245

PULMONARY FUNCTION LOSS ASSOCIATED WITH RECENT AND PAST COAL MINE DUST EXPOSURE. P.K. Henneberger,* M.D. Attfield (Division of Respiratory Disease Studies, National Institute of Occupational Safety and Health, Morgantown, WV 26505).

The purpose of this study was to determine if work with lower intensity dust exposure helped to slow the loss of lung function among experienced coal miners. Each of the 1829 white male subjects had participated in the National Study of Coal Workers' Pneumoconiosis and completed spirometry at two surveys an average of 15.1 years apart. They were experienced miners who came to their first survey with an average of 10.8 years mining and a mean cumulative coal mine dust exposure of 38.0 milligrams (mg)-year/cubic meter (m^3). Least squares linear regression was used to model change in forced expiratory volume in one second (FEV_1) from the first to the last survey. There was a statistically significant decline in FEV_1 associated with coal mine dust exposure accumulated by the first survey (-0.9 ml per mg-yr/m^3, 95% CI -1.7, -0.2). Estimated dust concentrations during the inter-survey period were $\leq$1.0 mg/m^3 (mean=0.7 mg/m^3) for 945 subjects and >1.0 mg/m^3 (mean=1.5 mg/m^3) for 884 subjects. A more gradual decline in FEV_1 was not associated with lower intensity dust exposure during follow-up except for subjects whose FEV_1 values at baseline were already considerably reduced. These findings suggest limits to the usefulness of secondary prevention based on transfer to lower exposure jobs among miners who have had substantial dust exposure in the past.

246

LUNG DISEASE RISKS AMONG FEMALE CERAMIC WORKERS. A. Sperati, D. Goldsmith,* E. Rapiti, M. Miceli, F. Cavariani, F. Forastiere (Department of Epidemiology, Regional Health Authority, Rome 00198, Italy).

Male ceramic workers have elevated risks for silicosis. The purpose for this study was to test whether female ceramic workers have similar risks, and whether they have decreased pulmonary function. There were 643 women from a group of 3523 Italian ceramic workers who were surveyed from 1974 to 1987 with follow-up to 1991 including measurement of lung function on a sample of 378. X-rays were defined as (+) silicosis if the radiologist scored the films >1/0 with small rounded opacities. Regression models of forced vital capacity (FVC) and forced expiratory volume in 1 second (FEV_1) were calculated to measure risks related to smoking, work area, X-ray status, and years of exposure. There were 10 cases of silicosis among the women, with a range of age at first employment from 11 to 47 years, with age at diagnosis from 40 to 58 years. Six were nonsmokers, 1 was a former smoker; 4 cases were employed in crockery area with 3 working as a molder or in preparation of biscuit firing. The silicosis risk was *not* associated with smoking, but was related to employment before 1970, and demonstrated a dose-response for years of exposure, with significant odds ratios for women employed more than 20 years. FVC and FEV_1 both showed significant ($p<0.05$) correlations with positive X-ray findings after adjusting for age, height, work area, and smoking. The findings suggest that silica exposure before 1970, and decrements in FVC and FEV_1 are correlated with positive X-rays for silicosis. The results among female Italian ceramic workers are consistent with that of male employees. Additional studies, including continued surveillance of female ceramic workers are needed.

247

USE OF CAPTURE-RECAPTURE METHODS TO ESTIMATE THE PREVALENCE OF SILICOSIS IN OHIO. C. Geidenberger,* E. Socie (School of Public Health, The Ohio State University, Columbus, OH,43210).

Accurate estimates of the incidence and prevalence of silicosis are currently unavailable at the state and national levels. The authors used data collected through the Sentinel Event Notification System for Occupational Risks to estimate the prevalence of silicosis in Ohio for the period 1989-1995. Multiple sources (hospital discharge records, death certificates, physician reports, and worker's compensation claims) were used to ascertain prevalent cases with a clinical diagnosis of silicosis (ICD code 502). Capture-recapture analyses of multiple sources using log-linear methods were undertaken to assess possible dependencies between sources and to estimate the undercount and population total. Of 638 silicosis cases included in the analysis, 494 were identified from hospital discharge records, 116 from death certificates, 44 from physician reports, and 41 from worker's compensation claims. An overlap with at least one other source existed for 9% of hospital cases, 32% of physician-reported cases, 31% of cases from death certificates, and 29% of worker's compensation cases. Two of the better fitting models estimated the total number of cases to be 1936 (95% confidence interval (CI) 1534-2580) and 2029 (95% CI 1632-2618), for a prevalence of 17.8 and 18.7/100,000, respectively. This analysis represents the first attempt to estimate the prevalence of silicosis in Ohio. Potential biases, departures from model assumptions, and implications for work site intervention efforts are discussed.

248

CHLOROPHENOL EXPOSURE AND SOFT TISSUE SARCOMA. J.A. Hoppin, P.E. Tolbert, R. Herrick, K.R. Horvat (Emory University, Atlanta, GA 30322).

Chlorophenols, phenoxyherbicides, and dioxins have been reported to increase soft tissue sarcoma (STS) risk but evidence has been inconsistent. Identifying which of these classes of chemicals may contribute to increased STS risk is difficult since chlorophenols (CP) are used in the production of phenoxyherbicides (PH) and dioxins have been found in the technical products of both of these. Besides their use in PH production, CP are widely used as fungicidal agents and wood treatments. To evaluate the role of CP exposure independent of PH use or production, the authors analyzed data from the CDC Selected Cancer Study, a population based case-control study that included 218 male STS cases and 2504 age-matched controls from 8 SEER cancer registries. All subjects were interviewed using a standardized questionnaire to obtain information on medical history, occupational history, pesticide exposure, and other possible risk factors. CP exposure was determined by an industrial hygienist using verbatim descriptions of jobs in wood treatment facilities, leather tanning facilities, and sawmills, as well as jobs involving treated lumber and cutting oils. Using unconditional logistic regression and controlling for all known and suspected STS risk factors, including PH use, risk of STS was significantly associated with any CP exposure (odds ratio=1.65, 95% confidence interval =1.10, 2.48). Duration-response analyses are on-going. These findings suggest that CP exposure, independent of PH exposure, may contribute to soft tissue sarcoma risk in adult men. Potential dioxin exposure from contaminated technical products could not be addressed.

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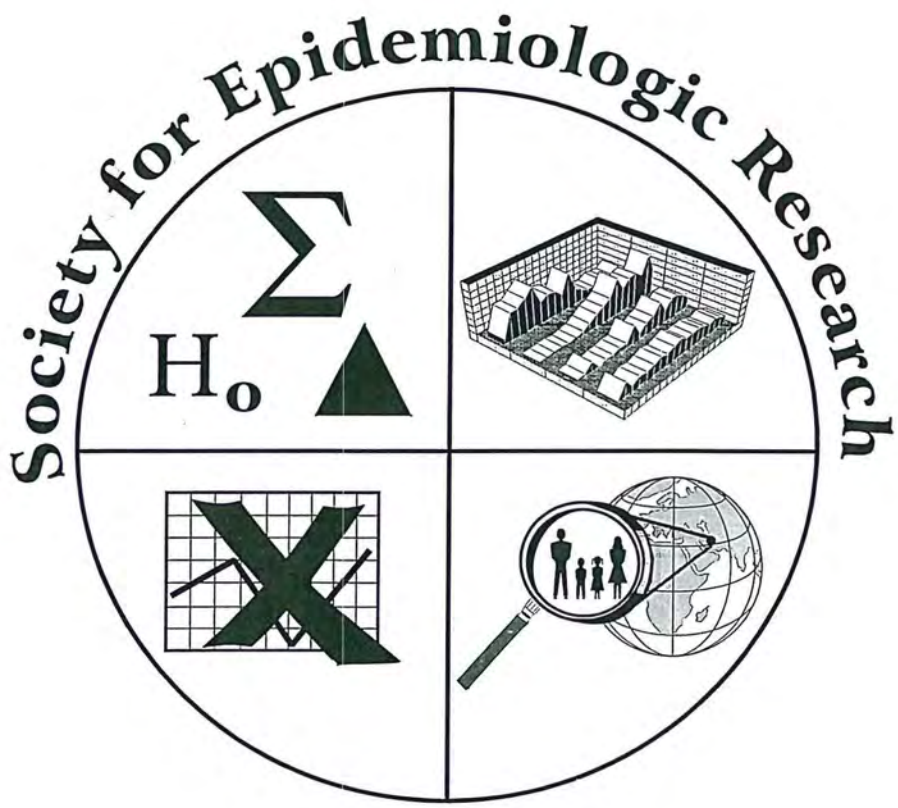

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