



The 2025 annual meeting of the Neurosurgical Society of America showcased exceptional science and thought-provoking discussions. Notably, the cerebrovascular sessions featured cutting-edge projects aimed at refining current treatments, advancing technical strategies, and exploring innovations that may shape the future of cerebrovascular care. Several presentations stood out for their innovation and relevance. Two abstracts focused on technology-driven approaches with the potential to improve access and diagnostic accuracy in cerebrovascular care:

- **Dr. Bendok** presented “*Real-Time Remote Telerobotic Magnetic Navigation for Endovascular MCA and Basilar Artery Simulated Stroke Thrombectomy Across 5,700 Miles*”. This provocative early study demonstrated the feasibility of performing remote neuroendovascular procedures, potentially expanding access to high-quality stroke care in underserved regions.
- **Dr. Charbel** and his team introduced preliminary data on **photoacoustic imaging** for detecting intraventricular hemorrhage (IVH) in neonates. Using a sheep model, they showed improved sensitivity compared to ultrasound. While early, this novel, non-invasive technique may offer significant global benefits for diagnosing life-threatening hemorrhages.

Dr. Schirmer presented compelling work on therapeutic hypothermia in acute stroke. Revisiting prior concepts with a new rapid cooling system, his team showed that improved technology may overcome earlier limitations and yield meaningful clinical benefit.

Understanding incidental cerebral aneurysms remains central to vascular neurosurgery. **Dr. Ogilvy** presented a dual-center, case-control study involving over 15,000 patients. Results showed higher prevalence and more complex unruptured aneurysms among males with current or past smoking histories. Given the increased risk, screening in this population may be warranted.

Among the technically focused presentations, several highlighted procedural advancements:

- **Dr. Choudhri** discussed combining flow diversion with LVIS and WEB intrasaccular devices for treating complex wide-neck aneurysms. While further validation is needed, this combined approach may serve as a salvage or primary strategy in select cases.
- **Dr. Tjoumakaris** explored the off-label use of the **Resolute Onyx drug-eluting stent** for intracranial atherosclerotic disease (ICAD). Despite historical challenges with ICAD treatment, this approach may offer a promising alternative to bare metal stents in select patients.

In basic science, **Dr. Jackson** revisited the combined use of **cilostazol and albumin** in a rodent model of delayed cerebral ischemia (DCI) following subarachnoid hemorrhage. The treatment demonstrated reduced cerebral edema, decreased vasospasm, improved behavioral outcomes, and enhanced survival—findings that may justify future human trials.

Dr. Waldau presented data on **direct middle meningeal artery embolization (MMAE)** during mini-craniotomy for chronic subdural hematoma evacuation. Seventeen patients underwent this combined procedure, demonstrating feasibility and highlighting technical nuances. While further study is needed, this approach may improve surgical workflow and outcomes.

Finally, training the next generation of neurosurgeons was addressed by **Dr. Howard**, who analyzed three years of data from CAST-accredited cerebrovascular fellowship programs. One-third of programs were on probation, and only one-third of programs with fellows met case volume requirements. These findings highlight the ongoing challenges in achieving adequate exposure in both open and endovascular training and underscore the need for strategic planning in education.