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Formaldehyde as an Occupational Carcinogen in Health Workers

Formaldehyde was reviewed as a human carcinogen in 2004 (IARC, 2006) and its use was banned by the EU in 2015 (Commission Regulation (EU) No 2015/491 of 23 March 2015). However, the use of this compound and the protection of healthcare workers from the agent have proven to be complex issues. Formaldehyde is a compound traditionally used in university histology and anatomy departments and in hospital anatomic pathology services; however, occupational exposure of healthcare professionals (doctors, nurses, nursing assistants, technicians, etc.) does not only occur in these areas. Within hospitals, other possible exposures must be taken into account which sometimes go unnoticed (among them those related to cleaning tasks using certain detergents, hygiene products, etc.).

To avoid the risk in the first group of departments, various substances have been proposed that could replace formaldehyde as a fixative for tissue samples. However, to date there is still no effective alternative to formaldehyde, which led the EU to grant an extension to its use in healthcare. Since 2004, research and publications on occupational exposure to formaldehyde and the occurrence of cancer have been increasing, and to date several studies have associated occupational exposure to formaldehyde with a number of tumours such as nasopharyngeal carcinoma and various lymphoproliferative processes. However, the existing evidence on the involvement of formaldehyde in the etiology of other neoplastic pathologies is still insufficient and/or controversial.

In summary, regular exposure of workers to formaldehyde may cause significant long-term health problems. Therefore, workplace exposure of healthcare workers to formaldehyde should be minimized, and exposure limits to this compound should be respected. A combination of environmental and biological monitoring has proven to be an invaluable tool for ensuring worker safety and effectively assessing chemical risk in the hospital environment. Not to mention the adequate using personal protective devices, air filtration systems, the relevance of training healthcare

workers and promoting their adherence to best laboratory practices. This lecture will review all these issues, with particular reference to practices and regulations in Spain.