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A Mortality Study of Men Exposed to Elemental Mercury

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Abstract

A cohort of 2,133 white males who were exposed to elemental mercury vapors between 1953 and 1963 was followed up through the end of 1978. Death certificates were obtained for 371 of the 378 workers who were reported by the Social Security Administration to be deceased. The mortality experience of this group was compared with the age-adjusted mortality experience of the U.S. white male population. Mortality has not been studied previously in assessing the long-term health effects of mercury exposure. Standardized mortality ratios (SMRs) were calculated for a comparable unexposed worker population to determine the mortality patterns among workers at the same plant who were not involved in the mercury process. Statistically significant excesses of deaths from cancer of the lung (SMR = 1.34; 71 observed, 52.9 expected) and cancer of the brain and other CNS tissues (SMR = 2.30; 13 observed, 5.65 expected) were observed among the plant workers who were not involved in the mercury process. An excess of deaths from cancer of the lung was also observed among the mercury workers (SMR = 1.34; 42 observed, 31.36 expected), although the elevation of this SMR was not statistically significant. Since excesses of lung cancer were evident in both groups of workers, it is unlikely that they are related to the mercury exposure and more probable that they are due to some other factor present in the plant or to some life-style factor prevalent among the plant workers. Exposure to mercury vapors at this plant was not related to any excess of deaths from diseases or cancers of organs determined to be target organs for mercury (liver, lung, brain and CNS, and kidney). No excesses were found when level of exposure and length of exposure were considered.

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