

Role of Optical Coherence Tomography in multiple sclerosis and other neurological disorders - need more awareness among Pakistani medical professionals

Madam, the main purpose of this letter is to draw attention of medical professionals especially neurologists in Pakistan towards a new technique, Optical Coherence Tomography (OCT), which is now an essential part of routine standard of care in most of ophthalmology as well as neuron-ophthalmology clinics in North America and Europe. OCT, a relatively new technology for noninvasive cross-sectional imaging in biological systems, was first introduced by Huang et al¹ in 1991. It can provide three dimensional tissue images of microstructures with a resolution approaching that of histology. OCT has evolved as a great clinical tool in the diagnosis of different optic nerve and retinal nerve fiber layer (RNFL) problems over the last few years. This high resolution technique uses near-infrared light to measure the thickness of ocular structures, particularly RNFL.²

Optic neuritis (ON) is one of the most important ocular manifestations in multiple sclerosis (MS) patients. Most of the routine investigations including magnetic resonance imaging, visual evoked potentials and flash electroretinogram don't provide very reliable information about the functional/biological health of the neurons and RNFL. As axons within the RNFL are not myelinated, so OCT measures a structure within the central nervous system that consists of isolated axons.³ OCT can detect axonal damage as early as the third month after an isolated initial episode of ON.⁴ It is well documented that MS eye without a history of acute optic neuritis has less RNFL thickness than control. It suggests the occurrence of chronic axonal loss separate from acute attacks in MS patients.³ OCT can also measure RNFL thinning in the temporal quadrants after retrobulbar ON in spite of the clinical improvement in some patients.⁵

OCT is being used to monitor sub-retinal fluid accumulation in papilloedema and retinal ganglion cell axon loss in early glaucoma. It can be very helpful in patients with different anterior visual pathway diseases including traumatic optic neuropathy.

OCT is an exciting investigational tool to be used by neurologists, ophthalmologists and neuron-ophthalmologists in routine clinical practice. As we know that visual dysfunction is a leading cause of disability in MS patients.

As many as 50% of patients with MS experience visual loss as a presenting symptom, and 80% develop some degree of visual impairment during the course of their disease. So we encourage our neurology colleagues to create awareness about this useful technique among health professionals of our country to decrease morbidity in patients with above mentioned disorders.

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References

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