

Chapter

1. Asbestos Exposure Assessment, Risk Identification, and Substitutes

Section

C. Epidemiology of ARDs

No./Title

14. Cancer incidence and asbestos in drinking water, Town of Woodstock, New York, 1980–1998

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Introduction

Asian context

A possible relation between exposure to asbestos in drinking water (via corrosive asbestos-cement pipes) was investigated in New York but did not produce positive findings. In Asian countries, the use of asbestos-cement is more recent and widespread and such hypothesis should be kept in mind by researchers.

Critical appraisal

A study conducted in New York on the possible relation between exposure to asbestos in drinking water and cancer occurrence, which produced negative findings.

Unique keywords

Gastrointestinal cancer, drinking water

Abstract



Late in 1985, asbestos contamination was discovered in the public water supply of the Town of Woodstock, Ulster County, New York. Contamination resulted from asbestos-cement pipes installed in the town water system in the mid to late 1950s and the corrosiveness of the local water. The New York State (NYS) Department of Health established the Woodstock Asbestos Exposure Registry (WAER) in 1986 to monitor rates of cancer among individuals who lived on the water supply between 1960 and 1985. Demographic, health, and residential information were collected on 2,936 registrants. The follow-up period for observation of cancer was 1980-1998, consistent with the expected lag of 20-30 + years for development of asbestos-related cancers. The NYS Cancer Registry was used to ascertain cancer diagnoses. Standardized incidence ratios (SIRs) for gastrointestinal, respiratory, and total cancers were all approximately 1.00 or less and all 95% confidence intervals (CIs) included 1.00. For individual types of the gastrointestinal cancers, only the SIR for pancreatic cancer was marginally statistically significant at 2.19 (95% CI = 1.00-4.16), based on a total of nine observed cases. The excess in pancreatic cancer occurred primarily among men (SIR = 3.08; 95% CI = 1.13-6.70) and was only slightly elevated among women (SIR = 1.39; 95% CI = 0.29-4.06). This association may be related to factors other than asbestos exposure such as occupation and lifestyle or to chance. No cases of mesothelioma were observed among WAER participants. There was no increase in incidence by latency or duration of residence on the water supply, but the ability to detect these trends is limited by small numbers and unknown dates of initial exposure. The general pattern of results did not demonstrate a likely link between exposure to asbestos in drinking water and cancer occurrence among participants in the WAER.

Annotation

Fact 1

- In the district where asbestos-cement pipes were used for water supply, only pancreatic cancer was significantly elevated and the excess occurred primarily among males (SIR = 3.08; 95% CI; 1.13-6.70) than females (SIR = 1.39; 95% CI; 0.29-4.06).

Fact 2

- The association between elevated pancreatic cancer and exposure to asbestos in drinking water in this study may be related to factors other than asbestos exposure such as occupation and lifestyle or to chance.

Fact 3

- The investigated water mains (network of pipes) had asbestos levels greater than 10 million fibers per liter (MFL), with the equaling 304.5 MFL and over 90% of the asbestos was chrysotile, the remainder was crocidolite.

Fact 4

- The source of the asbestos was asbestos-cement pipes installed in the water system due to significant deterioration of their interiors.

Fact 5

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References