Asbestos exposure among hairdressers

The Lombardy Mesothelioma Registry (Registro Mesoteliomi Lombardia, in Italian: RML) includes Malignant Mesothelioma (MM) cases whose exposure to asbestos remains uncertain and therefore classifies them as having an "unknown exposure" (7). However the RML staff observed that some of these cases did the same job (hairdressers) and therefore tried to figure out whether there were possible exposure sources in this specific occupation.

The last report by the National Mesothelioma Registry (Registro Nazionale dei Mesoteliomi, in Italian: ReNaM) (6) had already indicated asbestos as a potential component of some everyday household appliances: for instance, both hand-held and hood-type hairdryers may have contained asbestos as insulation for the overheating of the electrical resistance.

During the period 1979-1981 both the scientific community and the US Governmental Agencies investigated asbestos exposure – and its potential effects on human health – in workers using hand-held and hood-type hairdryers. In particular, in 1979 the Consumer Product Safety Commission (CPSC) – a US Governmental Agency in charge of protecting the public from unreasonable risks of injury or death from consumer products – accepted a corrective action proposed by the major hairdryer manufacturers, providing for either repair, replacement or refund for hand-held hairdryers containing asbestos (90% of all domestic hairdryer sales annually) (1). In the same year the National Institute for Occupational Safety and Health (NIOSH) conducted an investigation on 30 asbestos-containing hairdryers, and observed airborne asbestos concentrations generated by these dryers ranging from 0 to 0.11 structures/cm^3 (a unit of measurement accounting both for fibre count and for sample volume), corresponding to a mass concentration of 7652 ng/m^3 (3). Some epidemiological studies, after extrapolating low exposure levels of asbestos from studies on subjects with high occupational exposure, obtained mortality estimates (for lung or respiratory cancers) that were not consistent (2, 4). More recently (2006) the Health Safety Laboratory (HSL) – a UK healthcare regulatory agency – conducted an investigation on two asbestos-containing hood-type hairdryers, and observed airborne asbestos concentrations lower than the declared detection limit of 0.01 fibres/ml (5). The list of the major US and European manufacturers of asbestos-containing hairdryers can be found in the CPSC and HSL documents, respectively.

The RML staff could therefore affirm with reasonable certainty that using either hand-held or hood-type hairdryers can determine asbestos fibres emissions in the environment; as a consequence, the exposure of their users can be considered moderate but most likely sufficient to determine a risk for the onset of mesothelioma. Fixing and maintenance operations undoubtedly increase the level of exposure, even if such operations are not essential to classify a subject as exposed; in fact, using the hairdryers can be considered a source of risk by itself.

Following such considerations, the RML staff reevaluated the criteria used to classify asbestos exposure in hairdressers and defined:

- occupational exposure as certain if the MM cases reported that their personal hairdryers contained asbestos;
- occupational exposure as possible if the MM cases reported the use of hairdryers without giving information about their characteristics, for at least one year before asbestos was banned;
- exposure as unknown if the MM cases reported that they worked exclusively as "head-washer" and for a brief time-window (e.g. less than 1 year).

Out of a total of 2,989 incident MM cases in Lombardy (time-window: 2000-2009), RML selected 18 (0.6%) hairdressers with unknown exposure, and reclassified them as having certain (4 cases) or possible (13 cases) occupational exposure; only one case who had worked exclusively as a "head-washer" for a few months remained with unknown exposure (7). RML excluded from the present reclassification the case of one hairdresser – previously reported on this Journal (8) – who had been considered as occupationally exposed because his usual customers worked in an asbestos cement factory.

We found 12 more MM cases who worked as hairdressers but had already reported other asbestos exposure sources: 9 occupational, two environmental, and one during leisure time. According to the new criteria, all these cases were reclassified as having a possible occupational exposure to asbestos as hairdressers.

Reconsidering the questionnaires allowed us to highlight information that had been previously underestimated, such as the presence of usually more than one hairdryer in the workplace, operating nearly continuously for the entire working day. Subjects who performed maintenance of the hairdryers declared they manually removed the old and crumbly asbestos protections.

Four cases only were aware their hairdryers contained asbestos; most of the subjects did not know or had not declared it when interviewed. This suggests it is important

and valuable to extend and detail the information that can be obtained with the questionnaire.

In conclusion, RML identified a total of 30 hairdressers (14 males and 16 females); the availability of a wide MM case record, together with detailed information about occupational activities and lifestyle, allowed the RML staff to hypothesize and then to confirm the existence of an occupational asbestos exposure risk, at least in the past. Such exposures, though likely to be absent nowadays in the Italian occupational context, can still represent a real public health problem, both due to the potential household use of old hairdryers, and to the importing of household appliances from countries where asbestos is still normally used.

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