Infants at greater risk from food packaging chemical

Bisphenol A (BPA) is a commonly used chemical in the manufacture of food packaging and there are concerns over its safety, particularly for young children. A recent study suggests that there is a five times greater BPA plasma concentration in babies aged between three and six months compared with adults.

In 2008, both Canada and the USA raised concerns over the possible harmful effects of BPA on newborns and infants. BPA is used to make a variety of common products including baby bottles, as well as the linings of food and drinks cans. Long-term low dose exposure is thought to have negative health effects because BPA interacts with hormonal systems. As such, it is considered to be an endocrine disruptor.

The study simulated the plasma concentrations of BPA in young children under typical BPA exposure scenarios by using a mathematical model. Virtual adult humans were scaled to children based on the physiological differences between them. The main variables that were investigated were the BPA concentrations in the blood plasma and the urinary concentrations of BPA.

When given the same dose adjusted for weight (1 microgram per kilogram a day) the average steady state BPA plasma concentration in newborns was estimated to be 11 times greater than that in adults. This is due to an underdeveloped metabolism mechanism called ‘glucuronidation,’ which helps remove toxins from the body. By the age of three months this ratio is reduced to two.

When the study then simulated the typical feeding scenarios for different ages as defined by the European Food and Safety Authority, it revealed a five times greater steady state BPA plasma concentration in three to six month olds when compared to adults.

The researchers suggest that current threshold limits are just sufficient for infants with normal or high tolerance of BPA, but may not be sufficient to protect babies with low tolerance rates.


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Theme(s): Chemicals, Environment and Health