# Treating Acute Hemorrhagic and Ischemic Stroke

Managing hemorrhagic and ischemic stroke, cerebral aneurysms, and occlusions in the neurovasculature requires a unique set of skills and knowledge of available options to ensure favorable patient outcomes. Treatment decisions and subsequent interventions must be made with careful urgency, and facilities must be prepared for a wide variety of patient presentations. However, there remain many areas in which the best method of revascularization or vessel occlusion is uncertain. Many different devices and catheter techniques exist for both ischemic and hemorrhagic stroke patients. We must be diligent in our decision-making process for each individual patient by having information concerning multiple therapeutic options. As techniques advance and devices improve, the role of the stroke specialist must also evolve. We must keep informed of what our colleagues are studying, and what their results have been in everything from procedural outcomes to staff training and stroke center protocols. This month, we present an overview of current experiences with various technologies being used at top institutions.

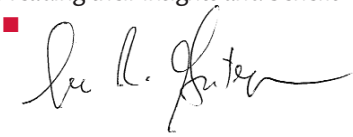
To open our feature, Kyle M. Fargen, MD, MPH; Brian Hoh, MD; and J Mocco, MD, MS, review research and present treatment of cerebral aneurysms using endovascular techniques. Marilyn M. Rymer, MD, a neurologist from one the highest-volume stroke centers in the United States, discusses the evolution of acute stroke intervention, addressing advancements in imaging, devices, and lytics, as well as challenges for improving patient outcomes. Dr. Rymer has built an impressive stroke network by partnering with neuroradiology and neurosurgery and providing careful attention to patient transfers and their families. Holly C. Bowser, MBA, and I then discuss five tips on how stroke centers can improve the treatment to their patients via hospital networking and enhancing stroke team communication, neuroimaging, and processes and protocols.

We also have a pair of articles describing two techniques for treating subarachnoid hemorrhage (SAH). Kıvılcım Yavuz, MD, and Saruhan Çekirge, MD, describe their experience with balloon remodeling techniques for coil placement in the treatment of aneurysmal SAH. This high-volume team in Ankara, Turkey became experts on this technique after using balloons with Onyx to treat aneurysms. Demetrius Lopes, MD; Erwin Mangubat, MD; Kiffon Keigher, APN; and Charlie Cogan offer a look at treating aneurysmal SAH with nitinol self-expanding stents and coils. Dr. Lopes's group from Rush in Chicago has a vast experience using intracranial stents in combination with coils to treat wide-necked aneurysms. As new device technology continues to undergo research and clinicians gain experience, we may begin to see lower rates of complications. Finally, I describe the future role of the endovascular therapist in caring for the acute stroke patient.

Outside of our feature on neurovascular interventions, we present two interesting case reviews. Chronic mesenteric ischemia this is on the rise in an increasingly aging patient population. Larry Horesh, MD, shares a case report that describes a revisionary endovascular procedure using PTFE-covered stents for a long-term solution. Next, Sotero E. Peralta, MD; Julio Calderin, MD; and Toufic K. Safa, MD, FACS, detail a technique for the percutaneous endovascular repair of a distal superficial femoral artery aneurysm.

We close with an interview with John H. Rundback, MD, who discusses the TACIT and CREST trials and shares his thoughts on the future of interventional radiology.

I would like to thank all of the contributors to this issue. We hope that you enjoy reading their insights and benefit from their experiences. ■



Lee Guterman, PhD, MD
Guest Chief Medical Editor