CIRCUITS AND CIRCUIT DISORDERS

Circuits and Circuit Disorders
Approaches to Neuromodulation

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This theme issue on “Circuits and Circuit Disorders: Approaches to Neuromodulation” is the result of a symposium held at the annual meeting of the American Neurological Association in Chicago, Illinois, on September 26, 2015, and cosponsored by JAMA Neurology and the Annals of Neurology. The speakers were Mahlon DeLong, MD, Emory University (Keynote Speaker), Philip Starr, MD, University of California, San Francisco, Jonathan Mink, MD, PhD, University of Rochester, Helen Mayberg, MD, Emory University, and Bryan Roth, MD, PhD, University of North Carolina. The symposium also honored DeLong, who received the 2014 Lasker DeBakey Clinical Medical Research Award with Alim-Louis Benabid, MD, Universite Joseph Fourier, for developing deep brain stimulation (DBS) of the subthalamic nucleus as effective therapy for patients with Parkinson disease. It is estimated that more than 100 000 Parkinson disease patients have been treated with DBS with reduction in bradykinesia and tremors and with overall improvement in motor function. Deep brain stimulation is credited as being the most important therapeutic advance for Parkinson disease since the introduction of L-dopa in the 1960s.

In this issue of JAMA Neurology, DeLong and Wichmann examine in their review1 the scientific foundations and rationale for the use of ablation and DBS for the treatment of neurologic and psychiatric diseases, using Parkinson disease as the primary example. They provide evidence in support of the view that signs and symptoms of movement disorders result from signature abnormalities in one of several parallel and largely segregated basal ganglia thalamocortical circuits forming the “motor circuit.” Recently, they are exploring the pedunculopontine nucleus to study gait disorders responding poorly to levodopa and conventional DBS targets.

ARTICLE INFORMATION

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REFERENCES


