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Sister Chromatid Exchange Frequency in Lymphocytes Cultured from Cotton Gin Workers

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Abstract: Genetic biomonitoring of human populations exposed to potential mutagens/carcinogens can be performed using different genetic markers. Sister chromatid exchange (SCE) is one of the most extensively used markers of the early biological effects of DNA damaging agents. In order to assess the genotoxicity associated with exposure to cotton dust, we determined SCE frequency in peripheral blood lymphocytes cultured from 20 cotton gin workers and 20 controls. Student’s-t test indicated an increased frequency of SCE in lymphocytes of the workers (14.66 ± 4.18) compared to the controls (10.40 ± 1.37) ($P < 0.0001$). The Mann-Whitney U test indicated that the duration of exposure to cotton dust (<10 years or >10 years) and the work area were not related to the frequency of SCE ($P > 0.05$). The textile industry is rapidly expanding in Turkey, and the results of this study suggest that exposure to cotton dust may constitute a genotoxic hazard.

Key Words: genotoxicity, SCE, mutagen, cotton dust, occupational exposure

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