

Vinyl Chloride Tied To Higher Incidence Of Miscarriages

U.S. Study Says Exposure
To Chemical May Damage
Sperm Cells of Workers

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NEW YORK—Vinyl chloride, the industrial chemical that has been linked to cancer among workers who are exposed to it, apparently also causes a higher incidence than normal of miscarriages among the workers' wives, government researchers reported. They suggested the reason is that vinyl chloride may damage the sperm cells of the worker-husbands.

A study of 82 families in which the husbands worked in plants that processed vinyl chloride into the widely used plastic polyvinyl chloride, or PVC, showed that pregnancies were twice as likely to end in spontaneous abortion as compared with families whose husbands worked in industries with little or no vinyl chloride exposure. The researchers also compared "fetal wastage" in the families before and after the husbands began working in the PVC plant and found that the miscarriage rate was more than 2.5 times greater in pregnancies that occurred after exposure to vinyl chloride.

Previous studies of the effect of vinyl chloride on the outcome of pregnancies involving persons who had been exposed to vinyl chloride have been hindered because there aren't any good national records on spontaneous abortions. Thus, the rate at which miscarriage occurs normally isn't known.

So the government researchers set up a "control" group consisting of 113 families in which the husbands worked with rubber or fashioned PVC into finished products (where exposure to vinyl chloride is minimal). The group exposed to vinyl chloride and the control group were carefully matched for age, as it's known that fetal wastage is greater in older couples.

The study was conducted by scientists from the National Institute for Occupational Safety and Health, or NIOSH, and from the Center for Disease Control, or CDC, both units of the Department of Health, Education and Welfare and from the School of Public Health of the University of North Carolina. It was first presented at a scientific meeting in Czechoslovakia last October and has been submitted for publication in the British medical journal, The Lancet.

The study wasn't released in this country, however, until Ralph Nader's Health Research Group demanded a copy from

the U.S. government under the Freedom of Information Act. The Health Research Group then distributed the report as the Environmental Protection Agency opened hearings on proposals to limit vinyl chloride emissions from PVC plants.

Previous government regulations have placed limits on the amount of vinyl chloride to which workers inside plants can be exposed, and use of the gas is restricted in consumer products, especially aerosols, based on studies that have linked some 50 cases of a rare liver cancer to vinyl chloride in PVC workers around the world.

The new study speculates that vinyl chloride may damage the sperm cells of the workers, causing a higher number of deformed fetuses that are spontaneously aborted. They noted that other studies have shown vinyl chloride and its metabolites (chemicals created when vinyl chloride passes through the body) can cause cells to mutate in the test tube. Other studies have shown excess chromosome breaks in the cells of vinyl chloride workers.

One of the authors of the current study, Peter F. Infante of NIOSH, previously found that birth defects of the central nervous system were significantly higher in three Ohio communities where PVC is manufactured from vinyl chloride. However, CDC scientists who looked at his results were unable to link the higher rate of birth defects specifically to vinyl chloride.

"The increased occurrence of fetal mortality among wives of workers subsequent to vinyl chloride exposure now raises serious scientific and public health concern for the possible genetic risks of vinyl chloride to humans," the government scientists concluded.

The new findings aren't unexpected. Previous research has shown that hospital-operating-room personnel—who are exposed to high levels of anesthetic gases that are chemically similar to vinyl chloride—have a higher incidence of spontaneous abortion, birth defects in offspring, cancer and liver and kidney disease.

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