

Wang et al., 2008. Exposure of mother–child and postpartum woman–infant pairs to DDT and its metabolites in Tianjin, China. Science of the Total Environment. Article in Press.

Abstract

1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane (DDT) exhibits its long persistence in the environment, unusual bioaccumulation, effects on wildlife, and the possibility of long-term adverse effects on human health, especially reproductive toxicity. Despite the prohibition of most persistent organochlorine pesticides in China, the presence of organochlorine residue, including DDT, has been widely indicated in environmental substance. However, scarce information is available about accumulative levels of DDT in human tissues in China. To evaluate levels of DDT and its potential effects on women and children's health in a Chinese pesticide- exposed area, we recruited 50 pairs of mother–child and 50 postpartum women, and determined the levels of total DDT and its four main metabolites (p,p-DDE, p,p-DDT, p,p-DDD, o,p-DDT) in venous blood, breastmilk and umbilical blood cord by gas chromatography. Accordingly, data on reproductive outcomes of mothers and postpartum women and healthy status of children and infants were gathered through a questionnaire and medical examinations. Furthermore, we also assayed the DDT levels of some environmental samples (soil, food, milk, et al.). The levels of DDT in children's blood were higher than that in the women's. As compared to breast milk, the umbilical blood cord and the ventral fat individually demonstrated a significantly lower and higher level of DDT in the postpartum women. DDT was lower in milk and crucian carp than in the soil near the chemical plant. p,p-DDT and p,p-DDE were the main metabolites of DDT. Our findings suggested the cumulative effect of DDT in human body in Tianjin, China.