

**Chronic Myelogenic Leukemia, Developed at the Survivor of Acute Radiation Syndrome Severe Degree**

N. Nadezhina<sup>a</sup>, I. Galstyan<sup>a</sup>, L. Suvorova<sup>b</sup>, A. Davtyan<sup>b</sup>, A. Elusova<sup>b</sup> and V. Nugis<sup>a</sup>

<sup>a</sup>*Burnaziyan Federal medical Biophysics Center, Russia Moscow Zhivopisnaya str. 46, Russia Moscow marshal Novikov str. 23, 123182 Moscow, Russian Federation;* <sup>b</sup>*Burnaziyan Federal medical Biophysics Center, Russia Moscow Zhivopisnaya str. 46, 123182 Moscow, Russian Federation*  
*igalstyan@rambler.ru*

Twenty one year which has passed after Chernobyl NPP accident, is term, sufficient for leading of the first results of supervision of the acute radiation syndrome (ARS) survivors. Among 10 patients who constantly living in Moscow and survived ARS I-IV degree, by present time only one patient in the period of late consequences has developed hematological malignancy - chronic myelogenic leukemia. At development leukemia at ARS survivors, "hyperregeneration" - hemopoiesis with increasing of neutrophils amount (in the absence of consequences of local radiation injuries) within the first years after an irradiation can form a basis for leukogenic transformation. The most typical is development of acute leukemia and chronic myelogenic leukemia 5-10 years later radiation exposure. At the patient observed by us during the period preceding development chronic myelogenic leukemia, constant fluctuations of level of leukocytes with the minimum and maximum amounts exceeding limits of physiological norm were marked. In the blood count the amount of band neutrophils periodically increased, deviation of the differential count to the left was marked. Platelets counts also fluctuated with the gradual tendency to its increase. Development Ph-positive chronic myelogenic leukemia has occurred later - after 21 year after radiation exposure. The age of the patient at the moment of an irradiation - 25 years, i.e. he was one of the youngest men in a cohort of the ARS survivors. Age of diagnosis - 46 years. This age of the beginning of disease according to literary data is characteristic for debut of chronic myelogenic leukemia. Apparently, after radiation exposure of the patient in 1986 at a part of bone marrow cells was in the condition of radiation-induced genomic instability. After the radiating exposure there was a regeneration of bone marrow. However inconstancy of genome descendants of the irradiated cells could facilitate possibility of the subsequent mutational changes. In these cases any factor promoting occurrence and development of a malignant clone of cells. Any other factors of an environment (chemical, virus, genetic, etc.) can execute a role of promotors. However, it is necessary to consider and possibility of switching by the genes-regulators damaged by an irradiation, cells with chromosomal anomalies from a way conducting it to apoptosis (the natural mechanism deleting the damaged cell from process of division), on a way further proliferation.