Urban Mesothelioma: Is There an Emerging Risk of Asbestos in Place?

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Dear Sir,

The causal relationship between malignant mesothelioma and asbestos has been known for a long time, whereas proof for other causal associations (e.g., SV40) is absent, limited or incomplete.1 There is strong evidence of increased risk following occupational exposure and, to some extent, environmental exposure, usually from industrial point sources or household contact2 and asbestos-contaminated soil.3 The dimension of excess risk at levels of exposure encountered in urban areas is almost unknown. The existence of an “urban factor” associated with mesothelioma has been debated in this journal.4–6

While occupational exposures to asbestos in most industrialized countries have been discontinued or severely reduced, public health attention has turned to the risks in other settings characterized by average low-level exposures that may also include high concentrations for relatively short time periods.7 Concern has focused on past construction practices that extensively used asbestos, much of which still remains in buildings and can deteriorate. Potential health hazards exist not only among persons engaged in repair, renovation and demolition activities but also among dwellers. The occurrence of mesothelioma cases associated with exposures to asbestos “in place” (the so called third wave of the impact of asbestos-induced disease) had already been predicted in the early 1990s.8

To assess the risk of exposure to asbestos in place, the urban context of cities with neither shipyard facilities nor industries that manufacture asbestos products or use this material could represent an ideal point of observation. We have undertaken a survey on the occurrence of malignant mesothelioma in Rome (a nonindustrial urban context) and surrounding municipalities of the Latium region.9 For 167 cyto-/histologically confirmed cases in the period 1993–2001, the following information was available: residence at diagnosis, asbestos exposure history [ascertained by a standard questionnaire or medical records and classified as occupational (certain, probable or possible), domestic, environmental, hobby-related, unknown (available information does not reveal exposure) and unclassifiable (unavailable information)].10 Some of the findings in relation to cases with either occupational or unknown exposure address the criticism raised by Jockel6 with regard to the report by Hemminki and Li.4 The contrast between cases resident inside vs. outside Rome showed (i) a lower percentage of occupational exposures [33.0% (27 males, 4 females) vs. 63.0% (43 males, 3 females)]; (ii) a higher proportion of unknown exposures [43.6% (21 males, 20 females) vs. 15.1% (8 males, 3 females)]; (iii) a lower male-to-female ratio for pleural mesothelioma [1.4, 95% confidence interval (CI) 1.07–1.91 vs. 3.8, 95% CI 2.79–4.98], also confirmed by mortality data (1.4, 95% CI 1.19–1.72 vs. 2.1, 95% CI 1.70–2.62). A low prevalence of occupational exposure (one-third confined to construction works) in Rome compared to outside Rome is consistent with the absence in the city of large industries that manufacture/use asbestos products. As well, a high prevalence of occupational exposure outside the city is consistent with the presence in the surrounding region of a merchant navy harbor,11 asbestos cement industry and small/mid-sized or large industrial areas where asbestos is used extensively.12 By contrast, a higher proportion of unknown exposures in Rome compared to outside Rome is not plausible; this category does not comprise “any exposure”, as for plumbers or welders (occupations that are considered “possibly” asbestos-related), and includes almost an equal number of males and females involved in non-asbestos-related jobs, e.g., white-collar workers, salespersons, teachers and housewives. Among cases resident in Rome, we observed an apparent excess of women with no appreciable occupational asbestos exposure. From these observations, we infer that there might be an urban hazard concerning asbestos linked to exposures in place. Asbestos was used extensively in buildings in Rome between the 1960s and early 1970s; sprayed amosite and crocidolite were employed, especially in public administration buildings and offices.13 A further argument in favor of our hypothesis is that standardized mortality rates from malignant pleural neoplasm (a proxy of mesothelioma incidence)14 are higher in Rome compared to pooled Latium municipalities (men, 0.95 and 0.79 per 100,000; women, 0.59 and 0.39 per 100,000, respectively; years 1980–1997). A specific risk of mesothelioma for women in settings characterized by environmental fiber exposure has been suggested.15

In conclusion, the following considerations appear to be warranted. Questionnaires that document asbestos exposure should be revised to cope with evolving patterns of exposure. The tool of estimating exposure by history alone is inadequately sensitive to allow assessment of the proportion of cases

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without exposure. Consequently, analysis of questionnaire data is not the best way to accurately exclude asbestos exposure or to support the possible causative role of nonasbestos agents. Information derived from questionnaires should be integrated with the measurement of fiber content in lung samples. To estimate whether there is an excess risk of mesothelioma associated with specific patterns of exposure to asbestos in urban settings, collaborative studies of adequate sample size should be promoted.

Yours sincerely,
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REFERENCES