PCB and DDE and child motor development have found contradicting results. The aim of this follow-up study was to examine the association between prenatal exposure to DDE and PCB and motor development and developmental milestones; crawling, standing-up and walking in children in Greenland, Ukraine and Poland.

Methods CB-153 and p,p′-DDE were measured in maternal blood in second or third trimester of pregnancy as a bio-marker of the child’s prenatal exposure to the compounds. A total of 1,103 children aged 5 to 9 years were followed up in 2010-2012. Motor development were measured in terms of the parentally assessed screening tool Developmental Coordination Disorder Questionnaire 2007 (DCDQ07) and developmental milestones were assessed via parental reports of child age at the first time of crawling, standing up and walking. The association between PCB/DDE and motor skills and milestones were analysed by means of linear multiple regression analyses using tertiles of exposure and stratified by country. Both complete case analyses and multiple imputation based analyses were executed. Adjustment were performed for the co-variates; maternal age, maternal smoking during pregnancy, maternal alcohol before pregnancy, maternal education, parity, gestational age at blood sampling, pre-term birth, breastfeeding, child sex and child age at interview.

Results We found no associations between prenatal PCB and DDE exposure and developmental milestones or motor skills. Complete case- and multiple imputation based analyses showed adjusted mean differences in motor skills and age at milestones around null, in all three countries.

Conclusions These results on 1,103 mother-child-pairs from the INUENDO cohort in Greenland, Warsaw (Poland) and Kharkiv (Ukraine), indicate no association between in utero PCB/ DDE exposure and developmental milestones and motor skills.

EXPOSURE TO POLYCYCLIC AROMATIC HYDROCARBONS AND BLOOD LEAD LEVEL AND CHILDHOOD NEUROBEHAVIORAL DEFICIT

Objective

To examine the association between exposure to polycyclic aromatic hydrocarbons (PAHs) and blood lead levels and childhood neurobehavioral deficit.

Methods

A total of 1,103 children aged 5 to 9 years were followed up in 2010-2012. Blood lead levels were measured in maternal blood in second or third trimester of pregnancy as a bio-marker of the child’s prenatal exposure to the compounds. Motor development were measured in terms of the parentally assessed screening tool Developmental Coordination Disorder Questionnaire 2007 (DCDQ07) and developmental milestones were assessed via parental reports of child age at the first time of crawling, standing up and walking. The association between PCB/DDE and motor skills and milestones were analysed by means of linear multiple regression analyses using tertiles of exposure and stratified by country. Both complete case analyses and multiple imputation based analyses were executed. Adjustment were performed for the co-variates; maternal age, maternal smoking during pregnancy, maternal alcohol before pregnancy, maternal education, parity, gestational age at blood sampling, pre-term birth, breastfeeding, child sex and child age at interview.

Conclusions

These results on 1,103 mother-child-pairs from the INUENDO cohort in Greenland, Warsaw (Poland) and Kharkiv (Ukraine), indicate no association between in utero PCB/ DDE exposure and developmental milestones and motor skills.

EXPOSURE TO POLYBROMINATED DIPHENYL ETHERS AND CHILDHOOD NEUROBEHAVIORAL DEFICIT

Objective

To examine the association between exposure to polybrominated diphenyl ethers (PBDEs) and childhood neurobehavioral deficit.

Methods

A total of 1,103 children aged 5 to 9 years were followed up in 2010-2012. Blood lead levels were measured in maternal blood in second or third trimester of pregnancy as a bio-marker of the child’s prenatal exposure to the compounds. Motor development were measured in terms of the parentally assessed screening tool Developmental Coordination Disorder Questionnaire 2007 (DCDQ07) and developmental milestones were assessed via parental reports of child age at the first time of crawling, standing up and walking. The association between PCB/DDE and motor skills and milestones were analysed by means of linear multiple regression analyses using tertiles of exposure and stratified by country. Both complete case analyses and multiple imputation based analyses were executed. Adjustment were performed for the co-variates; maternal age, maternal smoking during pregnancy, maternal alcohol before pregnancy, maternal education, parity, gestational age at blood sampling, pre-term birth, breastfeeding, child sex and child age at interview.

Conclusions

These results on 1,103 mother-child-pairs from the INUENDO cohort in Greenland, Warsaw (Poland) and Kharkiv (Ukraine), indicate no association between in utero PCB/ DDE exposure and developmental milestones and motor skills.
Objective Lead is one of the oldest known toxic metals. For decades, its effects on child development has been deemed a topic of concern with an increased interest in 'what prenatal blood lead levels should be considered toxic'. Many recent studies have shown the impacts of increased lead blood on different aspects of infants development at 'acceptable' levels (≤100μg/L).

Methods To investigate the effects of prenatal lead exposure on children mental development, we conducted a longitudinal study. Pregnant women (n = 364) who referred to hospitals for prenatal care at the first trimester of pregnancy were asked to participate in the survey. Maternal whole blood (MBW) samples, one for each pregnancy trimesters (3 times), and the umbilical cord blood samples, at the time of delivery, were collected and subjected to ICP-MS analysis for measurement of lead concentrations. We invited the mothers and their children to the research hospitals when the children were between 20 and 36 months of age and assessed mental development using Early Child Development Inventory (ECDI). The inventory included 60 items, which cover seven different development areas.

Results MBW lead followed a U-shaped pattern over the course of pregnancy with lowest level during the second trimester. The ECDI score was inversely related to the first trimester lead concentration (r = -0.15, p<0.05). The logistic regression analysis demonstrated significant relationships between increasing concentrations (r = -0.15, p<0.05). The logistic regression analysis demonstrated significant relationships between increasing concentrations (e.g., 1.1 - 30.7, p <0.001).

Conclusions Increased prenatal lead concentrations, even at "acceptable" level, adversely affects ECDI scores. Therefore, a reappraisal of lead exposure standards for female workers is a critical public health concern.