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MICRONUCLEI INDUCTION BY REPEATED INHALATION EXPOSURE TO THE 1,1-DICHLORO-1-FLUOROETHANE BUT NOT BY THE SINGLE PERITONEAL INJECTION

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To investigate the genotoxic effect of 1,1-dichloro-1-fluoroethane which was widely used as a cleaning solvent at the electronic part industry, the micronucleus frequencies were recorded by examining polychromatic erythrocytes in bone marrows of single i.p. injected mice at high doses and of the repeatedly inhaled rats for 13 weeks at relatively low concentrations. With single i.p. injection, there were no changes in the micronuclei frequencies at any different doses of 1,1-dichloro-1-fluoroethane, 500 mg/kg, 1,000 mg/kg and 1,500 mg/kg, when compared with the controls. Meanwhile, with the inhalation exposure for 13 weeks, there were statistically significant and dose-dependant increases in the micronucleus frequencies in each exposed group with the concentration of 1,500 ppm, 3,000 ppm, and 6,000 ppm respectively ($P < 0.01$). The decreases of the percentages of polychromatic erythrocytes in the total number of erythrocytes were also statistically significant and dose-dependant ($P < 0.05$). These data implies that the micronuclei induced by 1,1-dichloro-1-fluoroethane can be maintained for a long time and the additive effects from the repeated inhalation exposure can be postulated. There may be the potentiation effects of bone marrow depression in hematopoiesis with the repeated exposure to 1,1-dichloro-1-fluoroethane.