



Advancing interest in neurological surgery and allied subjects

NSA



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News & Notes

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Landmark study may impact standard stroke treatment guidelines

Emory.edu

Standard guidelines for stroke treatment currently recommend clot removal only within six hours of stroke onset. But a milestone study with results published in the *New England Journal of Medicine* shows that clot removal up to 24 hours after stroke led to significantly reduced disability for properly selected patients.

The international multi-center clinical study, known as the DAWN trial, randomly assigned 206 stroke victims who arrived at the hospital within six to 24 hours to either endovascular clot removal therapy, known as thrombectomy, or to standard medical therapy.

Thrombectomy involves a catheter placed in the femoral artery and snaked up the aorta and into the cerebral arteries where the clot that is blocking the artery, and causing the neurological symptoms, is retrieved.

Almost half of the patients (48.6 percent) who had clot removal showed a considerable decrease in disability, meaning they were independent in activities of daily living 90 days after treatment. Only 13.1 percent of the medication group had a similar decrease. There was no difference in mortality or other safety end-points between the two groups.

“These findings could impact countless stroke patients all over the world who often arrive at the hospital after the current six-hour treatment window has closed,” says co-principal investigator Raul Nogueira, MD, professor of neurology, neurosurgery and radiology at Emory University School of Medicine and director of neuroendovascular service at the Marcus Stroke & Neuroscience Center at Grady Memorial Hospital.

“When the irreversibly damaged brain area affected by the stroke is small, we see that clot removal can make a significant positive difference, even if performed outside the six-hour window,” says co-principal investigator Tudor Jovin, MD, director of the University of Pittsburgh Medical Center Stroke Institute. “However, this does not diminish urgency with which patients must be rushed to the ER in the event of a stroke. The mantra ‘time is brain’ still holds true.”

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PDMP software change nears

The Prescription Drug Monitoring Program (PDMP) is a program developed to promote the public health and welfare by detecting diversion, abuse, and misuse of prescription medications classified as controlled substances under the Alabama Uniform Controlled Substances Act. This law requires anyone who dispenses Class II, III, IV, V controlled substances to report the dispensing of these drugs to the database.

On Dec. 12, 2017, the Alabama PDMP is scheduled to change its database software system to the Appriss PMP AWARxE system.

In PMP AWARxE, the username will be an email address and **each user must have a unique user name** (email address). Any accounts that share the same email address will **not** be transferred to the new system. If your account is not transferred, you will have to submit a new registration application and wait for your account to be approved by the state administrator.

For assistance, please contact technical support directly at (855) 925-4767 option 1.

For policy questions, you may contact the Alabama Prescription Drug Monitoring Program at (877) 703-9869 or by email at pdmp@adph.state.al.us. 

Save the date for NSA's 2018 Conference • July 20-22, Hilton Sandestin

Make hotel reservations by calling (850) 267-9500. Rates begin at \$325 per night and apply for two days before and two days after the conference, based on availability. The NSA Room Block expires on June 20.

We expect rooms to sell out. Book your room early.

New Medicare cards coming in April

The Centers for Medicare & Medicaid Services (CMS) has redesigned its Medicare card to remove Social Security numbers and use a unique, randomly-assigned number in an effort to better protect users from identity theft and fraud.

CMS will begin mailing the new cards to people with Medicare benefits in April 2018 to meet the statutory deadline for replacing all existing Medicare cards by April 2019.

CMS has assigned all people with Medicare benefits a new, unique Medicare number, which contains a combination of numbers and uppercase letters.

Health care providers and people with Medicare will be able to use secure look-up tools that will allow quick access to the new Medicare numbers when needed. There will also be a 21-month transition period where doctors, health care providers and suppliers will be able to use either their current SSN-based Medicare number or their new, unique Medicare number, to ease the transition.

For more information, please visit: www.cms.gov/newcard.

How to get ready for the change

- Ask your billing and office staff if your system can accept the new 11-digit alphanumeric Medicare Beneficiary Identifier.
- If your system cannot accept the new number, system changes should be made by April 2018.
- If providers use vendors to bill Medicare, ask them about their MBI practice management system changes and make sure they are ready for the change.
- Verify your patients' addresses: If the address you have on file is different than the address you get in electronic eligibility transaction responses, ask your patients to contact Social Security and update their Medicare records. This may require coordination between your billing and office staff.

For more information go to <https://www.cms.gov/Medicare/New-Medicare-Card/Providers/Providers.html>. 



Point/Counterpoint: Opioid prescriptions – What is a neurosurgeon's responsibility?

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The Point position is taken by Sharona Ben-Haim, MD, assistant professor of Neurosurgery at the University of California, San Diego, and an adjunct professor at the Salk Institute for Biological Science. The Counterpoint position is taken by Christopher J. Winfree, MD, FAANS, assistant professor of Neurological Surgery at the College of Physicians and Surgeons in New York.

Point: Neurosurgeons take care of patients in both acute and chronic pain and should have the capacity to treat these patients within the scope of their practice. Since opioids represent a good therapeutic option for the treatment of many types of pain, neurosurgeons should utilize these medications when necessary.

Counterpoint: Neurosurgeons should be prepared to treat routine postoperative pain typically encountered in neurosurgical practice, which can include the use of short term opioid medications. However, the treatment of patients with chronic pain, or patients who require long-term opioids after surgery, is a complex endeavor that is outside the scope of routine neurosurgical practice. Neurosurgeons should not be the primary provider of pain medications for these patients.

Point: The treatment of complex pain is indeed within the scope of neurosurgical practice. Neurosurgeons have treated pain since the inception of the field and have pioneered advancements for the most complex types of pain syndromes. All neurosurgeons are trained in the diagnosis and treatment of a variety of acute and chronic pain disorders. This is part of residency, board

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Stroke treatment guidelines continued

To select patients for the trial, the researchers used a new approach which used brain imaging and clinical criteria as opposed to just time alone.

“Looking at the physiological state of the brain and evaluating the extent of tissue damage and other clinical factors seems to be a better way to decide if thrombectomy will benefit patients as opposed to adhering to a rigid time window,” says Nogueira.

The researchers planned to enroll a maximum of 500 patients over the course of the study period. However, a pre-planned interim review of the treatment effectiveness after 200 patients were enrolled in the trial led the independent Data Safety Monitoring Board overseeing the study to recommend early termination of the trial, based on pre-defined criteria demonstrating that clot removal provided significant clinical benefit in the studied patients.

“Our research and clinical teams are immensely proud of

these breakthrough findings, which are so profound they will likely result in a paradigm shift that will not be seen again for many years in the field of stroke therapeutics,” says Michael Frankel, MD, professor of neurology, Emory University School of Medicine, chief of neurology and director of the Marcus Stroke and Neuroscience Center for the Grady Health System.

According to Frankel, the Emory neuroscience team was a major contributor to the DAWN trial, working at Grady Memorial Hospital, the second leading site of the trial's enrollment.

The DAWN trial included trial locations in the United States, Spain, France, Australia and Canada. The trial was sponsored by Stryker Corporation, a medical technology company that manufactures the clot removal devices used in the study.

The DAWN trial results were presented at the European Stroke Organization Conference in May. 

Under pressure: Novel technology to model pressure-induced cellular injuries in the brain

eurekalert.org

Hundreds of thousands of patients from newborns to the elderly are forced to grapple with the devastation of brain injury each year, and unlike many diseases where certain demographics are protected, brain injury can happen to anyone, anytime and anywhere. Elevated intracranial pressure (ICP), which is a byproduct of the rigid skull in which the brain resides, is the primary cause of initial injury. High ICP in turn causes cellular injuries in the brain and additional neurological deficits beyond those associated with the initial insult. Although substantial research has been done on brain injuries, most of it focuses on patient outcomes after the primary insult and does not explore the secondary cellular injuries caused by persistent elevation of ICP or the mechanisms that underlie them. As a result, little is known about those mechanisms.

Investigators at the Medical University of South Carolina (MUSC) have developed an ex vivo model of ICP-induced cellular injury that preliminary data suggest could be a useful tool for understanding early cell-injury

mechanisms and identifying biomarkers associated with pathological pressure in multiple brain injury etiologies. They report their findings in an article published online on October 6, 2017, by the *Journal of Neuroscience Methods*.

“The novelty of this model is that there are very few examples in the literature where people have been able to put cells under pressure to see the effects,” says Michael E. Smith, PhD, assistant professor of neurosurgery in the MUSC College of Medicine and first author on the article. “In patients with brain injury, the initial insult has already occurred and the clinician can only do so much to address that damage. Addressing the secondary ICP-induced effects could help minimize the neurological deficits sustained by the patient. We are interested in modeling ICP-induced secondary cellular injury to facilitate the development of such therapies.”

The system, devised by Smith and Ramin Eskandari, MD, director of pediatric neurosurgery at MUSC Children’s Health and senior author on the article, is composed of separate acrylic chambers inside a cell culture incubator

under a regulated and adjustable pressure. The originality of this ex vivo system is the ability to expose a 3D matrix of brain cells to extended periods of sustained as well as pulsatile pressure conditions while having complete control over all other parameters of the cell culture system. This allows for systematic and reproducible assessments of pressure effects at the cellular level.

To experimentally test this system, Smith and Eskandari subjected astrocytes or neurons embedded in 3D hydrogels to a pressure of 30 cm H₂O (22 mm Hg), which is considered pathological pressure, for various periods of time from a couple of hours to a couple of days. Adenosine triphosphate (ATP) release, which signals cellular stress and susceptibility to damage, was measured, as was the viability of the various cells once they were removed from pressure.

Under sustained pressure exposure, the ATP release was significantly higher in neurons compared with controls at 18 hours of exposure, while little effect was observed in astrocytes. Similarly, initial data demonstrate that neurons are more susceptible to pressure and, after a couple of days of pressure exposure, have a delayed but dramatic decrease in viability even when pressure is normalized. This novel model of elevated ICP successfully initiated cellular stress and did so in a cell-specific manner.

The model, developed to study pediatric hydrocephalus, could prove useful in elucidating mechanisms that are relevant to other types of brain injury, including brain tumors, stroke, subdural hematoma and traumatic brain injury.

“The ability to stop the deleterious downstream effects of brain injury diseases will allow clinicians to alter the recovery process in some of the most devastating diseases from which humans suffer,” says Eskandari. “Developing that ability starts with a model system that is reliable and reproducible and can be easily altered to study many different diseases. We feel that we have created such a model and are excited to be finally demonstrating our results.” 



AANS 2018 Annual Scientific Meeting April 28-May 2 • New Orleans

The 2018 AANS Annual Scientific Meeting will be held in New Orleans, April 28 - May 2. Plan to attend for the latest in neurosurgical science and hands-on training in clinical care. AANS President Alex Valadka, MD, FAANS, has chosen the theme, *Neurosurgery: The Privilege of Service*, which attendees will see played out through the speakers, awards and special events organized around the meeting.

[Learn more at www.aans.org](http://www.aans.org).

Point/Counterpoint continued

certification, maintenance of certification (MOC) and continuing medical education (CME).

In many subspecialties, including complex spine surgery, neurosurgical procedures have become progressively more complicated and extensive, and the resultant postoperative pain demands have similarly been raised. Additionally, improvements in critical care have allowed patients to survive more complex and potentially painful injuries to multiple organ systems. These patients need adequate pain treatment by their treating physicians.

Counterpoint: While neurosurgeons should certainly be allowed and expected to treat complicated patients with pre-existing or postoperative chronic pain, they should not be obligated to treat these patients' complex pain needs. These patients are best treated by a specialist in the medical management of chronic pain, such as a pain management physician. Most neurosurgeons cannot properly commit to the comprehensive management of these patients, which includes aspects outside the scope of a typical neurosurgical practice that may involve employing tools like the use of opioid contracts, keeping up with new and rapidly changing legislation on prescribing requirements and providing these patients with psychological support.

Point: Any neurosurgeon who becomes a specialist in treating such challenging

patients must be capable of handling their postoperative pain requirements in a competent and humane fashion.

Counterpoint: Many of the needs of these complex patients have already become compartmentalized within different subspecialties in order to provide the best level of care. For the complex neurosurgical patient, there are often a variety of specialists involved, including critical care, infectious disease and trauma specialists, amongst others. The management of pain in these patients is no different that the management of any other organ system and should be handled by the most appropriate specialist available, which is generally a pain management physician.

Point: Neurosurgeons can, and should, handle all of the postoperative pain management in these patients. They are uniquely capable of effectively incorporating the treatment of pain into the overall clinical picture.

Counterpoint: While neurosurgeons are certainly capable of becoming specialists of chronic pain management themselves, the management of a chronic pain patient who has been on chronic opioids for many years can be difficult, time consuming and fraught with complications. Recently, physicians have been charged and convicted of felonies, including manslaughter and murder, for overprescribing opioids. Neurosurgeons who accept this responsibility need to

familiarize themselves with an entirely different and rapidly evolving field to be sufficiently competent.

Overall, the complex neurosurgical pain patient will be best served by the most capable physician with expertise, and ideally fellowship training, in the field of pain management. If this happens to be the treating neurosurgeon, based upon their interest, training and practice, then they should be allowed to manage these issues. Otherwise, neurosurgeons should be encouraged to involve a pain specialist, when appropriate, to help manage the needs of these complex patients.

Point: To summarize, neurosurgeons should write opioid prescriptions and medically manage neurosurgical pain; however, this should be done by the neurosurgeon only to the extent that they are comfortable doing so with their training and experience. This is usually for routine postoperative pain management for patients undergoing straightforward cranial, spine and nerve surgery. Once the situation becomes more complex, for example in the setting of the polytrauma patient with amplified pain issues, the postoperative chronic pain patient on long-term opioids or the chronic patient needing long-term opioid maintenance therapy under the guidance of an opioid contract, then the neurosurgeon should have the option of involving a pain management specialist to assume some of these responsibilities. 🍌

Online CME available

American Association of Neurological Surgeons

The AANS offers members several opportunities to meet CME requirements before the end of 2017. Access online courses offering subspecialty CME in pain, trauma, opioid use and more.

Members can also earn up to 36 *AMA PRA Category 1 Credits*™ by reading the online-only publication, *Neurosurgical Focus* and completing the CME test associated with each issue.

Visit [MyAANS](#) to print out CME and subspecialty transcripts. 🍌

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Neurosurgical Society of Alabama

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The neurosurgical society of Alabama is organized is to advance the interest in neurological surgery and allied subjects and to act as a representative for its members at the discretion of the membership.

The articles contained in NSA News & Notes are meant to provoke thought and comment and do not necessarily reflect the views and opinions of the members, Executive Council or staff of the Neurosurgical Society of Alabama. Comments and letters to the editor are welcome Send to cmorris@alamedical.org.



Neurosurgical Society of Alabama

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