

Chromosome Sensitivity to Bleomycin in Peripheral Blood Lymphocytes from Unexposed and Irradiated Persons

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With the help of modifying "G2-bleomycin sensitivity assay" (treatment of human peripheral blood lymphocytes culture in late post-synthetic phase of mitotic cycle by bleomycin in concentrations 0,05 and 5,00 mcg/ml) the investigation of hidden chromosome instability in 9 unexposed donors as well as in 32 persons with different intensity of radiation exposure (patients recovered from acute radiation sickness - ARS and Chernobyl liquidators) had been fulfilled. The basic criterion of chromosomes' sensitivity to bleomycin exposure the total frequency of chromosome aberrations, mainly acentric fragments had been considered. In all examined groups the individual levels of chromosome aberrations under identical mutagenic exposure varied in wide range and didn't depend on their initial values in intact cultures. In control donors the mean-group frequencies of chromosome aberrations were 10.37 ± 0.66 (3.0 - 32.0) and 15.54 ± 0.78 (5,0 - 35,0) per 100 cells, additions to background rate of aberrations were 9,14 and 14,31 per 100 cells under bleomycin exposure in concentrations 0.05 and 5.00 mcg/ml, accordingly. Among control donors three hypersensitive persons had been identified with aberrations rate 35.0, 34.0 and 16.0 per 100 cells that can be considered as genetically caused phenomenon. Similar situation had been determined in 10 liquidators with low radiation exposure - the mean-group frequencies of chromosome aberrations were 11.26 ± 0.63 (2.3 - 34.0) and 15.10 ± 0.79 (3.0 - 34.5) per 100 cells, above-background level of aberrations were 9.14 and 14.31 per 100 cells under bleomycin exposure in concentrations 0.05 and 5.00 mcg/ml, correspondingly. In liquidators group three hypersensitive persons had been identified with aberrations rate 34.5, 20.0 and 19.3 per 100 cells. In 19 ARS patients increased mean-group frequency of aberrations induced by bleomycin in both concentrations had been revealed - 16.80 ± 0.50 (8.7 - 38.2) and 28.04 ± 0.63 (6.0 - 60.0) per 100 cells with addition to background aberrations level 13.47 and 24.71 per 100 cells, accordingly. 13 persons with increased chromosome instability (from 22.2 till 60.0 aberrations per 100 cells) had been found. The data received permit to assume that high radiation doses can modify the inherited human susceptibility to mutagen exposure.