

Chemical found in crude oil linked to congenital heart disease

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While it may be years before the health effects of the 2010 oil spill in the Gulf of Mexico are known, a new study shows that fetal exposure to a chemical found in crude oil is associated with an increased risk of congenital heart disease (CHD).

The study, to be presented Saturday, April 30, at the Pediatric Academic Societies (PAS) annual meeting in Denver, also showed that babies who had been exposed in utero to a chemical found in cleaning agents and spot removers were at increased risk of CHD.

Environmental causes of CHD have been suspected, and animal studies have suggested certain chemicals may cause CHD, a problem with the heart's structure and function due to abnormal heart development before birth.

"[Congenital heart disease](#) is a major cause of childhood death and life-long health problems," said D. Gail McCarver, MD, FAAP, lead author of the study and professor of pediatrics at the Medical College of Wisconsin and Children's Research Institute, Milwaukee. "Thus, identifying risk factors contributing to CHD is important to public health."

Dr. McCarver and her colleagues sought to determine whether human fetal exposure to solvents is associated with increased risk for CHD. The researchers tested samples of meconium, or fetal stool, from 135 newborns with CHD and 432 newborns without CHD. Meconium has

been used to assess fetal exposure to [illicit drugs](#) such as cocaine. Seventeen compounds were measured in meconium samples using methods that detect very low levels of chemicals.

Additional data collected included race of the mothers and infants, family history for CHD, and maternal alcohol, tobacco, vitamin and drug use.

Infants with [chromosomal abnormalities](#) known to be linked to CHD, and babies of diabetic mothers were excluded from the study.

Results showed that 82 percent of infants had evidence of intrauterine exposure to one or more of the solvents measured.

Among white infants, but not black infants, fetal exposure to ethyl benzene was associated with a four-fold increased risk of CHD. In addition, exposure to trichloroethylene was associated with a two-fold increased risk for CHD among white infants and an eight-fold increased risk among black infants.

"This is the first report that exposure to ethyl benzene, a compound present in crude oil, was associated with CHD," Dr. McCarver said. Humans also can be exposed to ethyl benzene through inhalation of motor vehicle emissions, gasoline pump vapors and cigarette smoke.

"The association with ethyl benzene exposure is concerning, particularly considering recent [oil spills](#)," she said. "However, additional confirmatory studies are needed."

The study also adds to existing concerns about trichloroethylene (TCE). "This is of particular importance because TCE is a commonly used degreasing agent, which also is present in many cleaners and spot removers. TCE also has been the most common chemical identified

around hazardous waste sites," Dr. McCarver said.

"Limiting known maternal exposure to this compound during early pregnancy appears prudent, particularly among those at increased CHD risk," Dr. McCarver concluded.

More information: To view the abstract, go to www.abstracts2view.com/pas/view...php?nu=PAS11L1_1736

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