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Clinical Research

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Effect of Valve Design on the Stent Internal Diameter of a Bioprosthetic Valve: A Concept of True Internal Diameter and Its Implications for the Valve-in-Valve Procedure **115**

Vinayak N. Bapat, Rizwan Attia, Martyn Thomas

Transcatheter heart valves (THVs) are increasingly used to treat degenerated surgical heart valves (SHVs). This novel treatment is promising and less invasive. Choosing a correct THV size for a particular type of SHV is important to avoid problems associated with oversizing and undersizing. Labeled size and the stent internal diameter (ID) of an SHV are not accurate measurements of its true ID. We measured the true ID of a variety of stented and 3 stentless valves and discuss its implications on performing a valve-in-valve procedure. The authors also discuss subtle differences when choosing a THV for aortic and mitral positions.

Impact of New-Onset Persistent Left Bundle Branch Block on Late Clinical Outcomes in Patients Undergoing Transcatheter Aortic Valve Implantation With a Balloon-Expandable Valve **128**

Marina Urena, John G. Webb, Asim Cheema, Vicens Serra, Stefan Toggweiler, Marco Barbanti, Anson Cheung, Jian Ye, Eric Dumont, Robert DeLarochellière, Daniel Doyle, Hatim A. Al Lawati, Marc Peterson, Robert Chisholm, Albert Igual, Henrique Barbosa Ribeiro, Luis Nombela-Franco, François Philippon, Bruno Garcia del Blanco, Josep Rodés-Cabau

The impact of new-onset persistent left bundle branch block (NOP-LBBB) after transcatheter aortic valve implantation (TAVI) remains controversial. We evaluated the impact of NOP-LBBB on late outcomes in 668 patients without a previous pacemaker or left bundle branch block (LBBB) undergoing TAVI with a balloon-expandable valve. NOP-LBBB occurred in 79 patients (11.8%). There were no differences in global or cardiovascular mortality, sudden death, or rehospitalizations for all causes or heart failure between the NOP-LBBB and no NOP-LBBB groups at 1-year follow-up. NOP-LBBB was associated with an increased rate of permanent pacemaker implantation, a lack of left ventricular ejection fraction improvement, and a poorer New York Heart Association functional class at follow-up ($p < 0.02$ for all).

See additional content in the online version of this issue.

EDITORIAL COMMENT

Left Bundle Branch Block After Transcatheter Aortic Valve Implantation: Still a Matter of Concern? **137**

Laurent Roten, Bernhard Meier

CME

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participate.

Usefulness of Baseline Activated Clotting Time–Guided Heparin Administration in Reducing Bleeding Events During Transfemoral Transcatheter Aortic Valve Implantation

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Chiara Bernelli, Alaide Chieffo, Matteo Montorfano, Francesco Maisano, Gennaro Giustino, Gill Louise Buchanan, Jaclyn Chan, Charis Costopoulos, Azeem Latib, Filippo Figini, Ermelinda De Meo, Francesco Giannini, Remo Daniel Covello, Chiara Gerli, Annalisa Franco, Eustachio Agricola, Pietro Spagnolo, Micaela Cioni, Ottavio Alfieri, Paolo Guido Camici, Antonio Colombo

Excessive intraprocedural anticoagulation with heparin may account for an increased occurrence of bleeding during transcatheter aortic valve implantation. However, no real standards to guide heparin dosing have been established in this field. Among 362 patients undergoing transfemoral transcatheter aortic valve implantation, heparin was administered according to baseline activated clotting time (ACT) (ACT-guided, n = 174) or patient's body weight (non-ACT-guided, n = 188). The ACT-guided group had a significantly lower occurrence of major (7.5% vs. 33.5%, $p < 0.001$), life-threatening (12.1% vs. 20.2%, $p = 0.04$), and any bleeding (25.9% vs. 64.9%, $p < 0.001$). This data suggest that the ACT-guided strategy might be a useful tool in reducing bleeding in this high-risk frail study group.

EDITORIAL COMMENT

Bleeding Avoidance in Transcatheter Aortic Valve Replacement: A Call to ACTION?

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Matthew I. Tomey, Roxana Mehran

Transapical Mitral Implantation of the Tiara Bioprosthesis: Pre-Clinical Results

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Shmuel Banai, Stefan Verhaye, Anson Cheung, Marc Schwartz, Alexei Marko, Randy Lane, E. Marc Jolicœur, Patrick Garceau, Simon Biner, Jean-Francois Tanguay, Elazer R. Edelman, Christopher J. White

The authors describe the pre-clinical evaluation of the Tiara (Neovasc Inc, Vancouver, British Columbia, Canada), a transcatheter self-expanding mitral bioprosthesis, in short-term and long-term animal models, and in a human cadaveric model. Excellent function and alignment of the valves were demonstrated, with no left ventricular outflow tract or coronary obstruction, and/or transvalvular gradients. In the long-term model, a mild degree of prosthetic valve regurgitation was seen in 2 of the 7 sheep. In human cadaver hearts, proper anatomic alignment and anchoring of the Tiara were demonstrated. Pre-clinical evaluation shows that transapical mitral implantation of the Tiara valve is feasible and safe, and results in a stable and well-functioning mitral bioprosthesis.

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