

## Sister-chromatid exchange (SCE) analysis in mothers exposed to DNA-damaging agents and their newborn infants

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### Summary

The incidence of SCE in the lymphocytes of mothers and their newborn infants was determined. A detailed antenatal history of parental habits such as smoking, alcohol consumption and possible exposure to DNA-damaging agents was documented. The results showed that the SCE rate in the newborn is significantly less than that of their mothers. Mothers who consumed alcohol, but not cigarette smokers, had a significantly increased SCE rate compared to control mothers. However, these maternal habits did not affect the SCE rate of their infants. Neonates with neural tube defects showed a significantly increased SCE rate compared to normal babies.

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Sister-chromatid exchange (SCE) represents the reciprocal interchange of DNA between chromatids at apparently homologous loci. Although the precise nature and mechanism involved in the formation of SCE are unknown, SCE analysis has come into use as a sensitive means of detecting DNA damage. SCE analysis has been shown to be useful for assessing the affect upon DNA of cytotoxic drugs (Perry and Evans, 1975; Nakanishi and Schneider, 1979), viruses (Kurvink et al., 1978) and environmental pollutants in man (Crossen et al., 1978).

The exposure of the fetus to agents which damage DNA might result in birth defects or cancer. Kram et al. (1979) showed SCE analysis to be a sensitive method for the detection of the mutagenic affects of cyclophosphamide, mitomycin C and adriamycin in female mice and their fetuses. Funes-Cravioto et al. (1977) observed

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