Interventional management of isolated aortic regurgitation: therapeutic options in the era of off-label transcatheter aortic valve implantation

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Isolated aortic regurgitation (AR) presents distinct challenges in interventional cardiology. Unlike aortic stenosis (AS), AR typically lacks annular calcification, complicating the anchoring of transcatheter valves. While surgical aortic valve replacement (SAVR) remains the gold standard, many patients are deemed high-risk or inoperable due to comorbidities or frailty. In this population, transcatheter aortic valve implantation (TAVI), although off-label for AR, is emerging as a viable alternative. New-generation TAVI devices offer features designed to improve sealing and anchoring in non-calcified anatomy. Among these, only the JenaValve has been specifically developed and tested for use in pure AR. Although currently limited in availability across Europe, it has received CEmark approval for severe, symptomatic AR in highsurgicalrisk patients and has seen early commercial use in select centers. The other valves are used off-label in this setting. These include self-expanding systems like Evolut PRO+, CoreValve Evolut R and ACURATE neo2. Self-expanding valves rely on radial forces for anchoring, but their use in pure AR is limited due to the risk of valve migration. Balloon-expandable valves, such as the SAPIEN 3, typically require some degree of annular calcification for optimal fixation. Careful patient selection through multimodal imaging—echocardiography, CT, and MRI—is critical. Ideal candidates include those with severe symptomatic AR, high surgical risk, and anatomical suitability for TAVI. Clinical data from registries (TOPAS, GARY, FRANCE-TAVI) show encouraging results with newer devices, including symptom relief, left ventricular remodeling, and improved quality of life, albeit with higher rates of complications like device migration and paravalvular leak.[1] Ethical considerations are paramount, necessitating thorough patient counseling and shared decision-making. As dedicated devices and ongoing trials evolve, off-label TAVI may redefine treatment paradigms for high-risk AR patients. However, further randomized data are needed to establish its safety, efficacy, and long-term outcomes.

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LITERATURE

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