing cosmetic products is unlikely in this age group. The diet is likely to be the main source of exposure.

3. Aluminium is present in the infant diet as a result of its natural occurrence in foods, its presence in drinking water (either naturally or from water treatment) that is used to reconstitute infant formula or consumed directly, and possibly through contact with food containers such as cans, cookware, utensils and food wrappings. In addition, although aluminium-containing food additives are not permitted in infant formulae or processed foods for infants, they may be present in some foods fed to infants, and additional aluminium may come from the use of aluminium-containing food contact materials in the home.

4. Aluminium is taken up from the gut, but absorption is low (generally 0.5% of intake or less). The presence of citrate (citric acid) in some foods, increases absorption. No data are available on the absorption of aluminium in infants specifically. There is evidence that aluminium accumulates in the human body with levels in tissues tending to increase with age. The primary route by which aluminium is eliminated from the body is urinary excretion. Since kidney function is not fully developed at birth, lower rates of elimination would be expected in infants than in adults

5. The main toxic effects of aluminium are on the brain and nervous system and on the kidney, although these have not been shown conclusively to result from dietary exposure in humans. The World Health Organization (WHO) has established a Provisional Tolerable Weekly Intake (PTWI) of 2 mg/kg body weight (expressed as aluminium) for all aluminium compounds in food, including food additives. The COT considers that the derivation of this PTWI was sound and that it should be used in assessing potential risks from dietary exposure to aluminium. The PTWI is a level of intake below which there is reasonable confidence that consumption every week over a lifetime would not cause harm to health.

6. From the small number of available studies, it appears that exposure to aluminium in exclusively breastfed infants is less than 10% of the PTWI.

7. Exposure of infants fed exclusively with infant formula is similar to, or a bit higher than that of exclusively breastfed infants, the highest potential exposure being from soya-based formula. This could amount to some 21% of the PTWI, and in the worst case, the water used in reconstitution of powdered formulae could contribute a further 12% of the PTWI.

8. Estimates of exposure of older infants to aluminium from infant formula combined with commercial infant foods are up to 39% of the PTWI, without taking into account water used in reconstitution or consumed separately. However, even unusually high water concentrations of aluminium are unlikely to take total intake above the PTWI. Exposures from foods not specifically marketed for infants, which may contain aluminium-based food additives, is currently unknown. Further information on this may become available from a new survey (the UK Dietary and Nutrition Survey of Infants and Young Children), data from which are currently being analysed.

9. Overall, the estimated exposures of infants to aluminium from the dietary sources that have been considered do not indicate toxicological concerns or a need for modified Government advice.

The full COT statement can be found at:

http://cot.food.gov.uk/pdfs/statealuminium.pdf

There is a 2016 lay summary which supersedes this lay summary which can be found at:

https://admin.food.gov.uk/sites/default/files/2016aluminiumlaysummaryfinal.pdf

Lay Summary to COT Statement 2013/01
June 2013