Chemical exposures in the synthetic rubber industry and lymphohematopoietic cancer mortality.

OBJECTIVE: This study evaluated the association between exposure to several chemicals and mortality from lymphohematopoietic cancer (LHC) among 16,579 synthetic rubber industry workers who were followed up from 1943 to 1998.

METHODS: Poisson regression analyses examined LHC rates in relation to butadiene, styrene, and DMDTC exposure. Models provided maximum likelihood estimates of the relative rate for the contrast between categories of one agent, adjusting for other agents and for additional potential confounders.

RESULTS: Cumulative exposure to 1,3-butadiene was associated positively with all leukemia (relative rates of 1.0, 1.4, 1.2, 2.9, and 3.7, respectively, for exposures of 0, >0 to <33.7, 33.7 to <184.7, 184.7 to <425.0, and 425.0+ ppm-years), chronic myelogenous leukemia and to a lesser extent with chronic lymphocytic leukemia. Adjusting for styrene and DMDTC attenuated these associations. After controlling for butadiene, neither styrene nor DMDTC displayed a consistent exposure-response trend with all leukemia, chronic myelogenous leukemia, or chronic lymphocytic leukemia.

CONCLUSIONS: This study found a positive association between butadiene and leukemia that was not explained by exposure to other agents examined.