The Rise of Stroke Intervention

In the medical field, there is no shortage of focus on new trends and technologies as we continually aim to progress in our abilities to offer improved patient care. Although some new options do ultimately change the way we practice, we generally recognize that it is important to avoid too much hype or excitement early in the process, before new options are proven. As such, you might be inclined to take the following statement with a grain of salt: In the field of neurointervention, the recent advancements observed in treating emergent large vessel occlusions (ELVOs) using interventional methods truly have been nothing short of revolutionary.

The results first observed in a clinical trial setting in the landmark MR CLEAN trial and subsequently shown in additional studies prove that mechanical thrombectomy is superior to the standard of care (no treatment or tissue plasminogen activator [tPA], depending on when the patient presented for treatment). Shortly after data from MR CLEAN were announced, ongoing trials were faced with a newfound lack of equipoise in randomizing patients to tPA alone, ultimately halting those endeavors; in analyzing the data collected to that point, it was largely determined that they too supported mechanical thrombectomy as the new standard of care in treating patients with ELVO. The collective data from these trials also resulted in new guidelines for how ischemic stroke patients should be managed.

Interestingly, although the role of interventional stroke management has now been established, it is important to remember that we are still in the relative nascence of this therapy, with great strides still to be made—and many reasons to think they will be.

In this edition of *Endovascular Today*, experienced neurointerventional experts provide a snapshot at this critical point in the interventional stroke management timeline, chronicling what we know and what must be further explored.

First, Frank J. Attenello, MD, and William J. Mack, MD, provide an overview of the key trials to date. Although milestone conclusions were arrived upon in these trials, new questions were also brought to light, the answers to which will shape the further improvement of our capabilities. Reade A. De Leacy, MBBS, and J Mocco, MD, explore some of these key areas in an article discussing what types of trials are needed, as well as those that are currently underway.

Although the updated American Heart Association/American Stroke Association guidelines are a tremendous step forward in recognizing the role of interventional ELVO management, the neurointerventional community, represented by the Society of NeuroInterventional Surgery (SNIS), developed its own set of guidelines. Mahesh Jayaraman, MD, discusses the differences in the guidelines and the goals of those established by SNIS.

Next, Adnan H. Siddiqui, MD, and colleagues describe the recent evolution of various ELVO therapies ranging from stent retrievers and aspiration to delivery techniques. Richard P. Klucznik, MD, shares his perspectives and key tips in stent retriever use. Aquilla S. Turk, MD, and colleagues present the ADAPT concept, wherein direct aspiration is attempted as a first-line therapy. Next, the same group from the Medical University of South Carolina explains why certain imaging findings may be a better determinant for patient selection than time from onset.

Of course, time is still a huge factor. As stroke therapies increasingly enter the paradigm at more facilities, we must continue to improve our time to treatment. Jeffrey Wagner, MD, discusses various stroke team concepts and how to determine which is best for each hospital and region. Another initiative aimed at evaluating and treating patients faster is the mobile stroke treatment unit (MSTU)—an ambulance specially designed for stroke intake. M. Shazam Hussain, MD, and colleagues describe this concept, as well as his group's experience implementing an MSTU in Cleveland. Finally, we are also fortunate to have coding expert Kathy Krol, MD, with an article on how to apply the new CPT codes for stroke in 2016.

Whether you are a neurointerventional specialist already experiencing the sea of change or a peripheral specialist with limited exposure to the concepts described here, I hope you find this edition of *Endovascular Today* informative and stimulating. ■

Donald Frei, MD
Guest Chief Medical Editor