Potential role of parents' work exposures in autism risk examined

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Could parental exposure to solvents at work be linked to autism spectrum disorder (ASD) in their children? According to an exploratory study by Erin McCanlies, a research epidemiologist from the National Institute for Occupational Safety and Health (NIOSH), and colleagues, such exposures could play a role, but more research would be needed to confirm an association. Their pilot study is published online in Springer's *Journal of Autism and Developmental Disorders*.

The experts' assessment indicated that exposures to lacquer, varnish and xylene occurred more often in the parents of children with ASD compared to the parents of unaffected children. Parents of children with ASD were also more likely to report exposures to asphalt and solvents, compared to parents of unaffected children. All of these exposures fall into the broader category of solvents, or solvent-containing products.

Autism spectrum disorder is a group of developmental conditions including full syndrome autism, Asperger's syndrome and pervasive development disorder. The origins of the disease are still unclear. ASD is characterized, among other things, by a number of brain abnormalities, which may be partly caused by genetic factors, but could also be the result of environmental or parental occupational exposures, according to earlier studies. These exposures have been associated with adverse pregnancy outcomes and other neurodevelopmental conditions in children.

The NIOSH researchers and colleagues used data from the Childhood

Autism Risk from Genetics and the Environment (CHARGE) study at the UC Davis MIND Institute in Sacramento, CA. They carried out exploratory analyses to evaluate whether parents' exposure to chemicals at work may be associated with ASD in their children in a sample of 174 families - 93 children with ASD and 81 with typical development. Both parents took part in phone interviews, to assess exposures during three months prior to pregnancy, during the pregnancy, and up to either birth, or weaning if their child was breastfed. In addition, industrial hygienists independently assessed the parents' exposure levels for their particular job.

Dr. McCanlies comments, "Overall, these results add to the mounting evidence that individual exposures may be important in the development of ASD. However, these results are preliminary and are not conclusive. Additional research is required to confirm and extend these initial findings."

The researchers described the study as "a first pass screen from which results can be used to target future research directions and should therefore not be taken as conclusive." Further understanding will continue to come through studies that employ larger sample sizes and that investigate interactions between workplace exposures and genetic factors.

More information: McCanlies EC et al (2012). Parental occupational exposures and autism spectrum disorder. Journal of Autism and Developmental Disorders. DOI 10.1007/s10803-012-1468-1

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