



Editorial

Art and Science of Cerebrovascular Event Prevention After Transcatheter Aortic Valve Replacement

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Transcatheter aortic valve replacement (TAVR) has been established as a standard of care worldwide in patients with degenerative severe aortic stenosis deemed at high or prohibitive risk for surgical aortic valve replacement. Since its early inception, stroke has been the most feared potential complication. In the early experience, rates of clinical stroke at 30 days after TAVR ranged between 4% and 6%. The substantial improvements in case selection, procedural technique, device technology development, and operator experience overtime dropped this rate substantially.¹ Of note, in a large high-risk TAVR trial with a self-expandable device, the risk of stroke over 3 years was higher in the control group of patients undergoing surgical aortic valve replacement.² Despite the availability of surgical aortic valve replacement for long time, the issues discussed hereafter have not yet been investigated in prospective, randomized fashion. Although we focus on TAVR, owing to the 2 papers we are commenting upon, we should acknowledge upfront that cerebrovascular event (CVE) prevention remains a common theme for all kinds of bioprosthetic aortic valves, via surgical or transcatheter implantation.

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CVE during or after TAVR is a multifactorial phenomenon with clinical, anatomic, procedural, and pharmacological factor contributions.^{1,3} During TAVR, the predominant pathological mechanisms may be cerebral embolism of calcific or atherothrombotic debris during positioning and implantation of the valve prosthesis.³ After TAVR, thromboembolic mechanisms may include endovascular thrombosis (including upon small size emboli), late embolization of calcific or ...

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