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Chromosomal Damage in Human Lymphocytes by Ultraviolet Radiation

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Abstract : Excessive exposure to ultraviolet radiation, has shown to be a risk factor for photodamage, alteration of the immune mechanisms to recognize malignant cells and cutaneous pro-inflamatorios States and skin cancers. Objective: Identify the time of exposure to ultraviolet radiation for the production of chromosomal damage in human lymphocytes. Methodology: We conducted an in vitro study serial, in which samples were taken from heparinized blood of healthy people, who do not submit exposure to agents that could induce chromosomal alterations. The samples were cultured in RPMI-1640 medium containing 10% fetal bovine serum, penicillin and streptomycin antibiotic. Subsequently, they were grouped and exposed to ultraviolet light for 1 to 20 seconds. At the end of the treatments, cytology samples were prepared, and it was colored with Giemsa (5%). Reading was carried out in an optical microscope and 100 metaphases analysed by treatment for posting chromosomal alterations. Each treatment was conducted at three separate times and each became two replicas. Results: We only presented chromosomal alterations in lymphocytes exposed to UV for a groups 1 to 3 seconds ($p<0.05$). Conclusions: Exposure to ultraviolet radiation generates visible damage in chromosomes from human lymphocytes observed in light microscopy, the highest rates of injury was observed between two and three seconds, and above this value, the reduction in the number of mitotic cells was evident.

Keywords : ultraviolet rays, lymphocytes, chromosome breakpoints, photodamage
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