

Impact of occupational carcinogens on lung cancer risk in a general population From E PIRA and M COGGIOLA*

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We wish to comment upon the article 'Impact of occupational carcinogens on lung cancer risk in a general population' by De Matteis *et al.*, published in your journal in June 2012.¹

In the conclusion of their population-based study, the authors state that there is a causal relationship between lung cancer and 'low-dose' exposure to certain carcinogens and/or to other agents for which the aetiological role is still under debate. Based on a job-exposure matrix (JEM), the authors used three different exposure categories: no exposure; low exposure; and high exposure.

The difficulty in defining 'past exposure' in occupationally exposed subjects, even those for whom data on exposure level are available, is well known. This difficulty is much more pronounced when dealing with estimating the exposure levels in the general population. Indeed, this is one of the main problems in population-based studies. Since the authors stated that their conclusions are evidence-based, it goes without saying that it is crucial to know what they mean by 'exposure' and what is the weight of the exposure to ubiquitous agents (e.g. silica, asbestos) in causing cancer (i.e. the causal relationship). In fact, when dividing exposure into categories, there was no clear definition of the range values for low and high exposure. We can only presume from the data that they may refer to levels based on 'higher' and 'lower' general concepts without any strong, documented data that allow, at least, for a distinction between the no exposure category and the low exposure category. We found no analytical data supporting the JEM range, without which it is impossible to prove the validity of the results.

We asked for the authors opinion on the cases of silicosis reported in the group of subjects without

exposure. In fact, we were more than surprised when noting that there were a total of eight cases of silicosis, four of which were included in the group considered as having had no exposure (according to the JEM the authors used). The authors stated that they made a mistake in data analysis and the sentence reported in the original article was incorrect: the number of people with silicosis classified as 'not exposed' was two instead of four. In our opinion a relevant exposure to silica is the basic condition to compensate silicosis cases. The reduction of the percentage in the error (25% vs 50%) in identifying the silica exposure in people with silicosis is not a sufficient condition to confirm the validity of the JEM. So the correction of the sentence does not change our evaluation of the limitations of the adopted methodology to assess the exposure to carcinogenic agents in a general population, and on this basis our opinion continues to be that the JEM the authors adopted may not be able to distinguish between the categories 'no exposure', 'low exposure' and 'high exposure'.

Therefore the authors' conclusion, that 'past occupational exposure to asbestos, silica and Ni-Cr even at low levels contributes substantially with PAHs to the current lung cancer burden of 18.1% 5.7% and 7%, respectively', should be further discussed.

Reference

- ¹ De Matteis S, Consonni D, Lubin JH *et al.* Impact of occupational carcinogens on lung cancer risk in a general population. *Int J Epidemiol* 2012;41:711–21.

doi:10.1093/ije/dyt174