

Follow-up of radio and telegraph operators with exposure to electromagnetic fields and risk of breast cancer

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Abstract

It is still unclear whether exposure to electromagnetic fields (EMF) is associated with breast cancer. To further investigate the issue, we followed-up a cohort of Norwegian female radio and telegraph operators in the period 1 January 1961 to 31 May 2002, with 99 breast cancer cases. The standardized incidence ratio (SIR) for breast cancer was 1.30 (95% confidence intervals (CI) 1.05-1.58), compared with the total Norwegian female population. In a subsequent nested case-control study, exposure to radio frequency (405 kHz-25 MHz) and extremely low-frequency (50 Hz) fields due to stay in the radio room during day and night was cumulated by years of employment and workload according to ship type. The exposure was assessed in two age groups (<50, 50+) with regard to risk of breast cancer. The odds ratios in the group with the highest cumulative exposure were 1.78 (95% CI 0.59-5.41) and 2.37 (95% CI 0.88-6.36) in the younger and the older women, respectively. P-value for trend was 0.03 in both age groups. The results of the oestrogen receptor status

analysis by exposure to EMF showed an increased risk of oestrogen receptor-positive breast cancer in the younger women, while the older age group had an elevated risk of oestrogen receptor-negative breast cancer. Thus, the present study contributes to the hypothesis of an association between occupational exposure to EMF and increased risk of breast cancer.

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