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Exposure to benzene and risk of breast cancer among shoe factory workers in Italy

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ABSTRACT

Aims and background. Evidence of the association between leukemia and benzene exposure has been provided by several epidemiological studies. An increased risk of breast cancer among women exposed to benzene has also been suggested. The aim of this study was to analyze breast cancer risk in a cohort of 1,002 women exposed to benzene in a shoe factory in Florence, Italy, where an excess of leukemia in men was reported.

Methods. The cohort of women at work on January 1st, 1950, was followed from 1950 to 2003 for mortality and from 1985 to 2000 for incidence of breast cancer. For a subcohort of 797 women, cumulative exposure to benzene was available.

Results. Standardized mortality ratios were obtained for the 797 women for whom information on cumulative exposure was available. For those with <30 years of latency the standardized mortality ratio was 58.5 (95% CI, 18.9-181.2, based on 3 deaths) and 151.1 (95% CI, 78.6-290.3, based on 9 deaths) for ≥30 years of latency. In the >40 ppm-year and ≥30 year latency period category, the standardized mortality ratio was 166.0 (95% CI, 62.3-442.2, based on 4 deaths). The standardized incidence ratio for women with a latency period <30 years was 140.9 (95% CI, 75.8-261.9, based on 10 cases) and 108.2 (95% CI, 64.1-182.7) for a latency period ≥30 years. For cumulative exposure >40 ppm-years and a latency period <30 years, the standardized incidence ratio was 211.9 (95% CI, 29.9-1504.1, based on 1 case).

Conclusions. The study moderately supports the hypothesis that benzene represents a risk factor for breast cancer.

Key words: benzene, breast cancer, shoe worker.

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