



BY0000331

Reconstruction of the Accumulated Dose in Oncohematological Patients in Belarus

O.V. ALENIKOVA, A.V. ALEKSEICHIK & V.S. FININ
*National Children's Oncohematological Centre, Belarus University
pr. Scorini 64, 220013 MINSK, Belarus*

Abstract. The method of the accumulated dose (AD) measured by electronic paramagnetic resonance spectre (EPR) of tooth enamel is the most effective way to reconstruct the accumulated dose for patients.

1. Introduction

For the first time reliable data on the concrete level of the radiation dose have been received. The given doses can be an etiological factor of acute leukaemia in children on the territory of Belarus after the Chernobyl accident. The aim of the study is to investigate the accumulated radiation dose as well as to establish the correlation of the dose value and the incidence of haemoblastosis in children on the territories with different density of radioactive contamination.

2. Materials and methods

At the National Children's Oncohematological Centre 20 EPR-spectroscopy tests of tooth enamel obtained on medical grounds and during autopsy from hospitalised children were carried out. Eight samples of tooth enamel were obtained from the patients with haemoblastosis within the period of time close to the moment of making the diagnosis. Four samples from the patient at the final stage of their treatment which included γ -therapy. Eight tooth enamel samples obtained from the children with various hematological diseases other than haemoblastosis were used as a control group.

3. Results

In the investigated group of three patients with haemoblastosis the accumulated doses from 15 to 30 cGy were found in children from the Brest and Mogilev oblasts the territories of which were contaminated with radioactivity. The AD in five of the children was from 0 to 10 cGy. These children were from Minsk and Vitebsk oblasts which are less contaminated. In the group of the children who underwent γ -therapy in the region of the head for neuroleukaemia prophylaxis the AD was from 30 to 250 cGy. These data prove the sensitivity of the method. The AD in the control group was about zero.

4. Conclusions

The preliminary results on the accumulated radiation dose reconstruction in the children with haemoblastosis make it possible to suggest a possible influence of small radiation doses on the origin of acute leukaemia in children. The present investigations should be carried on, to get statistically, reliable data.