Letters to the Editor

Silica And Lung Cancer: Hazard or Risk.


I greatly appreciated the Editorial by Professor McDonald on “Silica and Lung Cancer: Hazard and Risk”. Therefore, it is with reluctance that I take up a sentence from it as being seriously misleading. The sentence at the end of paragraph 3 starts “Few of the epidemiological studies then available had taken adequate account of occupational exposures to such carcinogens as arsenic, nickel and radon,...”. While I do not dispute the carcinogenicity of radon, I do not believe that the metallic nickel is carcinogenic. It is even possible that elemental arsenic is not a human carcinogen. I must point out that IARC (1989) has concluded that “There is inadequate evidence for the carcinogenicity of metallic nickel in humans”. Further, the ACGIH (1999) now classifies nickel metal as A5, “Not suspected as a human carcinogen”. Soluble nickel compounds are classified by ACGIH as A4, “Not classifiable as a human carcinogen”. Only insoluble nickel compounds are now classified by ACGIH as A1, “Confirmed human carcinogens”. Personally, I doubt if even this statement is true as a generalisation. The point of this analysis is that the carcinogenicity of nickel depends crucially on the chemical species in which it occurs. It is wrong to condemn an element simply because some compound containing it causes cancer. Following this logic, we should condemn carbon because it is the common element in the vast majority of carcinogens.

With regard to elemental arsenic, IARC (1987) has made the point that the evaluation that arsenic and arsenic compounds are carcinogenic to humans (Group 1) applies to the group of chemicals as a whole and not necessarily to all individual chemicals within the group. Perhaps elemental arsenic does not cause cancer. Certainly not all chemical species of arsenic cause cancer. Although there is good evidence that, for example, arsenite causes cancer, I know of no cancer following exposure to arsenobetaine or arsenocholine. Consumers of shellfish have been heavily exposed to both of these compounds without any cancer attributable to their diet having been recorded.

I have just returned from a meeting of the Speciation 21 network which was set up by Dr Rita Cornelis and others with European Commission funding in order to further the study of chemical speciation of elements, precisely because of the confusion that arises from the habit of ignoring the many different chemical forms of elements other than carbon. Further information about this network and its activities can be found at the website http://www.speciation21.plymouth.ac.uk

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REFERENCES

ACGIH (American Conference of Governmental Industrial Hygienists) 1999. 1999 TLVs® and BELS®. ACGIH, Cincinnati.

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