

INDUCTION OF MICRONUCLEUS IN BREAST CANCER CELLS BY ^{60}Co GAMMA RADIATION

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Breast cancer is one of the most common neoplasm that account women. Among various treatment modalities, the radiotherapy is widely used for the control of tumor proliferation. The objective of the present study was to analyze the effect of gamma rays of ^{60}Co in breast cancer cells, MCF-7 and T47-D using the micronucleus (MN) assay. The cells were cultivated in RPMI 1640 medium supplemented with bovine fetal serum and antibiotics, at 37°C with 5% CO₂. The cells were irradiated in a panoramic ^{60}Co source (Yoshizawa Kiko, Japan) (0.7222 Gy/min) with doses of 0.5; 1.0; 2.0; 4.0 and 5.0 Gy (n = 6). After irradiation, the cells were cultivated with cytochalasin B (2µg/ml) for 72h and stained with Giemsa 5%. The frequency of MN increased with gamma radiation dose. The dose-response curves obtained by linear regression model were $Y = (0.011 \pm 0.008) + (0.029 \pm 0.003)D$ (r = 0.87) and $Y = (0.003 \pm 0.010) + (0.052 \pm 0.003)D$ (r = 0.93) for MCF-7 and T47-D, respectively. The proliferation index was higher in T47-D than in MCF-7. There was a decreasing tendency in the proliferation index with the increase of radiation dose in both cell lines. The results obtained showed a higher sensibility of T47-D in relation to MCF-7 (p < 0.001).

Key words: breast cancer, micronucleus assay, ionizing radiation