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

COT statement on the potential risks from α-, β- and γ-hexachlorocyclohexanes in the infant diet: lay summary

1. The Committee on Toxicity (COT) was asked by the Scientific Advisory Committee on Nutrition (SACN) to review the risks of toxicity from chemicals in the infant diet. This statement focuses on potential risks from α-, β- and γ-hexachlorocyclohexanes (HCHs). None of Government's current dietary recommendations for infants and young children relates to HCHs.

2. HCHs were previously used as pesticides, but have been banned from such use because of concerns about their persistence in the environment, and about the safety of operators who applied them. Their environmental persistence means that they can also be present in food. Levels of HCHs in food and published estimates of dietary exposures indicate a reduction over time around the world, consistent with the withdrawal of authorised uses. HCHs have not been detected in recent monitoring of UK infant formula or infant foods

3. When administered to experimental animals, γ-HCH has adverse effects on the nervous and immune systems. There is also evidence that it causes cancer in animal studies, but in a way that would not occur in humans. The COT concluded that harmful effects in infants would not be expected when dietary exposures were below a Tolerable Daily Intake (TDI) of 0.04 µg/kg bw[1]. The estimated exposures of infants to γ-HCH from different dietary sources were therefore compared to this TDI.

4. The toxicity of α- and β-HCH is less well characterised than that of γ-HCH. The COT concluded that the available information was insufficient to propose a TDI for either of these chemicals, and that it was more appropriate to consider the ratios between the highest doses that had been found not to cause liver toxicity in animal studies and the estimated exposures of infants. Such ratios are known as "margins of exposure", and their interpretation should take into account uncertainties both in the toxicological database and in the estimates of exposure.

5. Based on these approaches, and taking into account the evidence that levels in breast milk are declining, the estimated exposure of breastfed infants to HCHs does not indicate a concern.

6. For infant formula and food, a lack of quantified data means that there is substantial uncertainty in exposure estimates. The theoretical maximum exposure to γ-HCH exceeds the TDI, but it is likely that in practice exposures are much lower

[1] Micrograms per kilogram body weight.

than this theoretical maximum. For α- and β-HCH, the margins of exposure do not indicate a concern.

7. Overall the COT concluded that its evaluation did not provide a basis for recommendations on the infant diet relating to HCHs, particularly as levels in food appear to be decreasing over time. However continued monitoring of HCHs in breast milk, infant formula and food, with appropriately sensitive methods, would be useful to confirm that there are unlikely to be any risks.

The full COT statement can be found at: http://cot.food.gov.uk/pdfs/cotstatmhchs.pdf

Lay Summary to COT Statement 2014/03
April 2014