

Thirty years of national and international cancer research after the Chernobyl accident in Ukraine

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Abstract

The aim of the study was to summarize 30 years' experience of epidemiological studies of cancer after the Chernobyl accident. Several national research programs started basing on the existing system of cancer statistics. The international research programs were developed and implemented: IPHECA (ECP-7), study in frame of French – German initiative, INCO-COPERNICUS and other. Linkage of cancer monitoring data extracted from the State Registry of Ukraine of exposed after Chernobyl accident and the National cancer registry (since 1996) gave the possibility to reveal peculiarities of frequency rates and trends. The incidence rates of all forms of cancer exceed the national levels only in the group of cleanup workers (liquidators) of 1986–1987. Four years after the accident the first cases of radiation induced thyroid cancer were revealed in children - residents of the territories most contaminated with radionuclides. A marked excess in incidence of thyroid cancer was shown in subsequent years in residents of contaminated areas, clean up workers of 1986–1987 participation and population evacuated from the exclusion zone. Increased population risks of the disease are detected not only in children or adolescents but also in adults, especially in females. The case-control RCRM-U.S. NCI study of leukemia using the new retrospective dosimetry demonstrated radiation risks after exposure to low and medium doses. The use of extended cohort enabled to reveal radiation risks of chronic lymphocytic leukemia. Considerable attention is also given to study the incidence of breast cancer. In a cohort of females who took part in the cleanup of the Chernobyl accident in 1986–1987 the standardized incidence rates of this disease were significantly higher than the national level. The obtained results of research require assessment of the role of radiation factor, as well as establishing the possible impact of screening effect and improve the quality of registration of cases. According to the differences in the latency period of radiation induced tumors, future research is needed, paying attention not only to thyroid, breast cancers and leukemia, but malignant tumors of lung, stomach, intestine, ovary, bladder, kidney, prostate, multiple myeloma and other.