

POLYCHLORINATED BIPHENYL (PCBS) EXPOSURE AND MENSTRUAL CYCLE CHARACTERISTICS. *L W Jackson, J Dmochowski, G M Buck Louis, C D Lynch, J Weiner, B McGuinness, J Vena (DESPR, NICHD, NIH, DHHS, Rockville, MD 20852)

The reproductive toxicity of PCBs at concentrations found in the environment has received limited inquiry despite a recent report of shortened menstrual cycle length among women consuming PCB contaminated fish. We evaluated the relation between congener specific PCBs and menstrual cycle characteristics using data from a prospective pregnancy study with preconception enrollment. Ninety-nine women aged 18–34 years with no history of infertility or gynecologic disorders and who were planning pregnancy were recruited and interviewed at baseline. Women completed daily diaries for up to 12 menstrual cycles while attempting pregnancy. Baseline blood specimens were analyzed for 66 PCB congeners using dual column gas chromatography with electron capture. Congeners were summed into three groups – total, estrogenic or anti-estrogenic PCBs. Cycle length and duration of bleeding for each cycle were determined from the daily diary. Linear mixed models (accounting for multiple cycles per woman) unadjusted and adjusted for serum lipids, age, parity, and number of cigarettes smoked and alcoholic beverages consumed per cycle as reported on the daily diary were fit to examine the association between PCBs and menstrual cycle characteristics. Increasing levels of anti-estrogenic PCBs were associated with an increased duration of bleeding when adjusted for lipids only (3.0 days; 95% confidence interval (CI) –1.3, 7.4) and when adjusting for selected covariates (3.2 days, 95% CI –1.3, 7.6) (n= 397 cycles among 82 women). Anti-estrogenic and estrogenic PCBs were associated with a decrease and increase in menstrual cycle length, respectively; however, precision of estimates was compromised by the small sample size (n=336 cycles among 59 women with complete cycle data). The subtle changes in menstrual cycle characteristics observed in this study may be due to endocrine changes associated with PCB exposure, and possibly indicative of fecundity effects.

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RISK FACTORS FOR SEXUALLY TRANSMITTED INFECTIONS AMONG YOUNG MEN IN KISUMU, KENYA. *C L Mattson, N Westercamp, R C Bailey. (University of Illinois at Chicago, Chicago, IL, 60612)

To investigate risk factors for sexually transmitted infections (STIs) among a group of high-risk young men (18–24 years), we analyzed cross-sectional baseline data from 1056 participants of a randomized controlled trial of male circumcision to reduce HIV-1 incidence in Kisumu, Kenya. Prevalent cases of primary syphilis, trichomoniasis, gonorrhea and chlamydia were identified by laboratory diagnostic procedures. We assessed the independent effect of potential risk factors by multiple logistic regression. Ninety-seven (9%) of men were diagnosed with one or more of the four STIs: 11 (1%) had syphilis, 26 (3%) had trichomoniasis, 24 (2%) had gonorrhea and 53 (5%) had chlamydia. Because of the small number of cases, we combined data on all four STIs. In bi-variate analyses, the following factors were associated with the diagnosis of any STI: no income last month (Odds ratio = 1.8, 95% confidence interval: 1.17–2.76), having a primary school education or less (OR = 3.57; 95% CI: 1.54–2.32) being married (OR = 1.94, 95% CI: 1.03–3.70), drinking alcohol (OR = 1.57; 95% CI: 1.02–2.40) ever exchanging gifts for sex (OR = 1.86; 95% CI: 1.03–3.36), using a condom less than half the time (OR = 1.69; 95% CI: 1.03–2.77), preference for “dry sex”, a practice common in parts of Africa (OR = 1.99; 95% CI: 1.29–3.07), and a man’s inability to orgasm during sex (OR = 2.00 95% CI: 1.06–3.76). In multivariable analyses, the only factors that remained significant independent predictors of any STI were: educational attainment (OR = 1.92; 95% CI: 1.22–3.03), consumption of alcohol (OR = 1.67; 95% CI: 1.08–2.59), and preference for “dry sex” (OR = 1.77; 95% CI: 1.13–2.77). These results confirm the importance of several known risk factors associated with STI; yet, remarkably, not others (e.g. condom use, number of sexual partners, age at sexual debut). Further, these findings highlight several risk behaviors (“dry sex”, exchange of gifts for sex, marriage) that warrant further study.

SHIFT WORK AND RISK OF SPONTANEOUS ABORTION IN NURSES. *E A Whelan, C C Lawson, E Hibert, B Grajewski, D Spiegelman, J Rich-Edwards (National Institute for Occupational Safety and Health, Cincinnati OH 45226)

Evidence suggests that work schedule, including rotating work and night work, may have an adverse effect on reproductive outcome, but results from these studies are ambiguous, and there are few studies of U.S. health care workers. We examined this question among 7,683 female participants of the Nurses’ Health Study II, a prospective cohort established in 1989. In 2001, detailed information about specific exposures during pregnancy was collected from participants for the most recent pregnancy they had experienced since 1993. Participants reported 6,897 live births and 786 (10%) spontaneous abortions (SA). Log binomial regression was used to estimate the relative risk (RR) for SA, adjusting for potential confounders. Compared to women who reported usually working “days only” during their first trimester of pregnancy, women who reported usually working “nights only” had an increased risk of SA (RR=1.6; 95% confidence interval (CI) = 1.3–1.9). A rotating schedule, with or without nights, was not associated with an increase in risk. Women who reported working more than 40 hours per week during the first trimester were also at increased risk of SA (RR = 1.5, 95% CI 1.3–1.8) compared to women who reported working 21–40 hours per week, even after adjustment for work schedule. Hormonal disturbances, either as a direct effect of circadian rhythm disruption or indirectly through work-related stress and altered sleep patterns, may be a possible interpretation of these findings.

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ADVERSE REPRODUCTIVE OUTCOMES AMONG PREGNANCIES OF AUNTS AND SPOUSES OF UNCLES IN IRISH FAMILIES WITH NEURAL TUBE DEFECTS. *J Byrne (Boyer Research Institute & Westat, Rockville, MD, USA)

Miscarriages, and perhaps other adverse pregnancy outcomes, may be more common among sibs of individuals with neural tube defects (NTDs), and transmission of risk in families with an NTD is thought to be more frequent among maternal relatives. In a study designed to assess excess maternal risk among distant relatives, we evaluated adverse pregnancy outcomes among maternal and paternal first cousin pregnancies, and compared them to each other. Pregnancy histories were obtained by interview with 288 uncles and aunts (parents of the first cousin pregnancies) in 48 Irish NTD families. We analyzed pregnancy outcomes among 1033 singleton first cousin pregnancies and compared adverse outcomes (preterm deliveries, stillbirths and miscarriages) among maternal and paternal relatives. Maternal first cousin pregnancies were more likely to end adversely than paternal first cousin pregnancies (17.4% vs 11.7%, p=0.01). In a conditional logistic regression analysis, maternal line remained independently associated with adverse outcomes (hazard ratio=1.73, 95% confidence interval 1.19, 2.52) after controlling for NTD type, gender, parental age and year of birth, folic acid intake and maternal smoking both before and during pregnancy, and conditioning on original family. When uncles were compared to aunts, within line, there were no significant differences, that is, the excess risk on the maternal side applied equally to pregnancies fathered by uncles as to those of aunts. The excess risk for adverse pregnancy outcomes among maternal NTD relatives provides additional evidence for preferential maternal inheritance. Since relatives were interviewed directly about their own pregnancies, this is unlikely to be the result of biased reporting. Our data support the hypotheses that hereditary factors are associated with development of neural tube defects and that some groups of relatives are at significantly increased risk of adverse pregnancy outcomes.

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