

Statin risks may outweigh benefits for patients with a history of brain hemorrhage

10 January 2011

A computer decision model suggests that for patients with a history of bleeding within the brain, the risk of recurrence associated with statin treatment may outweigh the benefit of the drug in preventing cardiovascular disease, according to a report posted online today that will appear in the May print issue of *Archives of Neurology*.

The benefits of [statins](#) for reducing the risk of heart disease and [stroke](#) are well established, but more widespread use of statin therapy remains controversial, according to background information in the article. "A particular subgroup of patients for whom the advisability of statin use is unclear are those at high risk for intracerebral [hemorrhage](#)," or a stroke caused by bleeding within the brain, the authors write. "The reason for added concern is the increased incidence of intracerebral hemorrhage observed among subjects randomized to statin therapy in a clinical trial of secondary [stroke prevention](#)."

"Because intracerebral hemorrhage sufferers commonly have co-morbid [co-occurring] [cardiovascular risk factors](#) that would otherwise warrant cholesterol-lowering medication, it is important to weigh the risks and benefits of statin therapy in this population," write M. Brandon Westover, M.D., Ph.D., of Massachusetts General Hospital and Harvard Medical School, Boston, and colleagues. The researchers used a Markov decision model to evaluate these benefits and risks. Based on prior research, simulated patients were assigned to states that correspond to disease risk and could then experience any combination of events which may lead to the increased risk of stroke or [heart disease](#), change in quality of life or death.

"Our analysis indicates that in settings of high recurrent intracerebral hemorrhage risk, avoiding statin therapy may be preferred," the authors write. "For lobar intracerebral hemorrhage [bleeding in the cerebrum] in particular, which has a

substantially higher recurrence rate than does deep intracerebral hemorrhage, statin therapy is predicted to increase the baseline annual probability of recurrence from approximately 14 percent to approximately 22 percent, offsetting the cardiovascular benefits for both primary and secondary cardiovascular prevention."

In the case of deep intracerebral hemorrhage, a type of stroke due to bleeding deep within the brain that has a lower risk of recurrence, the benefits and risks of statin use were more evenly balanced. "Consequently, the optimal treatment option may vary with specific circumstances," the authors write.

The mechanism by which statins might increase the risk of hemorrhagic stroke are unknown, the authors note. The association may be due to an increased risk of brain bleeding among those with lower cholesterol levels, or potential anti-clotting properties of statins.

"In summary, mathematical decision analysis of the available data suggests that, because of the high risk of recurrent intracerebral hemorrhage in survivors of prior hemorrhagic stroke, even a small amplification of this risk by use of statins suffices to recommend that they should be avoided after intracerebral hemorrhage," the authors conclude. "In the absence of data from a randomized clinical trial (ideally comparing various agents and doses), the current model provides some guidance for clinicians facing this difficult decision."

More information: Arch Neurol. Published online January 10, 2011.
[doi:10.1001/archneurol.2010.356](https://doi.org/10.1001/archneurol.2010.356)

Provided by JAMA and Archives Journals

APA citation: Statin risks may outweigh benefits for patients with a history of brain hemorrhage (2011, January 10) retrieved 24 June 2022 from <https://medicalxpress.com/news/2011-01-statin-outweigh-benefits-patients-history.html>

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