



UA0000571

2<sup>nd</sup> INTERNATIONAL CONFERENCE:  
LONG-TERM HEALTH CONSEQUENCES OF THE CHERNOBYL DISASTER  
Kiev, Ukraine, June 1-6, 1998

---

**CONDITION OF HEMOPOIESIS AT CHILDREN HAVING RECEIVED DIFFERENT  
IRRADIATION DOSES FROM EXTERNAL SOURCE OF CESIUM-137**

*Bebeshko V.G., Bruslova E.M., Chumak A.A., Bazyka A.D., Bilko N.M.,  
Evko O.I., Giurinskaia E.N.*

Scientific Center for Radiation Medicine AMS of Ukraine, Kiev

We have studied condition of hemopoiesis at 16 children from the city of Kramatorsk, Donetsk region, age 1.5-14, exposed to acute and long-term local irradiation from source of cesium-137 being in a wall of residential building (house №7, Kantemirovtsev Str.).

Assessment was based on data of anamnesis and results of study of materials of ambulance charts of children and deepened hematological investigation. Calculated summary doses of accumulation deviated from 0.022 cSv to 4280 cSv.

As a result of complex investigation and analysis of medical documents of children the following disruptions were revealed. Under combined impact of high doses of total local irradiation (above 4000-5000 cSv) during several years radiation induced myeloblast leukemias were developed at two children from three and one child demonstrated aplastic condition of hemopoiesis realized in 2-11 years after beginning of exposure.

Irradiation of children during 10 years in doses up to 2000 cSv did not lead to pronounced quantitative disruptions of majority of indices of system of hemopoiesis in 14-16 years of observation. Data of correlation analysis allowed to reveal decrease of total number of small lymphocytes, content of eosinophiles in blood and concentration of -lypoteins in serum at children with increase of summary irradiation dose.

Qualitative changes in hemopoiesis elements: conformation restructions of cell membranes, karyorexis phenomena, activation of RNA-synthesis processes were combined with presence of focal infection at patients investigated. At children with high doses however they were more pronounced.

Investigation of colony-forming capability of granulocytary-monocytary stem cells «in vivo» at a child with total irradiation dose of 2330 cSv revealed disruption of colony formation in culture expressed by suppression of proliferative activity in clones and disruption of morphological characteristics of colony elements.

Indices of immune status at investigated people exposed to chronic irradiation within dose range from 4280 cSv to background level allowed to point out that average values of total quantity of T and B lymphocytes, levels of serum immunoglobulines of G, A, M classes had individual values exceeding limits of average ones, however 30% lower than standard ones.

Up to nowadays at all people investigated extra cases of oncohematological pathology and other diseases of system of blood and hemopoietic organs were not revealed, though all the children had vegeto-vascular dysfunction combined with presence of foci of chronic infection in organism.