Studies have now shown that visual field loss leads to an increased risk of crashes

by Priscilla Lynch in Dublin

The importance of peripheral field vision is underestimated in relation to the ability to drive, but new ways of testing allow ophthalmologists to more accurately assess patients, reported Ananth Viswanathan FRCooph at a meeting on traffic medicine.

Dr Viswanathan, Moorfields Eye Hospital, London, UK, spoke about how best to assess and monitor visual field loss and its implications for safe driving at the meeting in the Royal College of Physicians of Ireland.

He reminded the meeting that a single error while driving can have devastating consequences, hence the importance of ophthalmic clinicians ensuring patients are visually fit to drive.

While visual acuity obviously plays an important part in driver vision, the level of peripheral vision also plays a vital role in the ability to safely drive, he said.

Studies have now shown that visual field loss leads to an increased risk of crashes, but many patients do not realise their visual field vision has been impaired and their driving ability subsequently affected, Dr Viswanathan, who is also chair of the UK Honorary Medical Advisory Panel on safe vision disorders and driving, told the meeting.

Patients with glaucoma are at particular risk of field of vision decline, and this needs to be noted in relation to their driving ability, he maintained. While patients with glaucoma may retain reasonable visual acuity they may not be able to see other cars, cyclists or pedestrians that are outside their central field of view when driving. Contrast sensitivity and glare and driving at night-time can also cause significant issues for this cohort.

The first study to compare accident rates for drivers who have advanced glaucoma 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, supports that potential drivers should pass a visual field test to ensure adequate peripheral vision before a licence is granted or renewed. The research was presented at the 116th Annual Meeting of the American Academy of Ophthalmology last year.

However screening of these patients is a key issue given that in many countries they only have to pass basic visual acuity tests to qualify for a driving licence, while routine visual testing in busy ophthalmic practices does not necessarily provide the relevant information, and established specific visual field testing is not sensitive enough, Dr Viswanathan explained.

He discussed the limitations of established visual field tests such as the useful field of view (UFOV). While validated for driving examination, the UFOV was not designed with driving in mind. It is not validated in the visually impaired, has only been validated by its developers and is an unrealistic test, comprising of briefly presented stationary stimulus arrays, Dr Viswanathan reported.

Studies have shown that the use of the integrated visual field (IVF) test is an excellent method for screening driver vision, particularly for glaucoma drivers, Dr Viswanathan said.

Studies have shown that the IVF technique is best at representing the central binocular visual field in patients with glaucoma. The IVF has also been shown to be more relevant than the commonly used binocular Esterman visual field test (EVFT) in measuring patients’ self reported problems with performing daily tasks and general mobility.

The IVF is seen to be more sensitive to identifying patients with a field of vision that is incompatible to safe driving, as it uses accurate threshold data rather than a simple ‘yes or no’ dot based equation, he said. This means the height of the hill of vision can be mapped, which is useful in monitoring disease progression on a functional basis, Dr Viswanathan added.

It also generally has good agreement with the Esterman test, he noted.

“Having compared the tests in practice we feel confident after the results that no one with a potential issue would slip through the net using the IVF.”

Additionally, the IVF has been positively rated for predicting the future likelihood of a person losing his or her driving licence by assessing visual field status at baseline and visual field deterioration rate at two years, Dr Viswanathan elaborated. This is a very useful and valuable diagnostic tool, given the growing ageing population.

Concluding, Dr Viswanathan said the IVF provides an accurate field of vision screening method that can be easily incorporated into practice and can help identify the need, or not, for medical intervention and allow the preparation of patients for possible driving licence loss.

He said having questioned whether it is possible to merge bilateral monocular field tests to more accurately predict the binocular field in drivers, it has now been proven this can be done very successfully.

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