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# Maternal exposure to heavy metals from industrial sources during pregnancy and childhood cancer risk in California

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## Abstract

**Objective:** The study investigated maternal exposure to heavy metals from industrial sources during pregnancy as potential risk factors for childhood cancer.

**Methods:** Cases ages 0-19 were identified from California Cancer Registry. Controls (20:1 ratio) were randomly selected from California Birth Registry, frequency-matched by birth year (1998-2016). We estimated maternal exposure to lead, nickel and cobalt in ambient air from the Toxic Release Inventory. We examined "ever/never", and "high/low" exposures, categorized by median exposure. Models were adjusted for maternal age, race/ethnicity, method of payment for prenatal care, neighborhood socioeconomic status, and urban/rural residence.

**Results:** Among highly-exposed persons, lead was associated with an increased teratoma risk (aOR: 1.52; 95% CI: 0.97, 2.37), while nickel was associated with an increased rhabdomyosarcoma risk (aOR: 1.45; 95% CI: 1.03, 2.04). Cobalt was associated with an increased glioma risk (aOR: 2.25, 95% CI 1.39, 3.65) among ever-exposed persons. Inverse associations were found between Wilms tumor and nickel among the ever exposed and highly exposed (ever: aOR: 0.75; 95% CI: 0.59, 0.96; high: aOR: 0.64; 95% CI: 0.45, 0.93).

**Conclusions:** Findings suggest air pollution from heavy metals released by industrial sources may elevate childhood cancer risk.

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