

The Improvement of Biologic (Cytogenetic) Dosimetry

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The work is aimed at the improvement of biologic (cytogenetic) dosimetry and indication of radiation affection rate in victims of radiation. Method of approximation of "dose-effect" dependence has been elaborated on the basis of chromosomes affection values in culture of human lymphocytes and model of spline regression: $y = a_{1}x + b_{1}$, $\alpha < \beta$ $y = a_{2}x + b_{2}$, $\beta < \gamma$. The proposed methods differs from the others, based on traditionally used in biologic dosimetry linear: $y = ax + b$ and linear-quadratic: $y = ax^2 + bx + c$ models, in more accuracy of approximation and possibility to predict the effect of transition of calibring curve on the plateau. The cytogenetic dosimetry analysis obtained with the help of blood lymphocytes in vitro irradiation under the range of 100 - 500 mGy doses showed that model of spline regression had less detlexion (1,4) comparing with liner (10,8) and linear-quadratic (2,2) models which models witch were for the frequency of chromosome aberration; 0,9; 11,3 and 1,5 witch were for general treguey of chromosomes aberration 1,2; 1,4 and 1,4 responsible for rays markers. The improvement of biologic dosimetry is supposed to be in comparing of cytogenetic data with donors in individual radiation sensitivity on the basis of G2 - radiosensitivity assay.