

Transcatheter Mitral Valve Replacement: Update on New Devices

Matthew J. Gillespie, MD^{1,2*}, Robert C. Gorman, MD^{2,3}, Joseph H. Gorman III, MD^{2,3}

¹ The Children's Hospital of Philadelphia, Division of Cardiology, Philadelphia, PA, USA

² Gorman Cardiovascular Research Group, Department of Surgery, Philadelphia, PA, USA

³ Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA

Abstract

Transcatheter Mitral valve replacement represents the next frontier in cardiac valve therapy. This review article details the authors' experience thus far in the development of a novel catheter-based mitral valve replacement device, and also highlights the preliminary experiences of other new technologies.

Copyright © 2016 Science International Corp.

Key Words

Mitral valve replacement • Mitral regurgitation • Transcatheter valve replacement • Ischemic mitral regurgitation • General

Conflict of Interest

The authors each have ownership interest in Annullon LLC, which is a company formed around this and other mitral valve technologies

[Comment on this Article or Ask a Question](#)

Suggested Reading

1. De Backer O, Piazza N, Banai S et al. Percutaneous transcatheter mitral valve replacement: An overview of devices in preclinical and early clinical evaluation. *Circ Cardiovasc Interv* 2014;7:400-409.
2. Herrmann HC, Maisano F. Transcatheter therapy of mitral regurgitation. *Circulation* 2014;130:1712-1722.
3. Karimov JH, Massiello AL, Fukamachi K. Overview of current sutureless and transcatheter mitral valve replacement technology. *Expert review of medical devices* 2013;10:73-83.
4. Shuto T, Kondo N, Dori Y et al. Percutaneous transvenous melody valve-in-ring procedure for mitral valve replacement. *J Am Coll Cardiol* 2011;58:2475-2480.
5. Kondo N, Shuto T, McGarvey JR et al. Melody valve-in-ring procedure for mitral valve replacement: Feasibility in four annuloplasty types. *Ann Thorac Surg*

Transcatheter Mitral Valve Replacement: Update on New devices

Matthew J. Gillespie MD^{1,2},
Robert C. Gorman MD^{2,3},
Joseph H. Gorman III MD^{2,3}

¹The Children's Hospital of Philadelphia, Division of Cardiology
²Gorman Cardiovascular Research Group, Department of Surgery
Perelman School of Medicine
University of Pennsylvania

The Children's Hospital of Philadelphia
CARDIAC CENTER

Affiliated with Penn Medicine
University of Pennsylvania School of Medicine

Slideshow. Click on the presentation above to view the presentation online. Please be aware that the presentation has embedded videos so there is a long load time (116.3MB). You may download the file at <http://dx.doi.org/10.12945/jjshd.2016.015.14.ppt.01>



- 2012;93:783–788.
6. Gillespie MJ, Minakawa M, Morita M et al. Sutureless mitral valve replacement: Initial steps toward a percutaneous procedure. *Ann Thorac Surg* 2013;96:670–674.
 7. Attmann T, Pokorny S, Lozonschi L et al. Mitral valved stent implantation: An overview. *Minim Invasive Ther Allied Technol* 2011;20:78–84.
 8. Cheung A, Webb JG, Wong DR et al. Transapical transcatheter mitral valve-in-valve implantation in a human. *Ann Thorac Surg* 2009;87:e18–20.
 9. Banai S, Jolicoeur EM, Schwartz M et al. Tivara: A novel catheter-based mitral valve bioprosthesis: Initial experiments and short-term pre-clinical results. *J Am Coll Cardiol* 2012;60:1430–1431.
 10. Bapat V, Buellfeld L, Peterson MD et al. Transcatheter mitral valve implantation (tmvi) using the edwards fortis device. *EuroIntervention* 2014;10 Suppl U:U120–128.
 11. Cheung A, Webb J, Verheye S et al. Short-term results of transapical transcatheter mitral valve implantation for mitral regurgitation. *J Am Coll Cardiol* 2014;64:1814–1819.
 12. Piazza N, Bolling S, Moat N, Treede H. Medtronic transcatheter mitral valve replacement. *EuroIntervention* 2014;10 Suppl U:U112–114.
 13. Anyanwu AC, Adams DH. Transcatheter mitral valve replacement: The next revolution? *J Am Coll Cardiol* 2014;64: 1820–1824.
 14. Hasan R, Mahadevan VS, Schneider H, Clarke B. First in human transapical implantation of an inverted transcatheter aortic valve prosthesis to treat native mitral valve stenosis. *Circulation* 2013;128:e74–76.
 15. Sinning JM, Mellert F, Schiller W, Welz A, Nickenig G, Hammerstingl C. Transcatheter mitral valve replacement using a balloon-expandable prosthesis in a patient with calcified native mitral valve stenosis. *European heart journal* 2013;34:2609.
 16. Fassa AA, Himbert D, Brochet E et al. Emergency transeptal transcatheter mitral valve-in-valve implantation. *EuroIntervention* 2013;9:636–642.
 17. Fassa AA, Himbert D, Brochet E et al. Transeptal transcatheter mitral valve implantation for severely calcified mitral stenosis. *JACC Cardiovascular interventions* 2014;7:696–697.
 18. Lozonschi L, Quaden R, Edwards NM, Cremer J, Lutter G. Transapical mitral valved stent implantation. *Ann Thorac Surg* 2008;86:745–748.

Cite this article as: Gillespie MJ, Gorman RC, Gorman JH. Transcatheter Mitral Valve Replacement: Update on New Devices. *Structural Heart Disease* 2016;2(2): 44-45. DOI: <http://dx.doi.org/10.12945/jjshd.2016.015.14>