

Smoking during pregnancy may raise risk for heart defects in babies

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Cigarette smoke damages DNA within minutes after inhalation. Credit: iStock

Women who smoke during pregnancy may be putting their newborns at risk for congenital heart defects, and the more they smoke, the higher the risk, according to a study to be presented Saturday, May 3, at the Pediatric Academic Societies (PAS) annual meeting in Vancouver, British Columbia, Canada.

Cigarette [smoking](#) during [pregnancy](#) has been linked to many [birth defects](#), such as cleft lips and palates, and missing and deformed limbs. Some studies also suggest maternal smoking may be associated with heart defects.

The authors of this study used birth certificate data and hospital discharge records from Washington state to determine if maternal smoking during the first trimester of pregnancy is linked to heart defects and if so, what types of defects.

"I care for kids with complex [congenital heart disease](#) on a daily basis, and I see these kids and their families enduring long hospitalizations and often sustaining serious long-term complications as a result of their disease. Usually, the cause of a heart defect is unknown. I saw this research as an opportunity to study what might be a preventable cause of [congenital heart defects](#)," said lead author Patrick M. Sullivan, MD, FAAP, clinical fellow in pediatric cardiology at Seattle Children's Hospital and a master's student in epidemiology at the University of Washington School of Public Health.

Using hospital discharge records, researchers identified 14,128 children born with a variety of heart defects from 1989-2011. They matched these cases to 62,274 children without heart defects born in the same year. Then, they compared the proportion of children with heart defects whose mothers reported smoking during pregnancy to the proportion of children without heart defects whose mothers smoked. Mothers' smoking status, as well as how much they smoked daily, was available from birth certificates.

Results showed that children with heart defects were more likely than those without heart defects to have been born to mothers who smoked, and the risk was highest in the heaviest smokers. In addition, although women 35 years of age and older were less likely to smoke during pregnancy than younger women, older women had a higher risk of having a child with a heart defect if they smoked.

Newborns whose mothers smoked were at about a 50 to 70 percent greater risk for anomalies of the valve and vessels that carry blood to the lungs (pulmonary valve and pulmonary arteries) and about a 20 percent greater risk for holes in the wall separating the two collecting chambers of the heart (atrial septal defects). All of these defects often require invasive procedures to correct.

Researchers also found that in recent years about 10 percent of women giving birth reported smoking during pregnancy. They estimated that [maternal smoking](#) during the first trimester may account for 1 to 2 percent of all heart defects.

"Women, particularly younger women, are still smoking while pregnant, despite largely successful [public health](#) efforts to reduce smoking in the general public over the past few decades," Dr. Sullivan concluded. "Ongoing cigarette use during pregnancy is a serious problem that increases the risk of many adverse outcomes in newborns. Our research provides strong support for the hypothesis that smoking while pregnant increases the risk of specific [heart defects](#)."

More information: Dr. Sullivan will present "Risk of Congenital Heart Defects in the Offspring of Mothers Who Smoke Cigarettes During Pregnancy: A Population-Based Case-Control Study of Washington State Birth Certificates and Hospital Discharge Data from 1989-2011" from 8:30-8:45 a.m. Saturday, May 3. To view the study abstract, go to www.abstracts2view.com/pas/view...AS14L1_1190.3&terms=

Provided by American Academy of Pediatrics

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