Children's Hospital of Philadelphia
PolicyLab

Smoking and Use of Electronic Cigarettes (Vaping) in Relation to Preterm Birth and Small-For-Gestational-Age in a 2016 U.S. National Sample

Date:

May 2020
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Women who smoke may be motivated to switch to vaping (use electronic cigarettes, e-cigs) around pregnancy in seeking to alleviate known hazards of smoking. E-cigs typically contain nicotine but either eliminates or greatly reduces exposure to the combustion products of tobacco. We studied a U.S.-wide representative sample of 31,973 live singleton births in 2016. In the three months before pregnancy, 5029 (14%) mothers exclusively smoked tobacco ("sole smokers") and 976 (3%) used both tobacco and e-cigs ("dual-users"). Among pre-pregnancy sole smokers, 44% continued to only smoke while 1% became dual-users in late pregnancy. Logistic regression models were used to assess the adjusted odds ratios (aOR) for preterm and small-for-gestational-age (SGA) by reported smoking or vaping in late pregnancy. Compared to women who used neither product ("non-users"), late-pregnancy sole smokers had increased risks for preterm birth (aOR 1.6, 95% CI 1.2-2.0) and SGA (aOR 2.4, 95% CI 1.8-2.9), after adjusting for their pre-pregnancy smoking or vaping status and other confounders. The adjusted models also showed that late-pregnancy sole vapers had similar risk of preterm birth as non-users (aOR 1.2, 95% CI 0.5-2.7). Late-pregnancy dual-users also had similar risk of preterm birth as non-users (aOR 1.3, 95% CI 0.8-2.3). However, late-pregnancy sole vapers and dual-users had increased risk of SGA compared to non-users (aOR 2.4, 95% CI 1.0-5.7 for sole vapers, and aOR 2.3 95% CI 1.3-4.1 for dual-users). These findings suggest that vapers during pregnancy had similar risk of preterm as non-users but still had elevated risk for restricted fetal growth.

Journal:

Preventive Medicine
Authors:

Wang X, Lee NL, Burstyn I

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