289

Paternal Occupational Lead Exposure and Risks of Low Birth Weight and Prematurity. S. Lin,* S. Hwang, EG. Marshall (New York State Department of Health, Albany, NY 12203).

The authors examined the relationship between paternal occupational lead exposure and low birth weight and prematurity in a retrospective cohort study. Birth weight and gestational age (1981-1992), obtained from New York State (NYS) birth certificates, were compared between lead-exposed workers and non-exposed workers. The exposed group consisted of 615 births from 4256, reproductive age male workers reported to the NYS Heavy Metals Registry with a blood lead of at least 25 ug/dl. The control group consisted of offspring (N=2318) of a random sample of male bus drivers, frequency matched by age and residence. There was no statistically significant differences in birth weight or gestational age between the exposed group and the control group. However, exposed workers who had elevated blood lead levels greater than five years had a higher risk of fathering a child with low birth weight (the risk ratio (RR): 3.85, 95% Confidence Intervals (CI): 1.50 - 9.88)or prematurity (RR=2.45, 95% CI: 1.03 - 5.84)than controls after adjusting for parental ages, maternal education, race, residence, gravidity, maternal history of spontaneous abortion, perinatal complications, adequacy of prenatal care, and gender of infant. Also, the risks of both low birth weight and prematurity increased with the duration of exposure to lead. However, our results were limited by the inability to control for some confounders such as pregravid underweight and paternal smoking history. This finding deserved further investigations.

290

Maternal Occupation in Agriculture and Risk of Adverse Birth Outcomes in Washington State, 1980-1991. L.S. Engel,* E.S. O'Meara, S.M. Schwartz (Department of Epidemiology, University of Washington, Seattle, WA 98195).

The authors investigated the association between maternal occupation in agriculture and risks of congenital defects and history of fetal loss using Washington State birth certificate data from 1980 through 1991. Births to 3786 women who worked in agriculture were compared separately to births in two groups of employed women where: (1) neither parent worked in agriculture (n=11358), and (2) the father, but not the mother, worked in agriculture (n=3785). Compared to births in which neither parent worked in agriculture, the relative prevalence (PR) of limb defects was 3.9 [95% confidence interval (CI) = 1.6, 9.8]. Compared to births where only the father worked in agriculture, the PR was 4.4 (95% CI = 1.1, 17.7). Restricting to women with no prior live births (in order to eliminate repeat counting of prior fetal deaths among women with multiple births during the study period), and adjusting for smoking, the relative risk (RR) for the association between work in agriculture and a history of late fetal loss was 2.4 (95% CI = 1.5, 3.8) compared to births where neither parent worked in agriculture; the RR was 2.2 (95% CI = 1.2, 4.0) compared to births where only the father worked in agriculture. No seasonal variation was observed between estimated month of conception and limb defects or fetal death. This study adds to our developing knowledge of reproductive health risks associated with maternal occupation in agriculture, and suggests possible hazards of pesticide exposure on fetal development.

291

Work with Video Display Terminals and the Risk of Low Birthweight and Preterm Birth. B. Grajewski,* T.M. Schnorr, J. Reefhuis, A. Salvan, N. Roeleveld, C.A. Mueller, W.E. Murray, D.L. Conover (National Institute for Occupational Safety and Health, Cincinnati, OH 45226).

Adverse reproductive outcomes including low birthweight (LBW) and preterm birth (PB) have been inconsistently associated with video display terminal (VDT) use in several studies. To determine whether electromagnetic fields emitted by VDTs are associated with an increased risk of LBW and PB, a cohort of female telephone operators who used VDTs at work was compared to a cohort of operators who did not use VDTs. To obtain reliable estimates of exposure, weekly hours of VDT use were determined from company records. Electromagnetic fields were measured at VDT workstations and, for comparison, at workstations without VDTs. Out of 2,430 women interviewed, there were 713 eligible singleton live births. For LBW (defined as 2800 grams), no excess risk was found to be associated with any VDT use during pregnancy (odds ratio (OR) = 0.9, 95% confidence interval (CI) = 0.5-1.7). Other previously reported risk factors for LBW (gestational age of 37 weeks or less, cigarette smoking, non-white race, first pregnancy, previous LBW infant, and an interpregnancy interval of less than 18 months) were confirmed in this study. Similarly, for PB (37 weeks gestation), no excess risk was found to be associated with VDT use (OR = 0.7, 95% CI=0.4-1.1). The previously reported risk factors preeclampsia/toxemia, previous PB and diabetes were confirmed. The authors conclude that VDT use and exposure to the accompanying electromagnetic fields were not associated with an increased risk of low birthweight and preterm birth in this study.

292

A Case-Control Study of Stillbirths in Relation to Residential and Occupational Exposures. L. Pastore,* I. Hertz-Picciotto, J. Beaumont (University of North Carolina, Chapel Hill, NC 27599).

In comparison to many reproductive outcomes, the literature on risk factors for stillbirths is sparse. A case-control study of stillbirths and early neonatal deaths in rural California was conducted, using vital statistics and questionnaire data on medical, residential, occupational, and lifestyle factors. This report addresses home and work exposures among 332 cases and 357 livebirth controls. Household insect pesticide use was the most prevalent exposure, followed by proximity to commercial crops. Congenital anomalies (12% of cases) were analyzed adjusting for maternal age, smoking, alcohol, prior pregnancy losses, race/ethnicity and residential county. Comparing three months vs. no exposure in the first trimester, harmful effects were found for home lacquer/varnish (OR=2.8) and occupational pesticide exposure (OR=5.5), and protective ones for occupational VDT (OR=0.4). The home paint use crude OR of 9.5 disappeared after adjustment. Fetal deaths due to placenta, cord and membrane complications (37% of deaths) were also analyzed. In addition to the adjustments above, second and third trimester exposures wer examined using survival analysis (necessitated by the truncated exposure opportunity among cases). Results showed a strong, but unstable, harmful effect for three months vs. no exposure for first trimester home lacquer/varnish use (OR = 3.7), and a strong, stable effect for second trimester occupational pesticide exposure (OR = 4.8). Occupational VDT exposure was protective in the second and third trimesters (OR <= 0.5). The findings highlight the benefit of time-specific exposures in the analysis of reproductive outcomes, and illustrate the importance of time-adjusted analyses when the exposure opportunity varies between cases and controls.

ISSN 0002-9262
Printed in the U.S.A.

American Journal of EPIDEMIOLOGY

Volume 141
Number 11
June 1, 1995

Published by The Johns Hopkins University
School of Hygiene and Public Health

Sponsored by the Society for Epidemiologic Research

Society for Epidemiologic Research

ABSTRACTS OF THE 28TH ANNUAL MEETING SNOWBIRD, UTAH, JUNE 21–24, 1995

Founded 1920 by W. H. Welch and W. H. Howell as the American Journal of Hygiene