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PATERNAL OCCUPATIONAL EXPOSURE TO 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN: BIRTHWEIGHT AND BIRTH DEFECTS. *CC Lawson, TM Schnorr, EA Whelan, JA Deddens, DA Dankovic, LA Piacitelli, MH Sweeney, and LB Connally (National Institute for Occupational Safety and Health, Cincinnati, OH 45226)

We studied pregnancy outcomes among wives of male chemical workers who were highly exposed to chemicals contaminated with 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and among non-exposed neighborhood referents. Detailed information on reproductive, medical, lifestyle, and occupational factors was collected from current and former wives/partners via telephone interview. We estimated serum TCDD level at the time of conception using a pharmacokinetic model. The mean worker TCDD concentration was 254 parts per trillion (ppt), range 3–16,340 ppt. The mean referent concentration of 6 ppt was assigned to referent births and worker births conceived before exposure. Repeated measures analysis was used to assess the effect of TCDD on birthweight of live, singleton, term births (≥ 37 weeks gestation). Mean birthweight was similar among referent births (n = 604), pre-exposure worker births (n = 259), and offspring born during or after exposure (n = 292): 7.5 pounds (lbs), 7.4 lbs, and 7.6 lbs, respectively. There was no effect of paternal TCDD level on birthweight when adjusted for infant sex, mother's education, parity, prenatal smoking, and gestational age. An analysis to estimate the potential direct exposure of wives during workers' exposure yielded a non-significant increase of 0.29 lbs in the highest exposure group (TCDD ≥ 255 ppt) compared to referents (p = 0.09). Mothers' reports of birth defects showed no evidence of an exposure relationship, though numbers were small. These results do not support a causal relationship between paternal TCDD exposure and lowered birthweight.

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AN EPIDEMIOLOGIC STUDY OF DIABETES IN YOUTH. *JM Lawrence on behalf of the SEARCH for Diabetes in Youth Study Group. (Kaiser Permanente, Pasadena, CA 91016)

Until recently, youth with diabetes were considered to have type 1 (autoimmune) diabetes. However, an increasing number with non-autoimmune forms, mainly type 2 diabetes, have been reported. Data on rates of diabetes in US youth are limited and proportions with various types unknown. The SEARCH for Diabetes in Youth study was established to develop a population-based approach to case ascertainment, typology, surveillance and research on diabetes in youth (age< 20 years) that will; 1) Estimate the population prevalence and incidence of Types 1, 2, and other types of diabetes, 2) Develop practical approaches to classifying type, 3) Compare clinical presentation and course by type, and 4) Describe health care utilization, processes of care and quality of life. SEARCH will conduct surveillance on almost 6 million children aged < 20 years with wide ethnic and socioeconomic representation. Approximately 6,000 prevalent cases and 800 incident cases per year will be identified from 6 centers: Kaiser Permanente Southern California; University of Colorado, Pacific Health Research Institute (Hawaii), Cincinnati Children's Hospital, University of South Carolina, and Seattle Children's Hospital. Prevalent cases of diabetes were identified in 2001 and incident cases are being identified in 2002–2004 and followed yearly. SEARCH will collect data using a) interviews, b) examinations, c) laboratory measurements (diabetes autoantibodies, C-peptide, hemoglobin A1c, blood glucose, lipids, urine albumin, creatinine), and d) medical record reviews. The University of Washington Laboratory is analyzing the biological samples and Wake Forest University is the Coordinating Center.

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RACIAL AND ETHNIC DIFFERENCES IN THE PREVALENCE OF ISLET CELL AUTOIMMUNITY AMONG US ADULTS. *E. Barinas-Mitchell, M. Pietropaolo, S. Pietropaolo, Y.-J. Zhang, T. Henderson, and L. Kuller. (University of Pittsburgh, Pittsburgh, PA, 15261).

Markers of humoral islet cell autoimmunity (ICA), such as autoantibodies (AA) against the 65 kD isoform of glutamic acid decarboxylase (GAD65), serve as determinants of risk for autoimmune diabetes, and have been found in up to 10% of adults diagnosed with diabetes mellitus (DM). Despite the high prevalence of DM in racial and ethnic minority adult populations of the US, little is known concerning the prevalence of ICA in these groups. We obtained serum samples from diabetic (DM+; diabetes by history and ADA fasting criteria) and non-diabetic (DM-) participants 40–90 years old (mean±sd; 63 ± 12) from the Third National Health and Nutrition Examination Survey to estimate the prevalence of GAD65AA in Non-Hispanic Whites (NHW; n = 429 DM+, 491 DM-), Non-Hispanic Blacks (NHB; n=295 DM+, 239 DM-) and Mexican Americans (MA; n = 340 DM+, 306 DM-). The prevalence of GAD65AA was higher in diabetic individuals compared to non-diabetic individuals in both NHW (6.3% versus 2.0%, p = 0.001) and NHB (3.7% versus 1.3%, p = 0.08), a difference not evident in MA (1.2% versus 2.6%, p = 0.18). A similar racial/ethnic pattern of GAD65AA prevalence was also evident when excluding diabetic individuals diagnosed with diabetes before the age of 40 and currently treated with insulin. The difference in GAD65AA prevalence by diabetes status in NHW and NHB was more pronounced in females and the older age groups. The lower prevalence of GAD65AA among diabetic MA suggests that MA may have a lower frequency of autoimmune related diabetes, which may have important implications for diabetes prevention and treatment.

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GLYCEMIC INDEX, GLYCEMIC LOAD, AND DIETARY FIBER INTAKE AND INCIDENCE OF TYPE 2 DIABETES IN YOUNG AND MIDDLE-AGED WOMEN. M. B. Schulze, S. Liu, J. E. Manson, E. B. Rimm, *W. C. Willett, and F. B. Hu (Harvard School of Public Health, Boston, MA 02115)

To investigate the association between carbohydrate quality and incidence of type 2 diabetes, we used a prospective cohort study of 91,296 U.S. women who were aged 26 to 46 years and who were free of diabetes and other major chronic diseases, provided information on physical activity, and completed a validated dietary questionnaire at baseline in 1991. We identified 741 incident cases of type 2 diabetes, confirmed by supplementary questionnaires asking about diagnosis and treatment, during 716,787 person-years of follow-up. After multivariate adjustment, glycemic index was significantly associated with an increased risk of diabetes. The relative risks (RRs) for quintiles were 1, 1.15, 1.08, 1.29, and 1.59 (95% confidence interval [CI]: 1.20, 2.10)(P for trend: 0.001). Conversely, cereal fiber intake was associated with a decreased risk of diabetes. The multivariate RRs for quintiles were 1, 0.85, 0.87, 0.82, and 0.63 (95% CI: 0.47, 0.85)(P for trend: 0.004). Glycemic load was associated with a nonsignificant moderately elevated risk in the overall cohort, but this association was more evident among inactive women (multivariate RR for extreme quintiles: 1.66; 95% CI: 1.02, 2.71; P for trend: 0.06) or women with a family history of diabetes (multivariate RR for extreme quintiles: 2.03; 95% CI: 1.13, 3.66; P for trend: 0.04). In conclusion, a diet high in rapidly absorbed carbohydrates and low in cereal fiber was associated with an increased risk for developing type 2 diabetes, especially among women with a sedentary lifestyle and a family history of diabetes.

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