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Use of Statins and Risk of Reducing Glaucoma: Is There a Link?

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Dear Editor,

Glaucoma is the second leading cause of blindness globally; it is a chronic, degenerative optic neuropathy with a characteristic appearance of the optic nerve and typically with visual field loss [1]. Elevated intraocular pressure (IOP) often concomitantly appears and existing treatments are mostly focused on lowering IOP; however, there is increasing evidence that although the IOP could be significantly lowered in some patients, it might not prevent visual loss [1].

The high serum level of total cholesterol and triglyceride among patients with glaucoma could be attributed to vascular endothelial dysfunction [2]. Recent research suggests that statins, which are medications used to lower cholesterol in patients with hyperlipidemia, may have some protection against glaucoma [3], but it is still inconsistent on whether or not statins are beneficial in patients with glaucoma [2, 4, 5].

In a retrospective longitudinal cohort study of a large group, Stein et al. [2] reported that those who were prescribed statins showed a decreased risk of developing glaucoma, probably indicating a dose-response effect whereby longer exposure time to statins results in a greater protective effect against glaucoma. In a prospective cohort study, Leung et al. [4] reported that after adjusting for other confounding factors, patients with normal tension glaucoma had a reduced risk of visual field progression with the use of simvastatin, and the effect was independent of other systemic medications. In a cross-control study, Chen et al. [5] reported that hyperlipidemia patients who use statins had the same risk of developing

glaucoma as those who did not use statin; they also found (importantly) that a higher statin dosage results in a higher risk of developing glaucoma. Since the recent evidence regarding whether or not statin use has a protective effect against glaucoma is controversial, it is necessary to explore the potential reasons. Firstly, the conflict could be due to the study design and methodology used. Recall bias might be present in the case-control studies, and information bias or lost to follow-up generally exists in the cohort studies. There are several differences between these studies, such as the kind and dosage of statins exposure and primary outcomes. Furthermore, the adjusted confounding factors might have influenced the outcomes, such as the frequency of eye care visits.

In summary, certain suggestions should be considered regarding the possible protective effect of statin on glaucoma development. Treatment should be studied in randomized controlled trials to collect higher-quality longitudinal data. Statins should be explored as a new strategy for the treatment of glaucoma, especially for those patients whose IOP was lowered but there was visual loss. During statin use, clinicians should also pay attention to the changes in the visual fields.

Disclosure Statement

The authors report no conflicts of interest.

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