

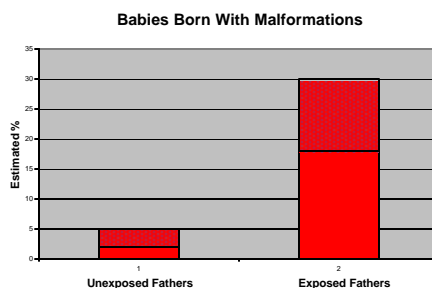
Organic solvent exposure linked to birth defects

By Mark Reitman

While it is becoming more widely known that the exposure to organic solvents has been linked to health problems, such as kidney disease, liver damage, pulmonary disease, neurological disorders and various cancers (1), recent studies have shown a link between these solvents to birth defects and spontaneous abortions (2).

Organic solvents include aromatic hydrocarbons (benzene, toluene, xylene, styrene), aliphatic hydrocarbons (pentanes, hexanes, octanes), chlorinated derivatives (TCE, PCE, trichloroethylene) and glycol ethers (ethylene glycol, monoethyl ether). These solvents, used in various applications, including parts washing and degreasing, have been found to have significant correlations with birth defects, including microcephaly (an abnormally small head circumference), cleft palate, cardiovascular malformations, spina bifida and central nervous system defects (3). They have also been found to be factors in neurologic al diseases and multiple chemical sensitivities (4).

A study of construction workers in the Netherlands links airborne exposure to organic solvents to low birth weight, and workers employed within three months of their partners' pregnancies were six times more likely than those not exposed to father congenitally malformed babies (as demonstrated by the graph below). According to a doctor involved in the study, of particular concern is the fact that all levels of exposure investigated in the study were well within the occupational exposure limits established in the United States, Canada and the Netherlands. Therefore, they were considered safe (5).



There are several possible mechanisms for these harmful effects, which include damage to paternal germ cells or sperm DNA, presence of the toxin in seminal fluids which can be transmitted through intercourse during pregnancy(6), and household contamination by substances brought home by the father (7). In some instances, procreation may be inhibited, altogether, by the fact that some of these organic solvents also may cause low sperm count and fewer active sperm (8).

Unfortunately, when these medical issues do occur in individuals' lives, they are usually labeled "idiopathic", meaning "no known cause". Therefore, no link is made between these issues and the possible environmental causes, such as the organic solvents. If people were more aware of the possible links, many defects and diseases could potentially be prevented in the first place.

References:

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