Prenatal Mycoestrogen Exposure and Impulse Control in the UPSIDE Pregnancy Cohort

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There is concern about the prevalence of mycotoxins like zearalenone (ZEN) found on cereal crops globally. ZEN and its metabolites mimic 17β-estradiol, classifying them as mycoestrogens and indicating their potential for endocrine disruption. Consumption of ZEN is linked to negative effects on fetal development, possibly due to hormonal dysregulation during pregnancy. Though evidence has linked other environmental estrogens to attenuated neurodevelopment, the effect of ZEN exposure on executive functioning is unknown. Using data from the Understanding Pregnancy Signals and Infant Development (UPSIDE) cohort (Rochester, NY; n=113), we examine the relationship between prenatal mycoestrogen exposure and impulse control measures in infants at 2 years of age. ZEN and its metabolites were measured in urine at each trimester via UPLC-MS/MS. Snack delay tests were administered by trained study staff at clinics to gauge impulse control in the infants. Unadjusted and adjusted mixed effect logistic regression models were fitted to assess the association between exposures at each trimester and impulse control scores. Concentrations of ZEN above the limit of detection was measured in 93% of maternal urine samples and appear to have a sex-specific distribution during pregnancy. We hypothesize a sex-specific association whereby prenatal exposure in girls is more negatively associated with impulse control than in boys. Analyses are underway. This study's results can be applied to inform future risk assessment investigation into the neurodevelopmental hazard of prenatal mycoestrogen exposure. Supported by NIH R25ES020721, the RISE Program, the Ernest Mario School of Pharmacy, and the Society of Toxicology.