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LUNG CANCER RISK INDUCED BY RESIDENTIAL RADON IN CLUJ AND ALBA COUNTIES, ROMANIA

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Abstract

A case-control study was conducted in two Romanian counties (Alba and Cluj) in order to investigate lung cancer risk due to residential radon exposure. Two hundred and forty-one subjects were included, of which 104 cases and 137 controls. Residential radon concentrations were monitored using CR-39 track detectors, exposed over a period of at least 6 months. The odds ratios were estimated by using multivariable logistic regression adjusted for age, sex, smoking status, education and family history of lung cancer. The adjusted odds ratios were 1.64 (95% CI: 0.67 – 3.98), 2.40 (95% CI: 0.91 – 6.35) and 2.12 (95% CI: 0.80 – 5.63) for 50-100, 100-147 and more than 147 Bq/m³ compared with 0-50 Bq/m³. The estimated excess odds ratio (EOR) per 100 Bq/m³ radon concentration was 0.23 (95% CI: -0.11 - 0.57) (p = 0.11). The main limitation of the study is represented by the small number of cases and controls, along with the absence of matching of the two samples for age or sex. The results from this study suggest a weak association (generally statistically insignificant) between indoor radon exposure and lung cancer.

Key words: environment and public health, excess odds ratio, lung cancer, radon, smoking

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