

The association of ambient air pollution and traffic exposures with selected congenital anomalies in the San Joaquin valley of California

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Abstrak

Congenital anomalies are a leading cause of infant mortality and are important contributors to subsequent morbidity. Studies suggest associations between environmental contaminants and some anomalies, although evidence is limited. We aimed to investigate whether ambient air pollutant and traffic exposures in early gestation contribute to the risk of selected congenital anomalies in the San Joaquin Valley of California, 1997-2006. Seven exposures and 5 outcomes were included for a total of 35 investigated associations. We observed increased odds of neural tube defects when comparing the highest with the lowest quartile of exposure for several pollutants after adjusting for maternal race/ethnicity, education, and multivitamin use. The adjusted odds ratio for neural tube defects among those with the highest carbon monoxide exposure was 1.9 (95% confidence interval: 1.1, 3.2) compared with those with the lowest exposure, and there was a monotonic exposure-response across quartiles. The highest quartile of nitrogen oxide exposure was associated with neural tube defects (adjusted odds ratio = 1.8, 95% confidence interval: 1.1, 2.8). The adjusted odds ratio for the highest quartile of nitrogen dioxide exposure was 1.7 (95% confidence interval: 1.1, 2.7). Ozone was associated with decreased odds of neural tube defects. Our results extend the limited body of evidence regarding air pollution exposure and adverse birth outcomes.