Malignant Neoplasm Morbidity In The Chernobyl NPP Accident Recovery Personnel Of The Atomic Industry And Nuclear Energy Production Of Russia

Tukov A.R., Dzagoeva L.G., Shafransky I.L.,
State Research Center of Russian Federation – Institute of Biophysics, Moscow, Russian Federation

Goal: The evaluation of the morbidity and dissemination of the malignant neoplasms and death in radiation workers of the Russian atomic industry engaged in the Chernobyl NPP accident recovery. The calculation of the relative risk of these diseases versus the external exposure dose.

Materials and Methods: The information database of the registry of the radiation workers of the Russian nuclear industry, which radiation workers were engaged to recover the Chernobyl NPP accident was used. The study has included data on oncological morbidity and mortality of males involved in the recovery operations in 1986-1987 (more than 13,000 of persons). To calculate the relative risk the Poisson regression model was applied, which model was published in BEIR V report.

Results and conclusions: At early years after the accident the morbidity and dissemination of malignant neoplasms in the Russian atomic industry workers engaged in the Chernobyl NPP accident recovery were lower than these found in urban general population males of Russia. The analysis of the morbidity dynamics and dissemination of the malignant neoplasms in these contingents has demonstrated the rapid growth of these indices for all years of observation, which finding is resulted from the active revealing of these diseases at annual prophylactic examinations as well as the transfer of the previously existed and incidentally revealed diseases of such kind to the chronic form. Within 10 years of observation the significant growth of the morbidity was not found for leukemia, which disease is the initial indicator of the excessive influence of the ionizing radiation in the human organism. The malignant neoplasm mortality indices of the recovery workers are lower than these found in urban general male population of Russia. When accumulating the later stage malignant neoplasms in the recovery worker contingent these indices will come closer in future.

The growth of the relative risk of malignant neoplasms versus the increase of the radiation dose increase can be explained by other factor influences, which factors are associated to the dose value (better medical assistance of persons exposed to higher doses, the favorable solving of social problems etc.). Future studies have to be directed to the identification of these factors, the evaluation of their magnitudes and to the correct analysis of the dose-effect ratio for the malignant neoplasm morbidity in persons engaged in recovery operations of large-scale radiation accidents with accountancy to these factors.