

Clinical Neurophysiology in Neurology, Neuroscience and Medicine

Clinical neurophysiology has always been an important subspecialty in neurology and the neurosciences. It employs various techniques in the functional evaluation of electrophysiological properties of the nervous system. The findings are often complementary to structural imaging studies. In recent years, clinical neurophysiology has expanded its boundaries to be of relevance to other fields of medicine. In this issue, we highlight some of these aspects.

Carpal tunnel syndrome remains by far the most common entrapment neuropathy referred to the electrophysiological laboratory. A comprehensive review of existing as well as emerging techniques for its diagnosis is outlined.¹ The clinical neurophysiologist is often called to evaluate acute inflammatory demyelinating polyneuropathy, most commonly Guillain-Barré syndrome. Its clinical and electrodiagnostic criteria are outlined for the physician.²

Neurodiagnostic techniques have progressed from providing routine pre-operative evaluations to an active role in the operating theatre. The various methods of spinal cord monitoring with somatosensory evoked potentials are addressed by Tan YE *et al.*³ Additionally, electromyography, a valuable tool for assessing neuromuscular conditions, can be effectively employed for intra-operative monitoring purposes. Both spontaneous and triggered methods are introduced by Dan YF *et al.*⁴

The various new developments of this field, many of which were developed in our institution, are highlighted.⁵ While most electrodiagnostic tests have traditionally focused on the peripheral nervous system, the recent introduction of new methods has provided

functional evaluation of central nervous system dysfunction. Of particular interest is the use of transcranial magnetic brain stimulation. It provides a simple and non-invasive means to quantify upper motor neuron pathway conduction in the corticospinal tracts.⁶ In the basic neurosciences, measurements of brain excitability, plasticity, motor control and cognitive processes can be achieved.⁷ Most recently, transcranial magnetic stimulation has been employed in the study of motor control in human deception.⁸

I sincerely believe that interest and applications of clinical neurophysiology will continue to grow with advances in modern medical science.

Lo Yew Long
Guest Editor

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