Landmark Clinical Studies in Neurology

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For the past few years, many studies have reported severe impact of pollution, especially air pollution, towards health. Not only the respiratory and cardiovascular diseases, but the brain itself is also affected. It plays an important part in stroke and neurobehavioral abnormality. Stroke causes the most impact on global neurological disease burden. All attempts should be made for stroke prevention.

Even though migraine is not a life threatening condition, it causes significant morbidity and socioeconomic impact. Many patients require long term prophylactic medications. Calcitonin gene related peptide (CGRP) monoclonal antibody is becoming the next generation of targeted therapy for refractory cases.

Dementia is one of the major disease burdens in the aging society. Data from genetic Alzheimer’s disease database has shed more light in disease pathogenesis and preclinical stage. Many preventive trials are ongoing.

In neuromuscular field, genetically based therapy is on the rise. Nusinersen, an antisense oligonucleotide drug to modulate pre–messenger RNA splicing of survival motor neuron 2 (SMN2) genes, has been approved for spinal muscular atrophy (SMA). It can slow disease progression and prolong survival in this deadly disease. Edaravaron, a free radical scavenger, has recently been approved for this motor neuron disease or ALS. However, it provides modest benefit. Myasthenia gravis (MG) is a common and treatable neuromuscular transmission disorder. Pyridostigmine and corticosteroid /immunosuppressive agents are the mainstay of treatments. Thymectomy is proven in a large clinical trial, to be the option for steroid reduction and long term disease control. Nonetheless, inadequate response is common. Monoclonal antibodies, such as rituximab and eculizumab, are promising options in refractory patients.

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