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OCCUPATIONAL EXPOSURE TO CHEMICALS AND BREAST CANCER

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Breast cancer is the most common cancer among women and accounts for 12% of all incident cancer cases worldwide, and 25% of all cancer cases among women. Our previous study indicated differences in breast cancer risk between occupational groups that could only partially be explained by the known risk factors. Occupational chemical exposure have been linked to the development of some cancer types, however breast cancer have been less studied and the results are more ambiguous which is why more research on this issue is necessary.

The aim of this study was to determine if chemical exposures in the workplace are associated with increased risk of postmenopausal breast cancer.

Methods: The study population comprised women born 1923-1950 who lived in Malmö city, Sweden between 1991 and 1996, which resulted in 14, 119 women being included in the cohort study. Exposure data was assessed using the job-exposure matrices NOCCA and FINJEM, and applying the data to the participants' three latest occupations. An extensive set of individual data on hormonal risk factors were collected via questionnaires at baseline and used as confounding control. First time diagnoses of invasive breast cancer were identified through the Swedish Cancer Registry until end of follow-up 2013-12-31. Women exposed to chemical exposure in their occupational environment had a statistically significant increased risk (HR 1.26, 95% CI 1.02-1.54) of breast cancer compared to women who were not exposed. Specifically women exposed to diesel engine exhaust for longer than 10 year had a statistically significant increased risk (HR 1.69, 95% CI 1.01-2.82) of breast cancer. Measurements of cumulative exposure do not show an increased risk of breast cancer; however duration of chemical exposure seemed to have a negative effect on the breast cancer risk. Occupational chemical exposures are attributed for 2% of the breast cancer cases in this population. Occupational chemical exposure seems to increase the risk of breast cancer among women exposed compared to women never exposed. Further studies are needed to investigate specifically which chemicals those are carcinogenic.

BIOGRAPHY

Cecilia Videnros is doing her PhD at Karolinska Institute in Stockholm, Sweden, department Institute of Environmental Medicine. Her PhD is within the field Chemicals and Cancer and she works with big epidemiological data.

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