JANUARY 19, 2017 | VOLUME 17 | ISSUE 2

NEUROLOGY TODAY®

THE OFFICIAL NEWS SOURCE OF THE AMERICAN ACADEMY OF NEUROLOGY

NeuroTodayOnline.com

INSIDE 1/19/17

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AMERICAN ACADEMY OF NEUROLOGY®

PUBLISHED BY:

Wolters Kluwer

PERIODICALS

Best Advances of 2016: Picks from the *Neurology Today* Editorial Advisory Board

Courtesy of Brad A. Racette

Every year, we ask members of our editorial advisory board — all leaders in their respective fields — to reflect on the most important advances, policies, and professional issues that occurred during the past 12 months. Here, in the "Best Advances of 2016," our editorial team sheds light on developments that were both incremental and transformational this past year. Read on to learn more about those advances — and why they are important — in such areas as ethics and professionalism, stroke, epilepsy, dementia, multiple sclerosis, neurogenetics, and peripheral neuropathy, to name a few. This year, too, we feature advances from some of the major neurology meetings held in 2016, including highlights of top-scored abstracts selected by the Science Committees. •

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DEEP BRAIN STIMULATION IMPAIRS MEMORY, RESEARCHERS REPORT

BY DAN HURLEY

Deep brain stimulation (DBS) of the entorhinal region and hippocampus impaired memory in a new human trial, contradicting previous findings and setting off a debate on the technical details of the approach.

The study, which was published in the December 7, 2016, issue of *Neuron,* included 49 people undergoing surgical electrode implantation to identify the anatomic source of drug-resistant epilepsy. The subjects were asked to perform spatial and verbal-episodic memory tasks while receiving either electrical stimulation at 50 Hz during memory encoding or no stimulation. They were blinded and unable to discern whether or not stimulation was being applied.

Across all patients and both tasks, entorhinal stimulation impaired memory accuracy by an average of 9 percent ($p<0.02$). Entorhinal stimulation in 12 patients impaired memory in both the spatial ($p=0.03$) and verbal tasks ($p=0.09$). Even in

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NEWS FROM THE AMERICAN EPILEPSY SOCIETY ANNUAL MEETING

Cannabidiol Research Offers Hope for Seizure Disorders

BY JAMIE TALAN

HOUSTON—Several animal studies and both randomized and open-label studies have found that cannabidiol oil (CBD) shows promise in treating seizure disorders, but questions remain about proper dosages to apply, the potential for adverse effects, and the drug-drug interactions with other antiepileptic drugs (AEDS), according to several abstracts that were presented here in December at the annual meeting of the American Epilepsy Society.

In one abstracts, study authors reported that the extract appeared to affect blood levels of other AEDs, potentially affecting seizure control.

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THE CANNABIDIOL oil was derived from a substance in the cannabis plant and does not contain the psychoactive component of cannabis, tetrahydrocannabinol.

Best Advances of 2016

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NEUROETHICS/ PROFESSIONALISM

James L. Bernat, MD, FAAN, Louis and Ruth Frank Professor of Neuroscience, professor of neurology and medicine, Geisel School of Medicine at Dartmouth and Dartmouth-Hitchcock Medical Center, Hanover, NH.

The Pick: Wang LH, Elliott MA, Henson LJ, et al. Death with dignity in Washington patients with amyotrophic lateral sclerosis. *Neurology* 2016;87:2117-2122.

The Findings: Since 2009 in Washington State, 39 patients with amyotrophic lateral sclerosis (ALS) requested "death with dignity" (physician-assisted suicide; physician-assisted death), which is a prescription for lethal medications on request in the setting of terminal illness. Seventy-seven percent of these patients thereafter swallowed the lethal medications and killed themselves. The average age of patients was 65, and there were no reported complications. The principal reason cited by the patients was loss of autonomy and dignity accompanied by the loss of ability to enjoy activities. These findings paralleled a similar group of 92 ALS patients in Oregon who also had requested physician-assisted death.

Why It's Important: With the continued increase in the number of states legalizing physician-assisted death, practicing neurologists are increasingly likely to encounter patients making this request. Neurologists practicing in jurisdictions in which physician-assisted death has been legalized must understand the stipulations of the law including their duties and rights, and be prepared to respond to such requests. Currently, all states that have legalized physician-assisted death (Oregon, Washington, Montana, Vermont, California, and Colorado) allow physicians who choose not to participate to decline. It is unclear from this report the extent to which the ALS patients had help from relatives of friends to swallow the medications. The intent of the law is self-administration, but although this point is mentioned in the law, the precise boundaries of assistance are not stipulated.

NEUROGENETICS

Brent Fogel, MD, PhD, FAAN, assistant professor of neurology, David Geffen School of Medicine, University of California, Los Angeles, CA.

The Pick: Lek M, Karczewski KJ, Minikel EV, et al, for the Exome Aggregation Consortium. Analysis of protein-coding genetic variation in 60,706 humans. *Nature* 2016;536(7616):285-291.

The Findings: The ExAC (Exome Aggregation Consortium) database is a collection of shared data from deep sequencing of the exome, the 1-2 percent of the genome coding for protein, from over 60,000 individuals. Collectively, this provides a snapshot of the complexity of human genetic diversity with over

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