

## A new use for statins?

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Older patients who happened to have been taking cholesterol-lowering statin drugs when admitted to the hospital with serious head injuries were 76 percent more likely to survive than those not taking the drugs, according to results of a Johns Hopkins study.

Those taking statins also had a 13 percent greater likelihood of achieving good, [functional recovery](#) after one year.

The findings hold out the promise of a specific drug treatment for [traumatic brain injury](#), for which there is none, the researchers say, and could increase use of what is already an incredibly popular class of drugs prescribed to more than four in 10 senior citizens in the United States alone.

“These data are intriguing,” says Eric B. Schneider, Ph.D., an epidemiologist at the Johns Hopkins University School of Medicine’s Center for Surgical Trials and Outcomes Research, and the study’s leader. “We don’t think it’s the lowering of [cholesterol](#) that’s helping the brain recover in those who have been taking statins. We think there are other, less well-known properties of statins that are causing the benefits we seem to be seeing here.”

The results are reported in the October issue of *The Journal of Trauma*.

Schneider says he and his colleagues now want to do a clinical trial administering statins to brain-injured patients not already on the cholesterol-lowering drugs immediately upon arrival in the emergency

department, to study whether the medication would have a direct beneficial impact on recovery.

“If you get this drug into people very quickly after the injury, we may get the same effect as if the drug were in the body before the accident,” he says.

The researchers caution that no one should see these results as a signal to initiate or increase statin use as a hedge against brain injury.

“At this time, we cannot recommend that statins be provided as a treatment,” Schneider says. “Not everyone should be on statins. There are unknowns and there are downsides, including that some people who take them develop serious muscle disorders.”

Schneider knew there was data showing that mice subjected to brain injury while on statins showed promising recoveries. For this new study, he and his team examined data collected between July, 2001, and November, 2002, at 69 hospitals in the United States as part of the National Study on Costs and Outcomes of Trauma. They focused on patients over the age of 65 because this group was much more likely to be taking statin medication. The team identified 523 patients with moderate to severe brain injury, 117 of whom (22 percent) were using statins at the time of injury. Those who used statins were 76 percent less likely to die than those who were not. Patients who already had documented heart disease did not experience the same brain benefit from the statins they were taking.

Schneider says that along with its cholesterol-lowering properties, statins appear to play at least two other biological roles. They are anti-inflammatory and also are known to modulate the body’s immune response. After the brain is injured, a secondary injury can occur when the body launches an immune response to clean up the mess, attacking

healthy tissue along with the damaged. A statin may keep aspects of that from happening. The statin might also support the function of the blood-brain barrier, keeping excess white blood cells out of the brain and any dangerous chemical byproducts of the injury from the rest of the body.

Statins have not been studied in humans with acute brain injury in the past, but one previous study found that mortality was significantly lower in ischemic stroke patients who had been on the cholesterol-lowering medication at the time of their stroke. The Hopkins team in 2008 found a similar survival benefit associated with statin use in patients with all types of trauma, not specifically head trauma.

Schneider says that if a clinical trial were to show a significant benefit in patients treated with statins after head injury, it would open up a wide variety of possibilities for its use. He says it could someday make sense to use [statins](#) prophylactically in people who are likely to be exposed to mild repetitive brain injury such as football players in the NFL or soldiers in combat.

“Historically there is nothing you can give someone with a [brain injury](#) to limit its effect,” Schneider says. “Perhaps this will prove to be that, but much more study is needed.”

Provided by Johns Hopkins University

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