Why Newer Migraine Blockers Fail Some Patients

KURT SAMSON

Not all migraines result from the same neurovascular changes targeted by newer antibody drugs. And this could potentially help to explain why many migraine sufferers do not respond to such targeted migraine blockers, researchers at Beth Israel Deaconess Medical Center reported in a study published May 24 in the online edition of the Journal of Neuroscience.

The investigators discovered fundamental differences in how laboratory rats responded to fremanezumab (Ajovy), a monoclonal antibody (mAB) that blocks calcitonin gene-related peptide (CGRP).

Prior research has suggested that there might be some functional connectivity between CGRP and cortical spreading depression (CSD), and that blocking CGRP might also prevent CSD and plasma protein extravasation (PPE) from affected vasculature.

CSD is a wave of neuronal depolarization thought to result in the activation of nerves that give rise to the headache phase of migraine with aura. CGRP is a potent vasodilator neuropeptide that triggers a cascade through G-proteins (dark blue) that leads to a dilatation of cerebral blood vessels, activating a signal via the calcitonin gene-related peptide (CGRP) receptor (yellow) binds to its receptor (blue) on neurons and smooth muscle cells of the blood vessels (vasodilatation).

Blocking the CGRP receptor diminishes the quantity of migraine attacks.

Levetiracetam Is No More Effective Than Phenytoin in Children with Convulsive Status Epilepticus

CHRISTINE LEHMAN

Two new randomized studies have answered a longstanding clinical question: Is levetiracetam (Keppra) superior to phenytoin (Dilantin) for second-line management of convulsive status epilepticus (CSE)? The results indicate that either drug can stop prolonged seizures in at least 50 percent of children.

These are the first robust randomized clinical trials to compare the efficacy and safety of two anti-convulsant medications in the second-line management of CSE, both published in the April 24 online edition of The Lancet.

“The provides new and unique scientifically-robust data to better inform pediatricians on how to improve their management of CSE in children. Specifically, it shows that both levetiracetam and phenytoin could be used as a first-choice anticonvulsant in the second-stage of pediatric CSE,” lead investigator Richard Appleton, MD, professor of pediatric neurology at Aker Hey Children’s Health Park in Liverpool, England, told Neurology Today in an email.

Dr. Appleton led the Emergency treatment of CSE trial (ConSEPT) adding only an additional 10 minutes to the treatment time, according to...
A Pipeline Program Inspires Future Neurologists

ARTICLE IN BRIEF: A pipeline scholarship program from the AAN brought medical students to their first AAN Annual Meeting, and it confirmed their resolve to pursue neurology.

ORY AVITZUR, MD, MBA, FAAN

Two-and-a-half-year old Christy Soares—one of this year’s youngest annual meeting attendees—could have easily gotten lost in the sea of nearly 15,000 people that crowded this year’s record-breaking annual meeting in Philadelphia. She was unsure of her future path when she first arrived at the Pennsylvania Convention Center as a recipient of a 2019 AAN Medical Student Experience at the Annual Meeting Scholarship, but her reception was so welcoming, and her experience so profoundly inspiring, that by the time she left, the first-year student from Florida State University College of Medicine could not imagine a career in anything else.

She described an afternoon after a plenary session in which she grabbed a plate of hors d’oeuvres, found a standing table and met several other audience members. As they talked and ate, she was able to ask questions about their connection to neurology, and answer questions about what medical school was like today.

“Much to my delight, one of those individuals was the residency program director at Washington University in St. Louis, another an MD-PhD at Beth Israel Deaconess Medical Center, and another a sales representative for a deep brain stimulation developer,” Soares said. As people began to leave, one of the neurologists asked if they all wanted to continue their conversation at dinner, and over the next five hours, she was able to openly ask questions about residency programs, what it takes to pursue a career as an MD-PhD, what it’s like to have a medical research lab, and how the development and delivery of deep brain stimulation occurs.

Soares was one of 55 recipients of the AAN medical student scholarship which covered airfare, a $300 stipend for other travel costs, and two to three nights of lodging. The 126 applicants represented medical students from 66 institutions, most of whom had heard about the scholarship through their Student Interest Group in Neurology (SIGN) sections. Each submitted an essay and a letter of recommendation, which were reviewed by a small Education Committee workgroup. Many students displayed a general interest in neuroscience but others, like Soares, who was also considering a career in oncology, were undecided. And a few were not only committed to neurology, but already certain which subspecialty they will pursue.

First-year medical student Collin Sanderson, who had been a neuroscience major at Brigham Young University, had a longstanding interest in headache medicine, as did his wife, Brianna, who had just completed her first year in graduate school training to become a...
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nurse practitioner. Although Sanderson understood her path forward would include a neurology residency followed by a head-
ache fellowship, Brianna was unsure how she could gain experience in neurology after school. The scholarship program was
loosely enough structured to allow Sanderson to attend headache lectures along with his wife, who as a student, was able
to attend the annual meeting free of charge. At one lecture, Brianna met head-
ache specialist David W. Dodick, MD, FAAN, professor of neurology from the
Mayo Clinic in Scottsdale, and by the end of their conversation, he had extended
a shadowing experience with him and his three nurse practitioners.

“It was incredible to be surrounded by people that we had only read about before who were so well-known in the
field of headache,” Sanderson said. “By the time I left there was no doubt in my mind I had made the right career choice,” he
said.

For Soares, it was serendipitous good fortune to have been paired with the clini-
cal director of the Massachusetts General Hospital (MGH) Pappas Center for
Neuro-Oncology, Justin T. Jordan, MD, MPH, an AAN Education Committee
member, during an initial orientation ses-
tion set up to advise her how to make the
most of the meeting.

“I had not known this subspecialty existed,” she said, explaining that prior conversations with her professors about her career dilemma, they had always remarked how different neuro-
ology and oncology were. “Then I met Dr.
Jordan and it was like a light bulb went off. The more I spoke with him about his
field, the more I had this overwhelming feeling that neuro-oncology is an area of medicine making a difference in the lives of patients and their families, and where I belong.”
—CHRISTY SOARES

“When you go through each specialty rotation in med school, they tell you to ask yourself, ‘Are these my people?’ and the answer which resonated loud and clear to me at the Pennsylvania Convention Center, was ‘Yes, these are my people.’”
—KAITLIN SANDOR

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FAAN, chief of the stroke service at Columbia University, among the poten-
tial mentors. Unfortunately, his time slots began at a time when she would be in transit to get back to school—but that did not deter her. She emailed Dr. Marshall, and they arranged to meet at the
convention center.

Both arrived with luggage in-hand be, just off the train and she, poised to catch a plane. They discussed what sparked her interest in neurology—an uncle with MS and a friend who died from a ruptured cerebral aneurysm—

Link Up For More Information

> Medical student at the annual
AAN-medicalstudent. Accessed
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> Gutmann L, Cahill C, Jordan JT, et
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