Latest Research Supports Prenatal Risks of Exposure to Organic Solvents

Ongoing research indicates that pregnant women should reduce their exposure to organic solvents. A 1999 study at the Motherisk Program at Toronto's Hospital for Sick Children ("Sick Kids") showed an increased risk of major birth defects in children born to mothers with occupational exposure to organic solvents during pregnancy. In 2001, the children of some of the women in this study were tested, and it was concluded that exposure to organic solvents during pregnancy was associated with an increased risk of visual impairments, including risk of colour-blindness. And now, a follow-up study in 2004 by Sick Kids and the University of Toronto has revealed that exposure to organic solvents is associated with poor performance on some specific subtle measures of neurocognitive function, language and behaviour.

Organic solvents are found in products such as paints, paint thinners, adhesives, lacquers, and degreasing agents. They come in many forms, but they all share chemical properties that make them easily inhaled and easily absorbed by the skin. Organic solvents are used in many work environments including those with jobs involving painting, adhesives, nail salons, dry-cleaning operations, and medical laboratories.

This latest research, reported in the October 2004 issue of the journal Archives of Pediatrics and Adolescent Medicine, looked at 32 women who reported being exposed to up to 78 different organic solvents in the workplace for at least eight weeks of pregnancy, starting in the first trimester. The mean exposure was about 32 weeks, with a mean exposure duration of 24 hours/week. It also studied their children, who were between the ages of three and nine years at the time of testing. These women were matched with women who had no occupational exposure to organic solvents, and their children.

Dr. Maru Barrera, a co-author of the study, said in a press release, "We found that the children of the exposed women had significantly lower verbal cognitive functioning than the non-exposed children in the control group. We also saw greater inattention and hyperactivity in the exposed children."

With only 32 participants, the lack of objective exposure information and the large number of organic solvent exposures identified, this study cannot be taken as definitive. Further research is needed to confirm the results. In the meantime, pregnant women should obtain specific information about the risks of organic solvents they are exposed to in the workplace and minimize their exposure. Health care professionals who counsel families of reproductive age should inform their patients that some types of employment may influence reproductive outcomes.

When working with organic solvents, it's important to know what specific organic solvents are being used and what steps should be taken to protect against potentially harmful exposures.

- Read the Material Safety Data Sheet and follow the advice on it.
- Ask if organic solvent-free materials or safer organic solvents can be used.
- Use products with lower percentages of organic solvents.
- Use the smallest feasible amounts of organic solvents.
- Use organic solvents in well-ventilated areas. Enclosure or local exhaust ventilation are superior to general area (dilution) ventilation.
- Wear any respiratory protection that your employer provides.
- Report any damaged or defective ventilation or protective equipment to your employer.
- Prevent unnecessary evaporation of organic solvents by using the minimum amount for the job, keeping lids on containers and using sealed containers for organic solvent-contaminated waste.
- Do not leave organic solvent-contaminated rags lying around.
- Avoid skin contact with organic solvents and any products containing organic solvents by wearing suitable protective clothing (gloves, apron, goggles or face shield etc) where necessary.
• Do not use organic solvents to remove paint, grease etc from your skin.
• If you are pregnant, or considering becoming pregnant, make sure your doctor knows what chemicals you are exposed to at work and follow his/her advice.

Pregnant women exposed to organic solvents in the workplace can call Sick Kids' Motherisk Program at 416-813-6780 for further information.