changes in TH than in the AC, suggesting that white matter tracts differ in their response to TH insufficiency. Furthermore, an overall reduction in total cellular density was detected that was independent of changes in MAG and GFAP positive cells at the lowest dose of PTU tested. These data support the notion that TH controls the production of oligodendrocytes and astrocytes in white matter tracts of the developing brain by acting on a common precursor. Importantly, they indicate significant alterations in brain development occur with only minor perturbations of the thyroid axis (does not reflect US EPA policy).

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NBTS7

An overview of the centers for children's environmental health and disease prevention: Research, translation and outreach

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The Centers for Children's Environmental Health and Disease Prevention were established in 1998 to examine the effect of environmental exposures on children's health. The Program is jointly funded through the National Institute of Environmental Health Sciences (NIEHS) and the Environmental Protection Agency (EPA) Science to Achieve Results (STAR) grants program. The Centers use a community-based participatory research model and include both basic and applied research. The long range goals of the Program are: (1) to support research that will expand our understanding of the role of the environment in the etiology of diseases and dysfunctions of childhood, (2) to develop effective intervention and prevention strategies to reduce exposure and disease, and (3) to promote translation of basic research findings and in the process enhance awareness of environmentally mediated diseases and health conditions among families and health care providers. Currently there are eleven Centers supported by the program addressing a variety of exposures, including pesticides, metals and air pollutants, and a number of health conditions including asthma and neurodevelopmental disorders, including autism.

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NBTS8

Neurodevelopmental effects of prenatal exposure to chlorpyrifos in an urban cohort

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Chlorpyrifos (CPF) is a known neurodevelopmental toxicant. Despite a recent ban on residential use, agricultural applications continue. In a prospective cohort study, neurodevelopmental effects of prenatal exposure to CPF were evaluated in 254 children through 36 months. Eligible women were non-smoking, 18–35, prenatal care by 20 weeks, free of diabetes, hypertension, HIV, and drug abuse, and local residents for >one year. Data included interviews, biomarkers of exposure (umbilical cord blood), observation of caretaking environment, and neurobehavioral outcomes (Bayley-II Scales and Child Behavior Checklist—CBCL). Regression models were adjusted for race, sex, gestational length, maternal education, maternal IQ, prenatal ETS, and quality of the home. Children prenatally exposed to high CPF levels, >6.17 picograms/gram (pg/g) plasma, were more likely to experience delay in PDI ($p=0.002$) and MDI ($p=0.024$) at 36 months. This effect was not mediated by birthweight or length. Highly exposed children had more symptoms of attention disorder ($p=0.009$), ADHD ($p=0.046$), and pervasive developmental disorder (PDD)($p=0.025$), and were 11, 6 and 5.6 times as likely to score in the clinical range on attention problems, ADHD, and PDD. This report shows that prenatal OP exposure generates a pattern of neurodevelopmental delay similar to effects of other known neurotoxicants, marked by decline in the preschool period and lower scores for exposed children. The association with behavior problems, known to co-occur with learning disabilities and academic problems, deserves further study.

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NBTS9

Organophosphate exposure and neurodevelopment in a Mexican American farmworker population: The CHAMACOS study

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Despite animal evidence suggesting neurotoxic effects of organophosphate (OP) pesticides, few published studies have investigated the neurodevelopmental toxicity of OP pesticides in humans. This study investigates exposure to OP pesticides and neurodevelopment of children from low-income Mexican farmworker families in California participating in the CHAMACOS birth cohort study from the Center of Children's Environmental Health. Six non-specific dialkylphosphate (DAP) metabolites of OP pesticides were measured in urine collected from over 400 mothers twice during pregnancy and from children at the time of the neurodevelopmental assessments. We found pregnancy DAP levels were negatively associated with the Bayley Mental Development Index, but child measures were positively associated. At 24 months of age, these associations reached statistical significance [per 10-fold increase in prenatal DAPs: beta=−3.5 points; child DAPs: beta=2.4 points]. Neither prenatal nor child DAPs were associated with Psychomotor Development Index or maternal report on the Children's Behavior Checklist attention problems, but both prenatal and postnatal DAPs were associated with risk of pervasive developmental disorder [per 10-fold increase in prenatal DAPs: OR)=2.3, $p=0.05$; child DAPs OR=1.7, $p=0.04$]. Results should be interpreted with caution given the observed positive relationship with postnatal DAPs. Additional follow-up of the children has been completed and results from 3.5 and 6 years will be presented. Results will also be compared to results from other studies currently being conducted.

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