

ELECTRODIAGNOSIS

Accessible electrodiagnostics

To many, electrodiagnostics is a complex research or hospital tool for diagnosing rare pathologies. **Emma Deighan** reports from a recent CET event showcasing the Diopsys system aimed at making the technique accessible and useful to community eye care practice

The first Diopsys course was held at the start of this month at the Royal College of Ophthalmologists in London. The event, organised by Spectrum UK, the distributor of Diopsys in the UK, attracted optometrists and ophthalmologists who were introduced to the system through a series of lectures and hands-on workshops. The course focused on the early detection of glaucoma using the latest electrodiagnostic techniques and was run with the idea of demystifying the field of electrodiagnostics. Delegate numbers at this inaugural event were kept small to ensure maximum hands on time.

INNOVATION

Peter Good, consultant electrophysiologist from Birmingham Midland Eye Centre (BMEC), ran the course aimed at ophthalmologists and optometrists interested in learning more about this innovative technique. He explained the principles of the science and tied it up with the anatomy and symptoms seen in practice (look out for a CET feature on the general principles of the technique in *Optician* later in the Spring). Patients requiring electrodiagnostic testing are often referred to larger specialist hospital systems but the results back often seem in a different language. Peter explained what tests are used to detect certain conditions and how, by stimulating different parts of the retina, a diagnosis can be found.

The Diopsys system, explained Good, has been designed to use in an optometrist's practice or in a hospital unit, where it can easily be moved from department to department. It offers fast testing (normally 20 to 25 seconds) meaning a series of tests can easily be run in a 20 minute appointment. Although it does not offer some of the tests the larger units offer, it does provide:

- Electroretinography (ERG) – able to detect retinal abnormality.
- Visually evoked potential (VEP) – able to detect visual pathway abnormality in the absence of ocular defects.
- Multifocal testing – for specific locational defects.


Good then talked about the anatomy of glaucoma, focusing on the history of detecting and monitoring glaucoma which has relied on tonometry, perimetry, and the use of OCT to assess retinal nerve fibre layer and ganglion cell complex analysis, where the amount of ganglion cells can be monitored. Diopsys, he explained, uses steady state pattern electroretinograms (SSpERG). As such, the system can measure the 'health' of the ganglion cells. This makes possible the very early detection of glaucomatous disease which, if treated early, can allow the ganglion cells to return to good health. Diopsys is also able to usefully monitor the impact of any treatment intervention.

PRACTICAL

With all the science explained, the practical session offered the opportunity for the delegates to use the Diopsys system to measure each other's retinal function. Marc Davis (International Manager of Clinical Support from Diopsys) showed how technicians could easily be trained to undertake the tests, and Good explained how to interpret the scans so achieved.

Peter Good was then able to talk through some of the cases he has seen at BMEC, explaining how different tests could be used to rule out certain conditions or confirm a suspicion. The main application of Diopsys is the steady state pattern ERG, but it is also a useful problem solver for visual loss and changes seen in primary care. As well as the early detection or monitoring of conditions such as glaucoma and maculopathy, other uses have quickly become established, such as monitoring patients using potentially maculotoxic systemic drugs such as hydroxychloroquine, now a mainstay in arthritis therapy.

Another Diopsys course is scheduled for the autumn. 

Emma Deighan  dispensing optician and consultant to Spectrum UK

- The Diopsys team will be at Optometry Tomorrow at the Hilton Birmingham Metropole on Sunday, March 18 and Monday March 19, 2018.

