

Association found between high cholesterol and breast cancer

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An association between high blood cholesterol and breast cancer has been found in a study of more than 1 million patients over a 14 year time period in the UK. The research will be presented today at Frontiers in CardioVascular Biology (FCVB) 2014 in Barcelona, Spain. The meeting is organised by the Council on Basic Cardiovascular Science of the European Society of Cardiology (ESC) in collaboration with 13 European cardiovascular science societies.

Dr Rahul Potluri, founder of the ACALM Study Unit and lead author, said: "Our preliminary study suggests that women with high cholesterol in their blood may be at greater risk of getting breast cancer. It raises the possibility of preventing breast cancer with statins, which [lower cholesterol](#), but as this is a primitive study, significant time and research is needed before this idea can be tested."

Over the past few years, population studies have suggested an association between obesity and breast cancer. Last year a study in mice concluded that lowering circulating cholesterol or interfering with its metabolism may be used to prevent or treat breast cancer.¹

Dr Potluri said: "We have a general principle that obesity is linked to breast cancer and a study in mice suggested that this may be because of cholesterol. We decided to investigate whether there was any association between hyperlipidaemia, which is high cholesterol essentially, and breast cancer."

The researchers conducted a retrospective analysis of more than 1 million patients across the UK between 2000 and 2013 from the Algorithm for Comorbidities, Associations, Length of stay and Mortality (ACALM) clinical database. There were 664,159 women and of these, 22 938 had hyperlipidaemia and 9 312 had breast cancer. Some 530 women with hyperlipidaemia developed breast cancer.

The researchers used a statistical model to study the association between hyperlipidaemia and breast cancer. They found that having hyperlipidaemia increased the risk of breast cancer by 1.64 times (95% confidence interval 1.50-1.79).

Dr Potluri said: "We found that women with high cholesterol had a significantly greater chance of developing breast cancer. This was an observational study so we can't conclude that high cholesterol causes breast cancer but the strength of this association warrants further investigation."

He added: "A prospective study that monitors the risk of breast cancer in women with and without high cholesterol is needed to confirm what we observed. If the connection between high cholesterol and breast cancer is validated, the next step would be to see if lowering cholesterol with statins can reduce the risk of developing cancer."

Dr Potluri continued: "Statins are cheap, widely available and relatively safe. We are potentially heading towards a clinical trial in 10-15 years to test the effect of statins on the incidence of breast cancer. If such a trial is successful, statins may have a role in the prevention of breast cancer especially in high risk groups, such as women with high cholesterol."

He concluded: "While our study was preliminary, our results are promising. We found a significant association between having [high cholesterol](#) and developing [breast cancer](#) that needs to be explored in

more depth. Caution is needed when interpreting our results because while we had a large study population, our analysis was retrospective and observational with inherent limitations. That said, the findings are exciting and further research in this field may have a big impact on patients several years down the line.'

More information: 1. Nelson ER, Wardell SE, Jasper JS, Park S, Suchindran S, Howe MK, Carver NJ, Pillai RV, Sullivan PM, Sondhi V, Umetani M, Geradts J, McDonnell DP. 27-Hydroxycholesterol links hypercholesterolemia and breast cancer pathophysiology. Science. 2013 Nov 29;342(6162):1094-8. [DOI: 10.1126/science.1241908](https://doi.org/10.1126/science.1241908).

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<http://spo.escardio.org/SessionDetails.aspx?eevtid=65&sessId=13301&subSessId=3494>

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