Diagnostic criteria of glaucoma must be better defined

BETTER diagnostic criteria are necessary to ensure that all glaucoma patients receive optimal treatment and their vision is preserved, said George Spaeth MD, professor of ophthalmology and chief of glaucoma service, Wills Eye Institute, Philadelphia, Pennsylvania, U.S.

"We have to remember that the commonest cause of irreversible blindness in the world is glaucoma. It is a big problem," he told a Glaucoma Study Day at the Royal College of Surgeons in Dublin.

Examinations to determine the presence of glaucomatous disease include gonioscopy, ophthalmoscopy and perimetry. However, the diagnostic criteria used with each of these methods must be clear, valid and quantitative if they are to be useful. There is also a need for better agreement between ophthalmologists in how such findings are obtained and interpreted, he said.

Gonioscopy shorthand

Thorough and accurate evaluation of the angle is important because angle-closure glaucoma is easily treated but has devastating consequences if intervention is delayed, he pointed out.

"In my office 50 per cent of patients who present with angle-closure glaucoma have been seen by an ophthalmologist within the previous year. That really should be grounds for suing the entire profession of ophthalmology. Half the patients with a preventable disease were missed at the time of the examination when all it takes is gonioscopy, and an angle-closure attack is prevented by peripheral iridotomy. We have to do gonioscopy and we have to be doing it better," he added.

Dr Spaeth strongly advocated the use of indentation gonioscopy as opposed to other techniques. It is, at present, the only technique that enables determination of whether the periphery of the iris is permanently adhering to the cornea or is just pressing against it.

In classifying the angle's characteristics, Dr Spaeth uses a system which he developed back in the 1970s. It uses a simple shorthand notation to describe the iris insertion, the angle of approach (the angle between the angle wall and the iris), peripheral iris configuration, and the degree of trabecular meshwork pigmentation.

Dr Spaeth noted that not only does this shorthand approach to classification give a clear and detailed description of the angle's characteristics that is easily communicated between physicians, it also saves a lot of time when taking notes on a patient's condition.

Dr Spaeth stressed the importance of carefully examining the optic disc with direct ophthalmoscopy and assessing glaucomatous damage in a quantitative way.

He also maintained that cup/disc ratios can be very misleading as a measure of glaucomatous damage. That is because cup/disc ratios do not take into account the size of the disc, the eccentricity of the cup within the disc or the distance between the edge of the cup and the neuroretinal rim. In fact, an eye with no pathology can have exactly the same cup/disc ratio as another eye with fairly advanced damage to the optic nerve, he said.

"The cup/disc ratio was a huge advance, it was a huge step ahead, but it doesn't work. It doesn't work because of two fatal flaws, one having to do with disc size and the other having to do with the position of the cup. The position of the cup is enormously important and the size of the disc is enormously important too so I'd like you to think in terms of rim/disc ratios rather than cup/disc ratios," he explained.

Dr Spaeth and his associates have developed a system of grading optic disc damage called the disc damage likelihood scale (DDLS) which grades glaucomatous damage on a scale from one to 10. It involves first measuring the disc size and then measuring the neuroretinal rim at its narrowest point, and where there is an area of absent rim, measuring the circumference of that area.

The results of several studies appear to validate the accuracy of the DDLS system and indicate that it correlates more closely to the presence or absence of glaucomatous visual field loss than cup/disc ratios or HRT findings.

Visual fields unreliable

Perimetry is an important and necessary part of the assessment of patients with established glaucoma although it is unreliable in the diagnosis of early-stage disease, Dr Spaeth said. In the OHTS study, repeat perimetry failed to show visual field defects in 88 per cent of patients in whom they were initially detected, he noted.

In addition, the disability associated with visual field defects should be evaluated with caution and with consideration of a patient's binocular vision. The overlapping of two visual fields as occurs in binocular vision can often fill in the missing patches of the worst affected eye.

When perimetry is most helpful is in the detection of large changes in visual field and in detecting changes which fit the pattern of glaucoma. The pattern of change in the visual field in glaucoma is very different from that of other conditions which impinge on the optic nerve, like pituitary tumours, for example.

"As far as following patients and diagnosing patients, I don't think visual fields are very much help. They are time-consuming and expensive. I use fields primarily when looking at the pattern or to check on my disc evaluation. Sometimes, I'll look at a disc and think the patient is doing fine but then look at the field and see that the field looks worse. Then I go back and see I missed something on the disc," he said.

At the time of diagnosis, patients must receive a clear picture of the likely outcome of their disease. In this way they will understand the importance of following their prescribed treatment regimen and be better able to make informed decisions regarding surgical intervention.

To provide patients with a visual representation of the severity of their disease, Dr Spaeth has produced a coloured chart which he presents to his patients. The chart factors age from birth to death with disease severity which is represented in three different coloured bars: red for advanced disease, yellow for middle-stage disease and green for the very early stage of the disease process.

"Colours are enormously important because they are visceral and if we are going to affect our patients we have to get them in the gut not just in the head," he added.

When deciding whether or not to treat a patient there are several factors to consider, including the extent and rapidity of the progression of the disease, their life expectancy and their degree of disability. In the case of surgical intervention, long-term gain must be weighed against the damage such procedures cause in the short term.

"Glaucoma is a process that can cause disability but through the grace of God, and the hard work of many glaucoma researchers we have many good treatments which when appropriately used usually work."

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