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[Quantitative assessment of the risk of lung cancer and pleural mesothelioma among automobile mechanics]

[Article in French]

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BACKGROUND: A quantitative assessment of the risk of lung cancer and pleural mesothelioma among mechanics exposed to dust released from automobile asbestos-containing parts was performed. METHODS: The population of automobile mechanics in France, according to profession and industrial sectors codes, was estimated from the data of the 1999 census. Risks were computed for a total male population of 242,360 automobile mechanics aged 16 to 60 years. Exposure to asbestos among these workers comes from maintenance tasks involving asbestos-containing parts produced before 1997 (date of the asbestos ban in France). Airborne asbestos concentration data available from the literature were highly variable. No data reporting the distribution of time spent for such tasks over a typical week of work were available. Therefore, different weekly exposure profiles were simulated, based on data from the 1994 SUMER survey. Risk models were those used for assessing asbestos health effects by all national and international agencies. Exposure scenarios mixed different levels of exposure, periods of time, proportions of exposed workers and dates of the "natural" disappearance of the automobile fleet built before asbestos was banned in brakes and other parts. The most realistic scenario hypothesizes that all automobile mechanics were exposed to asbestos, that the exposure levels ranged from 0.06 and 0.25 fibers/liter per week for the period before 1997, and between 0.01 and 0.06 fibers/liter per week afterwards until 2010. RESULTS: According to this scenario, the number of lifelong cancer deaths (lung and pleura) induced by asbestos exposure in this population is estimated at 602 "unavoidable" cases, due to exposure experienced before 2003; 43 other cases will occur if asbestos is not removed from existing automobiles.

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