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Maternal exposures to cigarette smoke, alcohol, and street drugs and neural tube defect occurrence in offspring.

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Source

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Abstract

OBJECTIVES:

Cigarettes, alcoholic beverages, and street drugs contain substances potentially toxic to the developing embryo. We investigated whether maternal cigarette smoking, secondhand smoke exposure, and alcohol or street drug use contributed to neural tube defect (NTD) occurrence in offspring.

METHODS:

We conducted a population-based case-control study among Mexican American women who were residents of the 14 Texas counties bordering Mexico. Case women had an NTD-affected pregnancy and delivered during 1995-2000. Control women were those who delivered live born infants in the same study area, without an apparent congenital malformation, randomly selected by year and facility. We interviewed women in person, 1-3 months postpartum, to solicit relevant information.

RESULTS:

Nonsmoking mothers exposed to secondhand smoke during the first trimester had an NTD odds ratio (OR) of 2.6 (95% confidence interval (CI)=1.6, 4.0) compared to those who neither smoked nor were exposed to secondhand smoke. Compared to the referent, the OR among women who smoked less than half a pack a day during the first trimester was 2.2 (95% CI=1.0, 4.8) and 3.4 (95% CI=1.2, 10.0) among those who smoked a half pack or more. Adjustment for maternal age, education, body mass index, and folate intake had a negligible effect on results. Alcohol and street drug use had no relation to NTD risk when adjusted for cigarette smoking.

CONCLUSIONS:

This study suggests that cigarette smoke including secondhand exposure is not only hazardous to the mother but may also interfere with neural tube closure in the developing embryo.

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