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

COT statement on the potential risks from high levels of soya phytoestrogens 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 focuses on potential risks from soya phytoestrogens, and particularly from a group of soya phytoestrogens known as isoflavones.

2. Soya-based infant formula and weaning food products containing soya are the main source of isoflavone exposure in infants. In addition, isoflavones can be transferred from the mother to the infant via breast milk, with the highest concentrations in breast milk of mothers who follow vegetarian or vegan diets.

3. Isoflavones occur in foods in the form of glycosides (in which they are chemically combined with sugars), and these can undergo chemical modification in the gut to become biologically active “aglycones”. Aglycones (daidzein, genistein and glycitein) are more readily absorbed, and are then transported to tissues, being excreted in urine or bile. They can also be further metabolised in the body. For example, daidzein can be converted to a more potent compound, equol.

4. Concerns about adverse effects from isoflavones in the infant diet relate principally to their ability to mimic the female hormone, oestrogen, and therefore their potential impact on development and reproduction. Other possible toxic effects relate to immune and thyroid function.

5. There are uncertainties in the assessment of risks to infants from exposure to isoflavones. Epidemiological and clinical studies have produced conflicting results, and while the balance of evidence from the small number of epidemiological studies does not suggest important adverse effects of soy infant formula on reproductive development, they are too limited to provide strong reassurance of safety. Animal studies looking at similar levels of exposure to those reported in infants have suggested developmental and reproductive changes later in life. However, differences in the chemical handling of isoflavones, and in the timing of sexual development, make it difficult to extrapolate findings from animals to humans. No guidelines have been published on the highest intakes of isoflavones that are thought unlikely to cause adverse health effects in humans.

6. Isoflavone exposure of infants fed exclusively with breast milk (even where mothers consume vegetarian or vegan diets) or cows’ milk formula is highly unlikely

to present a health problem. Exposure to isoflavones from complementary foods containing soya is higher but unlikely to be harmful.

7. The highest potential exposures of infants to isoflavones come from exclusive consumption of soya-based infant formula. While the small number of available epidemiological studies does not suggest that such consumption leads to adverse health effects in humans, the results of animal studies indicate a possible concern, and there is thus some uncertainty about the safety of soya-based infant formula.

8. The COT concluded that there is no scientific basis for changing the current government advice – namely, that there is no substantive medical need for, nor health benefit arising from the use of soya-based infant formula, and that it should be used only in exceptional circumstances to ensure adequate nutrition.

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

Lay Summary to COT Statement 2013/04
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