

Long-term statin use associated with lower glaucoma risk

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Acute angle closure glaucoma of the right eye (intraocular pressure was 42 in the right eye). Credit: James Heilman, MD/Wikipedia

A new study brings the connection between statin use and risk of glaucoma into sharper focus. Investigators from Brigham and Women's Hospital have found that using statins for five or more years is associated with lower risk of primary open-angle glaucoma. Results of the study were published recently in *JAMA Ophthalmology*.

Glaucoma, a leading cause of blindness, is a condition where pressure commonly builds up in the eye and affects the [optic nerve](#). Recent research suggests that statins—cholesterol-lowering drugs prescribed to treat and prevent [cardiovascular disease](#)—also lower intraocular pressure and promote blood flow to the optic nerve, which may help lower glaucoma risk.

"Our study suggests possible protective associations beyond cardiovascular conditions for long-term statin use. Statins may also strengthen neuroprotective mechanisms that prevent degeneration of cells in the optic nerve," said Jae Hee Kang, ScD, an assistant professor of medicine in the Channing Division of Network Medicine at Brigham and Women's Hospital.

Kang and her team tracked 136,782 healthy individuals aged 40 and older and identified a total

of 886 primary open-angle glaucoma cases between 2000 and 2015. The researchers used questionnaires to gather self-reported data on participants' serum cholesterol levels and statin use.

While previous observational studies have been inconsistent about the association of primary open-angle glaucoma risk with long-term cholesterol and statin use, the results showed that use of statins for five years or longer, versus never using statins, is associated with a 21 percent lower chance of primary open-angle glaucoma. In addition, every 20 mg/dL increase in total serum cholesterol level is associated with a 7 percent increase in risk of primary open-angle glaucoma. These results suggest that elevated cholesterol levels may heighten glaucoma risk.

Investigators point out that a limitation of the study is that it relied exclusively on self-reported statin use and cholesterol levels. In addition, future studies could benefit from sampling more ethnically diverse populations.

Kang notes that these findings do not mean that individuals with family histories of glaucoma should use statins or other cholesterol medications for glaucoma prevention. Randomized [clinical trials](#) will be needed to determine if a causal link exists between statin use and glaucoma prevention before physicians can recommend statins for lowering risk of primary open-angle glaucoma. Particularly in elderly populations, statins have potential side effects, including risk of muscle damage and liver or kidney dysfunction.

The team's research provides a jumping-off point for further understanding the complex biological mechanisms of glaucoma.

"As high cholesterol and [statin](#) use have been associated with other neurodegenerative diseases, the interrelationships between [cholesterol](#),

[glaucoma](#) and these outcomes is also fertile ground for further scientific inquiry," said Kang.

More information: Jae H. Kang et al, Association of Statin Use and High Serum Cholesterol Levels With Risk of Primary Open-Angle Glaucoma, *JAMA Ophthalmology* (2019). [DOI: 10.1001/jamaophthalmol.2019.0900](#)

Provided by Brigham and Women's Hospital

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