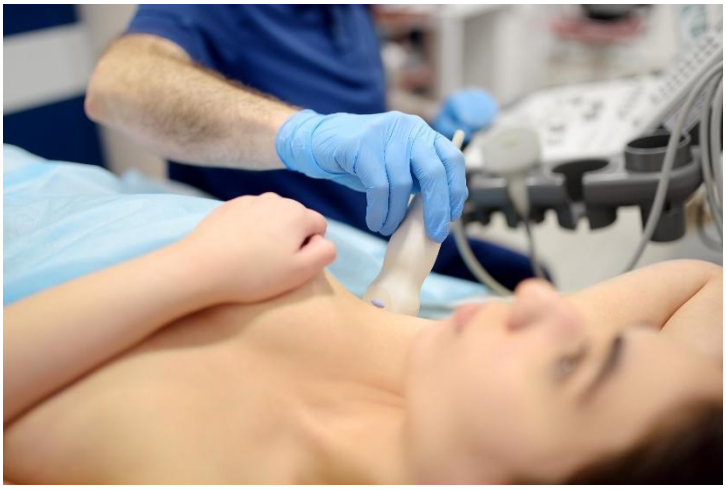
By a Fifth Statins could Reduce Breast Cancer Mortality

Breast cancer is the most common cancer and cause of cancer-related death in women. Older women, who are at higher risk, often have cardiovascular risk factors and are therefore prescribed medications to mitigate them, like statins for high blood lipids.

Prior research suggests that statins are associated with reduced breast cancer recurrence and mortality. However, the observed associations between breast cancer recurrence or mortality and risk factors could depend on certain factors, such as immortal time bias (ITB), estrogen receptor status, or cancer stage. These could have changed the size and direction of observed associations in past meta-analyses without adjustment.

ITB refers to periods during which an event like death could not have occurred but are incorrectly counted as part of the time a patient was exposed to treatment. For example, if a woman is prescribed statins after her breast cancer diagnosis, she must have survived until the prescription date, so including the time before the prescription as 'statin use' would falsely inflate survival time. Additionally, the stage of cancer may influence how beneficial statins are.

The current paper is the first meta-analysis to systematically evaluate such effect modifiers. In addition to those already mentioned, it also evaluates the impact of the time of statin introduction (newly prescribed *vs.* already in use by the patient) and the type of statin.



Study

The current study aimed to update these meta-analyses by including more recent or missed studies and adjusting for effect modifiers.

The analysis included 34 studies, including 689,990 women who had breast cancer. Of these, 21 and 20 focused on breast cancer death and recurrence as outcomes, respectively. Except for two studies, all studies adjusted for age-related differences in mortality.

Most studies adjusted for cancer stage and the presence of other medical conditions, but only about half adjusted for the use of different medications. Follow-up periods of up to five years and 5-10 years were reported for 16 and 14 studies, respectively.

While 27 studies were assessed as not being subject to ITB and 27 examined statin use after breast cancer diagnosis, five considered its use prior to the diagnosis, and two included both

periods. Lipophilic and hydrophilic statins were considered separately in 14 studies. Five studies stratified patients by cancer stage, but 21 included only early-stage patients. Most studies were retrospective cohort studies, with only five prospective in design.

Results

The results demonstrate that statin use was associated with a reduced risk of breast cancer death by about 20%. Similar effects were found for recurrence.

Lipophilic statins had a more protective effect than hydrophilic statins against death but not recurrence, a finding that echoes preclinical studies demonstrating the anti-proliferative effects of statins on breast cancer cells.

Differences in outcomes by subgroup were not statistically significant. This contradicts earlier studies that, for instance, suggest that statins may be more effective in advanced breast cancer. Notably, the current study had only a few studies that included advanced-stage patients, two of which showed a protective effect in early-stage patients. Future studies are required to validate this finding.

There was a suggestion of a more protective association in studies with ITB for breast cancer recurrence, but overall, ITB did not appear to significantly bias the main pooled estimates. Similarly, the association for recurrence appeared stronger in estrogen receptor-positive (ER+) patients, consistent with prior findings.

Small studies reported significant reductions in breast cancer recurrence risk with statins, the "small study effect." This is mainly due to a few outlier studies that showed substantial protective effects associated with statin use. However, funnel plot analysis and Egger's test were used to assess publication bias, and a trim and fill analysis showed that the protective association remained significant even after accounting for potential bias. Statin use appeared to protect against breast cancer recurrence by an estimated 24%.

Conclusion

"*Statin use, particularly lipophilic statin use, was associated with favorable outcomes for BCD and BCR.*" The current study agrees with almost all prior analyses on the protective effects of statins on breast cancer mortality and recurrence rates.

This is the first meta-analysis to comprehensively assess effect modifiers such as ITB and the timing of post-diagnostic statin use. There was no significant difference in association with either outcome in studies at risk of ITB compared to those not at risk. Similarly, statin use that was initiated after breast cancer diagnosis was not significantly associated with reductions in death or recurrence rates. However, it only narrowly missed the threshold for significance in the case of recurrence.

The wide variation in methodology, study criteria, and outcomes between studies makes it challenging to understand whether the protective effects are due to statins or other factors acting independently or combined with statin use, such as cardiovascular disease, which predicts higher mortality. Further research is required to identify specific subgroups of patients that may benefit from statins as adjuvants to cancer treatment.

Source:

https://www.news-medical.net/news/20250616/Statins-could-reduce-breast-cancer-mortality-by-a-fifth.aspx