Post-TAVR Seizure Without Stroke: A Rare Neurological Complication in a Patient With Pre-Existing Lacunar Infarcts

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BACKGROUND

Transcatheter aortic valve replacement (TAVR) is an effective treatment for severe aortic stenosis in high-risk patients. While neurological complications, particularly stroke, are well-documented, seizures remain rare and poorly understood. Identifying risk factors, underlying mechanisms, and management strategies for post-TAVR seizures is crucial, particularly in patients with pre-existing cerebrovascular disease.

CASE

An 89-year-old male with CAD post-PCI, hypertension, prior lacunar stroke, and diabetes underwent elective TAVR for symptomatic severe aortic stenosis (AVA 0.85 cm^2, mean gradient 23 mmHg). A 34 mm Medtronic CoreValve Evolute FX+ with 25 mm True Balloon predilation was implanted successfully with Sentinel cerebral artery protection device, resulting in an AVA of 3.47 cm^2, no significant paravalvular leak, and stable hemodynamics. One hour post-procedure, he developed a generalized tonic-clonic seizure, lasting ~90 seconds, followed by a prolonged postictal phase. Levetiracetam was initiated. Brain CT and MRI revealed chronic lacunar infarcts with no hemorrhage, CTA was unremarkable. TEE ruled out cardiac thrombus or embolism. Patient was discharged on dual antiplatelet therapy (DAPT), levetiracetam and outpatient EEG with neurologist.

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Seizures can occur after TAVR even in the absence of stroke, particularly in patients with pre-existing cerebrovascular disease, and require prompt evaluation and management.

DECISION MAKING

Stroke occurs in 2-6% of TAVR cases, yet seizures are underreported, may occur due to microembolization, transient ischemia, or cortical hyperexcitability in patients with pre-existing cerebrovascular disease. In this case, the patient's history of lacunar infarcts likely increased susceptibility by impairing cerebrovascular autoregulation. Procedural hemodynamic fluctuations and subclinical embolization may have triggered seizure activity.

RESULTS

This case highlights the importance of recognizing post-TAVR seizures, particularly in patients with pre-existing cerebrovascular disease. Early neurological evaluation, imaging, and targeted management including antithrombotic therapy considerations are essential. Further research is needed to delineate the mechanisms and optimal treatment strategies for post-TAVR seizures.

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