

Epidemiology Study of the Use of Asbestos-Cement Pipe for the Distribution of Drinking Water in Escambia County, Florida

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Cancer mortality for the population census tracts of Escambia County, FL, which use asbestos-cement (AC) pipe for public potable water distribution, was compared with cancer mortality data collected from census tracts in the same county where other types of piping materials are used. An analysis of covariance was run to test for differences in standard mortality ratios for seven cancer sites among three potential asbestos exposure groups based on AC pipe usage. Twelve variables representing nonexposure-related influences on disease rates were combined in four independent factors and used as covariates in these analyses. No evidence for an association between the use of AC pipe for carrying drinking water and deaths due to gastrointestinal and related cancers was found. The limitations on the sensitivity of the analysis are discussed.

Introduction

Concern over the presence of asbestos fibers in drinking water supplies began in 1973 after millions of mineral fibers per liter were reported in the drinking water in Duluth, MN (1, 2). The question of possible increased risk of disease resulting from long-term ingestion of asbestos fibers in drinking waters is important because the association between some occupationally exposed asbestos workers and increased risk of respiratory and digestive disease has been documented (3, 4).

In June 1974, electron microscopy confirmed that fibrous material recovered from a kitchen faucet strainer in Pensacola, FL, was asbestos. While the source of mineral fibers in the Duluth water supply was related to industrial discharge of mining wastes, the fibers in the Pensacola

water appeared to be connected with the deterioration of asbestos-cement (AC) distribution mains. Because AC pipe is used to carry drinking water throughout the United States, it was decided that a study of people should be conducted, by census tracts, in an area where there was evidence of fibers coming from the pipe.

Study Area

Escambia County is located on the Gulf Coast in the upper panhandle of Florida. A little over 200,000 people live in the county, which is divided demographically into 40 census tracts. Some of the tracts have been receiving water through AC pipe for 30-40 yr, other tracts have been serviced by nothing but cast iron pipe, and still others receive water primarily from private wells with no AC pipe. Data on water quality from 25 wells showed unfinished waters in the county to be very similar, all with the chemical characteristics that make water corrosive to most types of common plumbing materials as well as to unprotected water mains. Comparison of water quality data from 1951 and 1957 and 1975 data showed that the well source waters had changed little in their

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