

PSYCHOSOCIAL SUPPORT

Developmental and behavioral consequences of prenatal methamphetamine exposure: A review of the Infant Development, Environment, and Lifestyle (IDEAL) study

Background

Substance use of amphetamine and methamphetamine among women of reproductive age is a growing concern not only in Germany, but worldwide. Methamphetamine use during pregnancy has been associated with various perinatal risks and somatic growth effects. Children of drug abusing parents are at increased risk for child abuse and neglect as well as disrupted continuity of primary caregiving. Initial reports were limited by reliance on hospital records, retrospective analysis, small sample size, and lack of adjustment for confounding factors. The Infant Development, Environment, and Lifestyle (IDEAL) study is a multisite, longitudinal, prospective analysis of the effects of prenatal methamphetamine exposure on children and this review summarizes maternal and child outcomes published to date from this study.

Summary of results

Compared to a group of matched mothers and their children, who were not exposed to methamphetamines, there are no differences in maternal complications or newborn health outcomes; also no neonatal abstinence syndrome requiring pharmacologic intervention was observed. Somatic growth was significantly decreased in the methamphetamine exposed children and height velocity remained lower by age three. Increased stress responses in the neonatal period and poorer fine motor scores at one year were also associated with heavy drug exposure and poorer inhibitory control places them at high risk for impaired executive functioning. Additionally, the home environment and caregiver stress significantly influenced child outcomes, especially the risk for internalizing and externalizing behavior problems.

Strength

The IDEAL study as a prospective, longitudinal controlled investigation allows for the comparison of various outcome factors of exposed and matched unexposed children in additional consideration of home environment conditions and characteristics of the primary caregiver. Also, the study design makes it possible to use multivariate statistical techniques to account for findings in the context of the common co-exposures of alcohol, tobacco and marijuana.

Limitations

Essential limitation is the possible selection in the sample of drug-abusing pregnant by high proportion of women, who refused to participate and also a substantial proportion of women, who cancel participation at an early stage in the study. Even after matching for birth weight and type of insurances, newborns in the exposed group were more likely to be born preterm and have a lower SES as well as their mothers were more likely to use also alcohol and tobacco during pregnancy.

Practical conclusion

The findings of the IDEAL study underline the importance of providing rapid, comprehensive drug counseling to women actively using methamphetamine during pregnancy with the objective to optimize the long-term neurodevelopment of the exposed child. Thereby, both child and primary caregiver needs has to be addressed during pregnancy, child birth and in the neonatal period of the child.

Smith LM, et al.: Developmental and behavioral consequences of prenatal methamphetamine exposure: A review of the Infant Development, Environment, and Lifestyle (IDEAL) study. *Neurotoxicol Teratol* 2015;51:35–44.

Written by: Patricia Hinner, Psychologist

