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USING THE METHOD FOR CANCER RISK ASSESSING IN ESTABLISHING THE RELATIONSHIP OF THE MALIGNANT TUMOUR DEVELOPMENT WITH THE OCCUPATION (CASE REPORT)

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Background

The proportion of occupational cancer cases actually registered in Russia is far from the calculated data of the minimum expected number of tumour cases caused by the impact of occupational factors.

Aims

On the example of a case report (lung cancer in an industrial worker), to study the relationship between the development of a malignant neoplasm and working conditions based on the calculation of individual carcinogenic risk (CR).

Methods

Occupational CR (OCR) was calculated retrospectively from industrial carcinogens per length of work as a welder (28 years, at cancer diagnosis). The concentrations averaged over workshift and slope factors for inhalation exposure of nickel (Ni) and hexavalent chromium (Cr6+) compounds were used. Lung cancer risk from tobacco smoking was assessed.

Results

It is shown that Cr6+ is the main factor that forms OCR (97.4%). The predicted value of OCR for actual work experience exceeded the maximum acceptable level of risk for occupational groups by 130. The maximum acceptable length of work in contact with carcinogens was to be 3 months. A given smoking exposure (40 years, 20 cigarettes/day) indicates that a moderate lung cancer risk was formed 12 years later than an unacceptable OCR was reached.

Conclusions

It seems possible to use both methods for assessing CR from occupational and lifestyle factors, when establishing relationships between the development of malignant tumours and the profession. Further study of the impact of industrial and non-industrial carcinogens on the workers' health and the development of an integral assessment of cancer risk are required.