

<p>P-022</p>	<p>LUNG CANCER RISK, EXPOSURE TO RADON AND TOBACCO CONSUMPTION IN A NESTED CASE-CONTROL STUDY OF FRENCH URANIUM MINERS LEURAUD K¹, BILLON S¹, BERGOT D¹, TIRMARCHE M¹, CAËR S², QUESNE B², LAURIER D¹ (1) IRSN, Fontenay aux Roses, France (2) COGEMA, Vélizy -Villacoublay, France</p>
<p>Presentation preference: Poster Only</p> <p>Major scientific thematic areas: TA1 - Radiation Effects</p>	<p>Introduction: A nested case-control study was conducted among the French uranium miners cohort in order to assess the effect of protracted radon exposure on lung cancer risk taking into account tobacco consumption.</p> <p>Material and methods: One hundred uranium miners employed by the French company CEA-COGEMA and who died of a lung cancer between 1980 and 1994 were identified as cases among the cohort. For each case, five controls were randomly matched on birth period and attained age at the time of death of the corresponding case. Cumulated radon exposure during employment was reconstructed for each of these 100 cases and 500 controls. Smoking habits were retrospectively determined from three complementary sources: 1) medical files, 2) forms filled in by occupational physicians and 3) questionnaires applied in face-to-face interviews, phone calls or mailings. Analysis was performed by conditional logistic regression using a linear excess relative risk (ERR) model. A multiplicative model was fitted to assess the joint effect of radon exposure and smoking on lung cancer risk.</p> <p>Results: Smoking status was established for 62 cases and 320 controls and two categories (“ever smokers” vs. “never smokers”) were defined. Ninety percent of the cases and 73% of the controls were classified as “ever smokers”. Mean five-year lagged cumulated radon exposures were 82.0 and 47.6 working level months (WLM) for the cases and the controls, respectively. The excess relative risk per WLM (ERR/WLM) was 1.1% with a 95% -confidence interval (CI) of 0.2-2.0%. When adjusting for smoking, radon exposure effect was little modified (ERR/WLM = 0.8%, 95% -CI = 0.1-2.8%). The effect of smoking on lung cancer risk was comparable to results reported in previous miners cohorts (OR = 3.04, 95% -CI = 1.20-7.70).</p> <p>Discussion: A consequent effort was carried out to collect smoking status from three sources for the miners included in this nested case-control study. This analysis shows that, when adjusting on tobacco effect, the estimated lung cancer risk coefficient obtained for radon exposure is close to that obtained from the French miners cohort and coherent with results from other miners cohorts. As the information came from three different sources, complementary analyses are necessary to investigate a possible induced bias. Nevertheless, some limiting features of the study have to be underlined: the categorisation of smoking status in only two levels, the moderate percentage of missing data and the low number of never smoker cases (only 6 never smokers among cases), which limit the statistical power of further analyses. In the framework of a European project on the quantification of risks associated with multiple radiation exposures named <i>Alpha-Risk</i>, a collaborative work including these data and large data sets from German and Czech partners should allow a more powerful analysis of radon exposure and tobacco consumption effects on lung cancer risk among uranium miners.</p>