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Title: Lung cancer cases in clean-up workers of Chernobyl NPP accident

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Body: The purpose of the study was to analyze Lung Cancer (LC) cases in cohort of clean-up workers of Chernobyl Nuclear Power Plant (ChNPP) accident (1986). Methods: The Analysis of database which includes 7156 clean-up workers (6257 (87,4 %) men and 899 (12,6 %) women) of ChNPP accident in comparing with Cancer Registry of Ukraine was provided. The total found of 50 (0.70%) lung cancer (LC) cases in a cohort were analyzed. The probable risk factors of LC were analyzed in the named cohort of clean-up workers: age at the diagnosis of LC, age at the time of participation in the accident, anamnesis of bronchopulmonary diseases, dose of ionizing radiation, smoking. Results: Age of patients at time of LC diagnosis ranged from 44 to 80 years and averaged 59.56 ± 1.22 years. There was a clear relationship between the age of patients at LC diagnosis and the age at the time of the Chernobyl accident ($r = 0,88$; $p = 0,0001$). The average age at the time of the accident was significantly higher in those who emerged LC (43.0 ± 1.12 years, $p = 0.001$). Among clean-up workers suffered with LC significantly more often different bronchopulmonary diseases especially COPD were found (72% and 47.01%, respectively, $p = 0.001$). Only 6 of 50 patients with LC never smoked, compared with 1439 (34.04%), without LC ($p = 0.001$). The risk of LC for smokers was 3.785 (95% CI 1.609 - 8.903). Doses of radiation exposure were higher in clean-up workers with LC, then in those without LC ($36,87 \pm 9,08$ sSv and $20,42 \pm 0,56$ sSv, accordingly). Conclusion: Risk factors for LC in clean-up workers of ChNPP accident were radiation exposure more than 50 sSv, chronic diseases of bronchopulmonary system, smoking and interaction of these factors.