PARENTAL OCCUPATION, HISPANIC ETHNICITY, AND RISK OF SELECTED CONGENITAL MALFORMATIONS IN OFFSPRING

Objectives: Evidence suggests that parental occupation and Hispanic ethnicity may be risk factors for some birth defects. Because few studies have examined the effect of Hispanic ethnicity on occupational associations, we examined whether risk associated with certain occupations was heightened in Hispanics compared with non-Hispanic Whites.

Design: In this case-control study among Texas births occurring from 1996 through 2000, cases of neural tube defects, isolated oral clefts, and chromosomal anomalies were linked to their respective live birth certificates. A random sample of 4965 live births without documented congenital malformations served as the comparison group. Parental occupations were categorized into groups according to previously published associations. Logistic regression was used to obtain odds ratios (OR) and 95% confidence intervals (CI) for the selected congenital malformations in relation to parental occupations.

Results: Maternal occupations as cook or nurse were associated with oral clefts (OR 3.3, 95% CI 1.6–6.0) and neural tube defects (OR 3.1, 95% CI 1.5–6.2) respectively, among births to Hispanic mothers, but not with births to non-Hispanic White mothers. Hispanic fathers who were electricians were more likely to have offspring with chromosomal anomalies, especially trisomy 18 (OR 7.4, 95% CI 1.6–25.5), associations not seen among offspring of non-Hispanic White mothers. Hispanic White mothers have neural tube defects (NTDs: anencephalus, spina bifida, encephalocele), oral clefts (cleft lip with or without cleft palate, cleft palate alone), and chromosomal anomalies. Compared with births to non-Hispanic White mothers, more children born to Hispanic White mothers have neural tube defects and Down syndrome. On the other hand, the prevalence of cleft palate is lower among Hispanic births than among non-Hispanic White births. Differences in genetic background, nutrition and use of supplements, socioeconomic status, use of prenatal diagnostic technologies, and environmental or occupational exposures might account for the ethnic differential in prevalence of these defects.

Conclusions: In this study, we found differences for risk of several congenital malformations by Hispanic ethnicity in relation to parental occupation. We recommend further study of these risks in other Hispanic populations.

Key Words: Birth Defects, Occupational Groups, Hispanic Ethnicity

We examined whether Hispanic ethnicity modified any associations between parental occupations and risk for NTDs, oral cleft defects, and chromosomal anomalies.

INTRODUCTION

Congenital malformations remain the greatest contributor to infant mortality. In the United States, the prevalence of several birth defects varies by maternal ethnicity, such as neural tube defects (NTDs: anencephalus, spina bifida, encephalocele), oral clefts (cleft lip with or without cleft palate, cleft palate alone), and chromosomal anomalies. Positive associations have been noted between parental occupation and offspring with NTDs, oral clefts, and chromosomal anomalies, including Down syndrome.

Although several studies have been conducted in the United States regarding the relationship between parental occupation and risk of congenital malformations in offspring, few have specifically addressed the potential differences in these risks by Hispanic ethnicity. In this study, we examined whether Hispanic ethnicity modified any associations between parental occupations (based on job titles and exposures found associated with these defects in other studies) and risk for NTDs, oral cleft defects, and chromosomal anomalies.

METHODS

Study Population

Case and control births were selected from births to Texas residents from 1996 through 2000. The Texas Birth Defects Registry (TBDR) conducts active birth defect surveillance by reviewing medical facility log books, hospital discharge lists, and other records. Although the TBDR includes spontaneous abortions, fetal deaths, and elective terminations with eligible defects in the surveillance system, we...