



LETTER TO THE EDITOR

Is Chrysotile a Significant Risk Factor for Mesothelioma?

Key words: asbestos, machinists, railroad workers

In a recent paper it was concluded that chrysotile is far more hazardous in the induction of mesothelioma than previously estimated [Mancuso, 1988]. This is contrary to the mounting evidence in the literature that mesotheliomas from exposure to chrysotile alone are rare.

Mancuso's conclusion is based on a small cohort of 181 railroad machinists hired between 1920 and 1929. Fourteen mesotheliomas were identified through 1986; indeed, a very high relative risk.

I would like to make two comments on the description of the asbestos exposure in the paper. First, it is stated that the machinists were "almost exclusively, if not solely" exposed to chrysotile. However, in a previous paper by the same author [Mancuso, 1983], a description of the work practices is given together with the result of a fiber analysis identifying amosite in four of six samples from old locomotives. Furthermore, amphiboles were regularly used in a Swedish railroad maintenance shop, where special padded insulation (mattresses) containing crocidolite was used for insulation of the funnel of the steam boiler [Ohlson et al., 1984]. An acid-resistant fiber type, for example, crocidolite, was needed, as coal was the main engine fuel. The rest of the steam boilers were insulated with "magnesia lagging" containing chrysotile and magnesia, and probably amosite as well.

The mortality of 3,297 male workers at this shop was studied in the period 1951-1980. About one-third of the cohort had been employed for more than 30 years, and the vital status was assessed for 99.6% of the men. Only five cases of mesothelioma were observed.

The work practices in railroad maintenance shops in the United States and Sweden may have differed somewhat, but, nevertheless, the experience of the Swedish cohort is relevant to Mancuso's study.

The statement that chrysotile was almost exclusively the fiber type handled by the machinists and, hence, the main cause of the mesotheliomas is not entirely convincing. Even small amounts of amphiboles would have been sufficient to explain the occurrence of mesotheliomas due to the high durability of amphiboles and the low durability of chrysotile in the lungs.

My second comment concerns the exposure of the machinists after the years 1920-29. They were still employed 2 decades later, and some of them could therefore

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Accepted for publication July 12, 1988.

have had several decades of high exposure to asbestos (mainly to chrysotile, but apparently to amphiboles as well) in addition to the exposure in the years 1920-29.

Furthermore, the latent period (the interval from first exposure to death) for all 14 cases of mesotheliomas were, on average, 48 years (33-64), and for the lung cancer cases, 40 years (27-51), which is much longer than the generally agreed on latent periods for these cancer sites. Therefore, the length of the latent periods do not support the conclusion that the mesotheliomas were causally associated with the exposure in the 1920s, but, rather, with the exposure in the preceding decades.

In my view, Mancuso's statement that chrysotile poses a considerable risk for mesothelioma is not supported by the data provided in the paper.

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