

Chapter

1. Asbestos Exposure Assessment, Risk Identification, and Substitutes

Section

C. Epidemiology of ARDs

No./Title

**11. Possible effect of environmental exposure to asbestos on geographical variation in mesothelioma rates**

Author/Contributor

Goldberg S, Rey G, Luce D, et al

Bibliographic ID

Occup Environ Med 2010 Jun;67(6):417-21

**Introduction**

Asian context

This report on the role of environmental exposure to asbestos is based on French data. In Asian countries, the role of occupational exposure to asbestos is still to be established. However, if occupational exposure can be truly ruled out, environmental exposure should be sought.

Critical appraisal

Strongly positive geographical correlations between men and women in France were considered to reflect environmental exposure to asbestos among women.

Unique keywords

Environmental exposure, mesothelioma

Abstract



**Background:** In population-based mesothelioma studies in industrialized countries, the incidence of mesothelioma without any identified asbestos exposure (IAE) is usually higher among women, while male incidence is mainly attributed to IAE. Through a comparison of the spatial distribution of male and female rates, and IAE and no IAE incidence, this study investigated whether mesothelioma without IAE are in fact induced by non-recognized asbestos exposure, mostly from environmental sources.

**Methods:** We calculated mesothelioma mortality (SMR) and incidence (SIR) ratios by district in France, pooling 30 and 10 years of data, respectively. Using correlation coefficients, we compared geographical patterns of male and female mesothelioma ratios, and IAE and no IAE mesothelioma ratios.

**Results:** The raw numbers of male and female mesothelioma cases were equivalent. Mesothelioma SMR (0.76) and SIR (0.80) geographical correlations between men and women were strongly positive. SIR correlation between occupationally IAE and no IAE cases was also positive (0.69). Correlation between occupationally IAE and no IAE cases was positive among women but not among men.

**Conclusions:** Data analyses of mesothelioma mortality and incidence showed that female cases occur in the same geographical areas as male cases. Female mesotheliomas with no IAE occur in the same geographical areas as exposed cases, suggesting asbestos has a major influence on female mesothelioma, likely through environmental exposure.

## Annotation

### Fact 1

- There were 26,074 deaths certificates (30.1% women) coded as malignant neoplasm of the pleura or pleural during 1974-2005 in mortality data for metropolitan France.

### Fact 2

- Mesothelioma mortality rates are spatially very heterogeneous over the whole country of France and higher among men (0.84-5.08 per 100,000 men) than among women (0.11-1.62 per 100,000 women).

### Fact 3

- The number of cases with no identified asbestos exposure (IAE) is almost the same in men (154) as in women (172), which is striking since the mesothelioma standardized incidence rate for cases with IAE is 0.83 per 100,000 men, almost ten times the corresponding 0.09 per 100,000 women. Combined with other findings, this study strongly suggested a major influence of asbestos on female mesothelioma, likely through environmental exposure.

### Fact 4

- There is a real burden of environmental asbestos exposure in industrialized countries that could account for approximately 20% of all mesotheliomas.

### Fact 5

- The high proportion of female mesothelioma cases with no IAE also suggests that the burden of environmental asbestos exposure in industrialized countries is far from negligible.

## References