Medical Xpress

Glaucoma-related vision loss may increase risk for auto accidents

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The first study to compare accident rates for drivers who have advanced glaucoma – an eye disease that affects peripheral vision – with normal-vision drivers, found that the glaucoma group had about twice as many accidents. This study, which was conducted in Japan using a driving simulator, suggests that potential drivers should pass a visual field test to ensure adequate peripheral vision before a license is granted or renewed. The research is being presented today at the 116th Annual Meeting of the American Academy of Ophthalmology, jointly conducted this year with the Asia-Pacific Academy of Ophthalmology.

Glaucoma, which is an age-related eye disease, can partially or severely restrict a person's peripheral vision, without damaging their central vision or visual acuity. (Click here to see how glaucoma can affect vision.) This means that many people who have the disease would be able to pass the only vision test now required for a driver's license in most countries, known as the visual acuity test. Drivers need good peripheral vision in order to assess and keep up with the flow of traffic, stay in the proper lane, and detect stop lights, pedestrians, vehicles and other obstacles.

In this study, which was conducted at Tohoku University Graduate School of Medicine, in Sendai, Japan, two groups of 36 people each were tested using a driving simulator. People in group one had advanced glaucoma and those in group two had normal vision. The groups were matched for age, driving experience and other characteristics. The most common accident scenario for both the glaucoma and normal-vision

groups was when a child, car, or other object suddenly entered the driver's path from the side. The glaucoma group, however, had more than twice as many collisions as the normal-vision group.

Glaucoma affects more than 2.7 million Americans age 40 and older. It is the second leading cause of blindness worldwide. If untreated, glaucoma reduces peripheral vision and eventually causes blindness by damaging the optic nerve. This essential nerve sends signals from the retina—a layer of light-sensitive tissue at the back of the eye—to the brain, where these signals are interpreted as the images people see. Only half of the people who have glaucoma are aware of it , since the disease is painless and vision loss is very gradual.

As populations grow older worldwide, health officials are exploring measures that will ensure safety on the roads. For instance, in the United States., visual field requirements vary from state to state with 12 of the 51 jurisdictions restricting licenses for those with visual impairments. Some states or territories require the installation of additional mirrors on the vehicles of these drivers.

"To help ensure everyone's safety on our roadways, we would like to create mandatory vision testing guidelines for glaucoma patients," said Shiho Kunimatsu-Sanuki, M.D., lead researcher on the study. "We now know that integrating the visual field test into the requirements for a driver's license could save lives."

With proper medical care, many people with glaucoma can maintain a level of vision that would enable safe driving. The American Academy of Ophthalmology recommends that everyone have a complete eye exam at age 40, so that glaucoma and other age-related eye diseases can be diagnosed and treated early to minimize vision loss.