OPTIC NEURITIS

Keynote lecture at SOE Congress sheds new light on controversial pathology

by Dermot McGrath in Geneva

Describing optic neuritis as a prevalent medical problem that generates a fair degree of confusion and fear, Jonathan Trobe MD used his keynote lecture at this year’s SOE/AAO Joint Congress to try to dispel some of the mystery surrounding one of ophthalmology’s more controversial pathologies.

“Optic neuritis is an extremely prevalent problem and I doubt that there is anyone here today who has not seen a case of this and who has been confused and a bit frightened by it. Perhaps the confusion is partly the fault of those of us who write about this disease because we have done nothing but make the issue more complicated and less understandable,” he said.

Dr Trobe, head of neuro-ophthalmology and professor of ophthalmology and neurology at the University of Michigan Medical Centre, Ann Arbor, Michigan, US, said that optic neuritis can be divided into two forms: “typical” and “atypical”.

“Typical optic neuritis is unfortunately not treatable, but fortunately it is usually benign. By contrast, atypical optic neuritis is often treatable and is usually not benign, so this is why it is so important to distinguish between the two,” he said.

To help in this process, Dr Trobe described the profile of optic neuritis based on more than a quarter of a century of research and scientific studies on the disease, and in particular the groundbreaking Optic Neuritis Treatment Trial (ONTT) which ran from 1998 to 2006.

“Optic neuritis is now considered to be a primary autoimmune attack on optic nerve myelin and/or oligodendrogliocytes. We are still not sure which is the target. It is also believed to be an auto-immune disorder, although that is still not completely confirmed,” he said.

The role of T cells in the disease has also been highlighted in recent years, said Dr Trobe.

“If the T cells cannot traffic across the blood-brain barrier then this disease will not happen and most of the newest work is focusing on preventing the adhesion of these T cells to the appropriate receptors on the endothelial cells of the blood vessels,” he said.

In terms of the clinical profile of typical optic neuritis, Dr Trobe said that it is usually found in patients aged between 15 and 45, two-thirds of affected patients are female, and it is usually present unilaterally. There are manifestations of multiple sclerosis in one-in-five patients, the onset occurs over two-to-five days, with afferent pupil defect and nerve fibre bundle defect present. There is normal fundus in two-thirds of cases but we must bear in mind that almost half of the patients will not develop MS and to give them the fear of MS is not justified. You have to tell them about it, but make sure that they get the balanced view on it. The other good news is that of the patients who develop MS, 95 per cent of them are walking without assistance after 15 years and that is very important news for patients who are going to be frightened when you give the diagnosis of optic neuritis,” he said.

Magnetic resonance imaging also has a valuable role to play in establishing the diagnosis, said Dr Trobe. The presence of white matter lesions on the initial magnetic resonance image of the brain has been identified as the strongest predictor for the development of MS.

“Data from the ONTT showed that the more lesions are present in the brain so the likelihood of MS increases. Zero lesions with optic neuritis means the patient has a 25 per cent 15-year risk of developing MS, compared to 75 per cent with one or more lesions present. Interestingly, the studies indicate that just one lesion is enough to change a patient over from a low risk to a high risk of developing MS,” he said.

Other ancillary studies, such as lumbar puncture, chest X-ray or visual evoked potentials, are completely trumped by the MRI scan in cases of typical optic neuritis and will not add additional information, he said.

Using high-dose corticosteroids for typical optic neuritis has limited impact on the course of the disease and should not be encouraged, said Dr Trobe.

Compared to the typical form of the disease, the pathogenesis of atypical optic neuritis is quite complicated, said Dr Trobe. “The inflammation may start in the optic nerve or come from the meninges, the orbit or para-nasal sinuses. Moreover, these are probably B cell mediated disorders,” he said. Atypical optical neuritis presents diagnostic dilemmas for ophthalmologists, said Dr Trobe and they should be alert to warning signs that deviate from the clinical profile of typical optic neuritis.

In addition, Dr Trobe said that numerous diseases have been found to mimic typical optic neuritis, including compression by tumour, aneurysm or cyst, retinal diseases, infiltrating cancer, toxic optic neuropathy, ischemia, radiation, medication toxicity, malnutrition, Leber’s optic neuropathy, systemic infections and various inflammatory disorders.

“There are several facts to bear in mind about vision in cases of typical optic neuritis, said Dr Trobe. First, the vision should not continue to get worse after 14 days. If it does, it is atypical optic neuritis. The vision should also begin to improve within four weeks, and recovery of vision is completed within six months. Visual acuity returns to normal or close to normal in 85 per cent of patients, he added.

Long-term studies have also helped to shed light on the link between typical optic neuritis and multiple sclerosis.

“Many studies show that MS develops in about 60 per cent of cases but we must bear in mind that almost half of the patients will not develop MS and to give them the fear of MS is not justified. You have to tell them about it, but make sure that they get the balanced view on it. The other good news is that of the patients who develop MS, 95 per cent of them are walking without assistance after 15 years and that is very important news for patients who are going to be frightened when you give the diagnosis of optic neuritis,” he said.

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