

## Letter: Permanent pacing after TAVI for aortic regurgitation: distinctive predictors in a new landscape

Rafael Alessandro Ferreira Gomes\*, MD, MSc, PhD; Fabiano Cantarelli Lima, MD; Eduardo Pessoa de Melo, MD; Jorge Augusto Nunes Guimarães, MD, MSc, PhD

\*Corresponding author: PROCAPE, Rua dos Palmares, s/n, Santo Amaro, Recife, PE, 74970-240, Brazil.  
E-mail: rgomesrecife@gmail.com

*Editor's note: The authors of the original article were invited to reply but declined to do so.*

We congratulate Wienemann and colleagues on their important contribution to the field of structural heart interventions, reporting a 24.1% rate of permanent pacemaker implantation (PPI) in pure aortic regurgitation (AR) patients undergoing transcatheter aortic valve implantation (TAVI) with the JenaValve Trilogy system (JenaValve Technology). As TAVI indications extend beyond aortic stenosis (AS), their study provides timely and clinically relevant insights into conduction disturbances in this unique patient population<sup>1</sup>.

In AS, PPI post-TAVI is a well-recognised complication primarily driven by mechanical compression of the conduction system, particularly from deep valve implantation and radial force from self-expanding prostheses<sup>2</sup>. Large registries such as the STS/ACC TVT Registry consistently report PPI rates of ~10-11% in AS populations, despite ongoing improvements in device design and operator experience<sup>3</sup>. The NEOPRO and NEOPRO-2 registries (n=3,211) showed similar results, identifying right bundle branch block (RBBB) and depth of implantation as independent predictors of PPI<sup>4</sup>. These findings support the utility of mechanical and anatomical markers to guide risk prediction in TAVI for AS.

In contrast, Wienemann et al identified only baseline conduction disturbances – first-degree atrioventricular block and RBBB – as predictors of PPI, while oversizing and implantation depth were not statistically significant. This suggests a shift in mechanistic paradigms in TAVI for AR, potentially due to the unique characteristics of the JenaValve Trilogy, which anchors via native cusp engagement without the radial expansion typical of other prostheses<sup>1</sup>.

Given this, patient-level conduction susceptibility may play a more central role in AR than mechanical factors.

These insights raise important clinical questions: should we employ different electrocardiogram-based screening tools in AR patients? Is there a role for intraprocedural electrophysiological monitoring or tailored pacing strategies?

Emerging multicentre experiences – including those using the JenaValve or alternative devices for AR – support the need for further dedicated registries and trials to validate risk models and refine procedural techniques<sup>5</sup>. Future studies should also assess long-term pacing dependency and ventricular function in this subgroup.

In summary, this work highlights the necessity of adapting our conduction risk framework to the pathophysiological context of AR and the characteristics of novel valve designs.

### Authors' affiliation

Pronto-Socorro Cardiológico de Pernambuco (PROCAPE-UPE), Recife, Brazil

### Conflict of interest statement

The authors have no conflicts of interest to declare.

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