

World Congress on **Breast Cancer**

August 03-05, 2015 Birmingham, UK

A role for lipids and statins in breast cancer risk and prevention?

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Epidemiological evidence suggests a link between obesity and breast cancer. The lipid and glucose metabolisms have been postulated as possible intermediary mechanisms. Moreover, recent research suggests that statins, a group of drugs commonly prescribed to help lower serum cholesterol levels, may simultaneously reduce risk of fatal cancer. Here, we report on studies conducted based on several large Swedish cancer databases.

Links between serum glucose and lipids and breast cancer severity at time of diagnosis were investigated in 35,017 women from the Swedish AMORIS cohort. Proportional odds models, with adjustment for interval time between serum measurement and diagnosis, were conducted. Despite the size and detail of the data in AMORIS, we only found a modest positive association between serum levels of glucose, apoB/ApoA-1 and BC severity, suggesting that these factors are not the main players in the link between obesity and BC aggressiveness.

The effect of statins on cancer-specific death was assessed using two Swedish cancer databases. Marginal structural models based on inverse probability weights were applied to a pooled logistic regression model to estimate the causal effect of statins on cancer-specific death. These findings show that well-defined clinical trials are needed before the effect of a(ny) drug on cancer-specific mortality can be claimed, and observational research into drugs in relation to diseases other than their intended purpose should be interpreted cautiously.

Despite increasing observations about a role for obesity in breast cancer carcinogenesis, more population-based studies and randomized clinical trials incorporating information on several factors of the lipid metabolism are needed to disentangle how targeting the lipid metabolism may fight breast cancer.

Biography

Following an MSc in Biomedical Sciences (2001-2005) and an MSc in Statistical Analysis (2005-2006) at Ghent University, Dr Van Hemelrijck obtained an MSc in Population & International Health at the Harvard School of Public Health (2006-2008). In 2010 she finished her PhD in Cancer Epidemiology at King's College London. Her study findings, published in over 600 news articles to date, had a significant impact on the US Food and Drug Administration safety guidelines for commonly used prostate cancer drugs. In 2012, she was appointed as a Lecturer in Cancer Epidemiology at King's College London, where she now runs the Cancer Epidemiology Group and has several PhD students working on breast cancer using data from Guy's Hospital (London) and Uppsala University (Sweden).

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