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Review

Ambient air pollution and the fetus

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Abstract

There is a growing evidence on the hazards of ambient air pollution on fetal development. Several review articles have been published on the adverse fetal outcomes including low birth weight, preterm birth, small-for-gestational age, and congenital anomalies. Recent studies have linked ambient air pollution to gestational hypertension, and preeclampsia which may be related to the detrimental effect of ambient air pollution on placental growth and function.

Short-term and long-term exposure to particulate air pollution may cause systemic inflammatory response which may trigger preterm delivery in pregnant women. Environmental toxic chemicals that alter intrauterine environment disregulates fetal epigenome causing epigenetic-mediated changes in gene expression that may be linked to later childhood and adulthood diseases. Exposure to ambient air pollution during the whole pregnancy especially in third-trimester may cause intrauterine vitamin D deficiency which is critical for the normal development of the lung, and immune system in fetus. However, more research is needed to understand the cause and effect interaction between air pollution and fetal development.

Keywords

Air pollution, birth outcome, congenital malformation, placental insufficiency, intrauterine vitamin D deficiency.

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