of the 1999 census. Risks were computed for a total male population of 242,360 automobile mechanics aged from 16 to 60 year. 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 French SUMER survey describing occupational exposures from a representative sample of French workers. Risk models were those used for assessing asbestos health effects by most 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 others parts.
Results: 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. According to this scenario, the number of lifelong cancer deaths (lung and pleura) induced by asbestos exposure in the population of mechanics active in 2003 was estimated to 604 cases due to exposure experienced before 2003 and 42 additional cases due to exposure experienced from 2003 to 2010 (based on the French death registry mortality rates, 13 486 lung cancer deaths were expected in this population).
Conclusion: Most asbestos attributable pleura and lung cancer deaths that will occur (after 2003) in this population were "unavoidable" due to previous exposure, nevertheless 42 could be prevented if asbestos was removed from existing automobiles at this moment.

QUANTIFICATION OF ASBESTOS AND OTHER MINERAL PHASE BURDEN IN NECROSCOPIC HUMAN LUNG TISSUES WITH A NEW METHOD

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Background: A large amount of studies on asbestos exposure reconstruction have been so far conducted digesting the lung tissues with appropriate reagents, separating the powder from the digestion liquid by filtration and analysing the residue by optical or electron microscopy. This analytical approach has good sensitivity but is not yet well standardized, the investigated portion is not representative of the bulk sample, the results are often characterized by lack of reproducibility and repeatability. Moreover, the numeric quantification of asbestos requires a time-consuming particle by particle analysis.
Aim: to develop a new method for the complete quantitative characterization of asbestos and other mineral phases in human lung tissue.
Methods: The new method is based on sodium hypochlorite digestion, separation and XRPD analysis. The XRPD approach needs moderate lung tissue amounts (at least 20 g of wet tissue), but allows to conduct a complete quantitative characterization of each crystalline phase in the sample giving bulk-representative results with good reproducibility, accuracy and precision. The detection limit of conventional XRPD was considerably improved by a novel instrumental setting and weight concentrations can be obtained, giving additional information to numeric ones, preferable in clinical and pathogenetic studies but probably not for the exposure reconstruction.
Results: Among the analysed autoptic lung tissues, ten samples belonged to subjects occupationally exposed to asbestos and six were collected from urban area controls. Asbestos phases were detected in none of controls and in 5 of 10 occupationally exposed subjects (those with highest exposure history) indicating that this method is suitable for the reconstruction of medium and high asbestos exposures. It has been furthermore confirmed the mineral association found in previous studies: mainly composed by quartz, talc, clay minerals, micas, Fe-Al-Ti oxides and bio-minerals such Ca-phosphates, carbonates and oxalates.

MALIGNANT PLEURAL MESOTHELIOMA AND USE OF RECYCLED JUTE SACKS

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We describe a case of mesothelioma in a woman worker employed in a factory making rice starch. The combination of the histological and immuno-histochemical characteristics (the epitheliode shape, positive calretinin and vimentin results, and negative CEA) and clinical findings (metastatic lesions of the skin and lymphonodes at the site of pleural drainage), led to a definite diagnosis of pleural mesothelioma. The evaluation of the job history and of any possible non-occupational exposure to asbestos was based on interviews to relatives and workmates. For approximately 40 years, the woman had worked in the storehouse of a factory which produced rice starch, and her job involved retrieving the jute sacks in which the rice was transported. Some of these sacks had "Asbestos" written on the outside, which meant that these were recycled sacks which had contained asbestos and were then used again for something else. The woman's job consisted of putting the empty sacks into a special machine which shook them so as to clean out the dust and left-over rice; then they were washed and the broken sections repaired. Analysis of job history was considered consistent with the diagnosis of occupational disease. Similar cases, with the risks deriving from contact with recycled sacks containing asbestos, has already been hypothesised in cases of mesothelioma in textile industry workers and in employees in commercial sectors.
This case provides further confirmation of the risk of pleural neoplasm deriving from the re-use of contaminated jute sacks, inasmuch as this practice can bring workers into contact with a significant level of asbestos fibre. It also makes us aware of the importance of careful history-taking when assessing specific aspects of a patient's work history, especially in generic occupations such as that of storesmen employed in work situations in which there was apparently no contact with asbestos.