CANCER AMONG ONTARIO HYDRO WORKERS

A study of cancer among hydro workers by researchers at the University of Toronto suggests the exposure to electric fields could be carcinogenic. This study examined the effects of electric fields, as well as magnetic fields on the cancer incidence among workers at Ontario's provincial hydroelectric utility. The result of the study, funded by Ontario Hydro, was published in the July 10, 1996 issue of the American Journal of Epidemiology. "Up until now, people have tended to pursue the notion that any cancer effects were likely from magnetic field", said Anthony Miller, chair of preventive medicine bio-statistics as the University of Toronto and lead author of the study. "However, this study suggests that electric fields are potentially critical to cancer risk".

In the study, covering more than 30,000 current and former Ontario Hydro workers, Miller and his colleagues found an increased risk of leukemia in association with increased exposure to electric and magnetic fields. However, the risk was highest in relation to electric fields and the researchers concluded that the electric field effect is dominant. Researchers found leukemia rates 11 times higher than among the general worker population.

In a nested case-control study of 1,484 cancer cases and 2,179 matched controls from a cohort of 31,543 Ontario Hydro male employees, the authors evaluated associations of cancer risk with electric field exposure and reevaluated the previously reported findings for magnetic fields. Pensioners were followed from January 1, 1970, and active workers (including those who left the corporation) from January 1, 1973, with both groups followed through December 31, 1988. Exposures to electric and magnetic fields and to potential occupational confounders were estimated through job exposure matrices. Odds ratios were elevated for hematopoietic malignancies with cumulative electric field exposure. After adjustment, the odds ratio for leukemia in the upper tertile was 4.45 (95% confidence interval (CI) 1.01-19.7). Odds ratios were also elevated for acute nonlymphoid leukemia, acute myeloid leukemia, and chronic lymphoid leukemia. For cumulative magnetic field exposure, there were similar elevations that fell with adjustment. Evaluation of the combined effect of electric and magnetic fields for leukemia showed significant elevations of risk for high exposure to both, with a dose-response relation for increasing exposure to electric fields and an inconsistent effect for magnetic fields. There was some evidence of a nonsignificant association for brain cancer and benign brain tumors with magnetic fields. For lung cancer, the odds ratio for high exposure to electric and magnetic fields was 1.84 (95% CI 0.69-4.94).

Reference:
https://www.researchgate.net/publication/14523798_Leukemia_following_Occupational_Exposure_to_60-Hz_Electric_and_Magnetic_Fields_among_Ontario_Electric_Utility_Workers