

113

INFANT VACCINATIONS AND RISK OF CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA IN THE UNITED STATES. Frank D. Groves,* Gloria Gridley, Sholom Wacholder, Xiao-Ou Shu, Leslie L. Robison, Joseph P. Neglia, and Martha S. Linet (Division of Cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, MD 20892-7244)

Previous studies have suggested that infant vaccinations may reduce the risk of subsequent childhood leukemia. Vaccination histories were compared in 439 children (ages 0-14) diagnosed with acute lymphoblastic leukemia (ALL) in nine Midwestern and Mid-Atlantic states between January 1, 1989 and June 30, 1993 and 439 controls selected by random-digit dialing and matched to cases on age, race, and telephone exchange. Among matched pairs, similar proportions of cases and controls had received at least one dose of oral poliovirus (98%), diphtheria-tetanus-pertussis (97%), and measles-mumps-rubella (90%) vaccines. Only 47% of cases and 53% of controls had received any Haemophilus influenzae type b (Hib) vaccine (relative risk (RR) = 0.73; 95% confidence interval (CI) 0.50-1.06). Although similar proportions of cases (12%) and controls (10%) had received the polysaccharide Hib vaccine (RR = 1.13; 95% CI 0.64-1.98), more controls (41%) than cases (35%) received the conjugate Hib vaccine (RR = 0.57; 95% CI 0.36-0.89). Although we found no relationship between most infant vaccinations and subsequent risk of childhood ALL, our findings suggest that infants receiving the conjugate Hib vaccine may be at reduced risk of subsequent childhood acute lymphoblastic leukemia. Further studies are needed to confirm this association, and, if confirmed, to elucidate the underlying mechanism.

115

NON AIDS-DEFINING CANCERS AMONG MALE HIV-POSITIVE MEMBERS OF A LARGE MANAGED CARE ORGANIZATION. S.M. Enger,* C.E. Speck, and A. Levine (Kaiser Permanente Southern California, Pasadena, CA 91188)

We evaluated the excess risk of non AIDS-defining (NAD) cancers associated with HIV infection in a cohort of HIV-positive health plan members. Using several electronic data sources, cohort members were identified (from 09/91 through 09/98) as being HIV positive if they met at least one of the following criteria: HIV-positive antibody test (56% of cohort), CD4/CD8 ratio < 1 and CD4 count < 600 (79%), viral load test (49%), receipt of an anti-retroviral pharmaceutical agent (57%), or diagnosis of an AIDS-defining malignancy (7%). A total of 7,129 health plan members (6,331 males and 798 females) were identified as HIV-positive and included in the cohort. We linked the cohort database to that of the cancer registry for the entire Kaiser Permanente system (n = 131,389), and computed age-adjusted standardized incidence ratios (SIR) for NAD cancers using the organization's membership, excluding HIV cohort members, as the population standard. Overall, 698 cancers were diagnosed (663 among males and 35 among females) of which 181 were NAD. The following results are for male cohort members only. The most frequent NAD cancers included lung/bronchus (21), Hodgkin's disease (20), gum (13), rectum (11), anus (11), prostate (8), and melanoma (8). Age-adjusted SIRs (95% confidence interval) for the most frequent cancers were as follows: lung/bronchus: 5.2 (5.0-5.4); Hodgkin's disease: 263.2 (246.2-278.9); gum: 66.6 (54.2-81.0); rectum: 7.3 (6.1-8.9); anus: 78.7 (61.8-99.8); prostate: 2.7 (2.4-3.0); and melanoma: 3.4 (2.8-4.2). The confidence intervals may be somewhat underestimated due to methodologic limitations. However, the SIRs clearly suggest an excess of specific NAD cancers among this cohort of HIV-infected individuals.

114

A CASE-CONTROL STUDY OF AGRICULTURAL AND NON-OCCUPATIONAL RISK FACTORS FOR T(14;18) NON-HODGKIN'S LYMPHOMA. JC Schroeder,* AF Olshan, R Baric, G Dent, CR Weinberg, B Yount, J Cerhan, J Mandel, CF Lynch, L Schuman, P Tolbert, R Millikan, N Rothman, K Cantor, and A Blair (University of North Carolina, Chapel Hill, NC 27599)

The t(14;18) translocation is a common somatic defect in non-Hodgkin's lymphoma (NHL) associated with bcl-2 activation and inhibition of apoptosis. It was hypothesized that some exposures might act specifically along t(14;18) dependent pathways, leading to stronger associations with t(14;18) (+) NHL than with t(14;18) negative (t-) NHL or NHL in the aggregate. Archival tumor blocks for 182 NHL cases from the National Cancer Institute's "Factors Affecting Rural Men" (FARM) study were successfully assayed for the translocation using polymerase chain reaction (PCR); 68 (37%) were t+. Adjusted odds ratios (OR) and 95% confidence intervals (CI) were estimated for t+ and t- NHL cases compared to 1245 population-based controls. t+ NHL was associated with exposure to several pesticides, including dieldrin (OR 3.7, CI: 1.8-7.4), toxaphene (OR 3.0, CI: 1.4-6.3), and lindane (OR 2.3, 1.2-4.1), and with chewing tobacco use (OR 1.8, 1.0-3.3), pet cats (OR 1.7, 1.0-2.7), and never married status (OR 1.8, 0.9-3.7). These associations were generally independent of histologic subtype, and contrasted with null or negative associations for the same exposures and t- NHL. Family history of hemolymphatic cancer was associated with t- NHL (t- OR 2.4, CI: 1.5-3.7; t+ OR 1.0), and odds ratios for both outcomes were doubled in association with hair dye use. These results suggest that NHL classification based on t(14;18) is of value in etiologic research, and that case sub-typing according to translocations may help identify viable points of intervention in the lymphomagenic process.

116

COLD/INFLUENZA INFECTION, INFLUENZA VACCINATION, AND RISK OF ADULT GLIOMA. JL Fisher,* JA Schwartzbaum, and CC Johnson (Henry Ford Health Sciences Center/Josephine Ford Cancer Center, Detroit, MI 48202)

Results from previous investigations suggest a decrease in adult glioma risk from prior varicella-zoster infections and, more generally, from prior fever-producing infections. Using medical records of Henry Ford Health System (HFHS) patients in Detroit, Michigan, we conducted a retrospective case-control study to determine whether either a record of treatment for cold or influenza infection, or influenza vaccination alters risk of adult glioma. After excluding individuals residing outside the Southeast Michigan area, as well as those without a primary care physician at HFHS, we identified 97 adults both diagnosed with a first glioma between January 1, 1995 and December 31, 1999 and with at least five years of pre-diagnostic primary care treatment at HFHS. Infections and vaccinations occurring in the two-year period preceding diagnosis were excluded to avoid potential confounding by physiologic phenomena associated with brain tumor growth. Cold/influenza infection and influenza vaccination histories for case participants and 112 control participants were compared using logistic regression. Treatment for at least one cold or influenza infection between two and five years prior to diagnosis decreases estimated glioma risk (odds ratio [OR] = 0.39 95% confidence interval [CI]: 0.18-0.86), after adjustment for sex, age, and number of visits to primary care physician. However, previous influenza vaccination increases estimated glioma risk, adjusted as above (OR = 2.64, 95% CI: 1.28-5.43). Molecular studies report conflicting evidence for influenza as both potentially oncogenic and protective against neoplastic growth. One or both of our results may be an artifact, perhaps the result of confounding. Our findings invite speculation and should be interpreted cautiously until verified in further investigations.