

LUNG CANCER RISK ASSOCIATED TO RADON AND SMOKING AMONG FRENCH URANIUM MINERS: IMPACT OF THE REPLACEMENT OF MISSING DATA

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The French cohort of uranium miners has been followed up for many years by the Laboratory of Epidemiology of the Institute of Radiological Protection and Nuclear Safety (France). The aim is to evaluate cancer and non cancer risks associated to protracted exposure to radon, a radioactive gas found in high concentrations in uranium mines. This cohort includes more than 5000 miners with a mean duration of follow-up of 30 years. Analysis of the cohort data has shown a significant increase in lung cancer risk associated with cumulative radon exposure. Nevertheless, this analysis did not take into account any smoking information. To fill this gap, a case-control study nested in the cohort has been set up. This study includes 100 cases and 500 controls. It has allowed to reconstitute the smoking status of miners for part of the cohort and to take account of this information in the quantification of the relation between lung cancer risk and radon exposure. Nevertheless, smoking information could be reconstituted only for 62% of the cases and 64% of the controls. Our aim was to analyse the impact of missing data in a categorical variable (e.g. the smoking status) on the risk analysis. Methods of replacement of missing data relevant for categorical variables are presented and their contribution in the risk analysis is evaluated.