

Current Status of Percutaneous Pulmonic Valve Therapies: The Melody Valve

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Abstract

Transcatheter percutaneous pulmonary valve implantation (PPVI) was first described in 2000 by Philip Bonhoeffer et al 1 as an alternative to open-heart surgery to prolong survival of a right ventricular outflow tract (RVOT) valve conduit.

Since then multiple studies have documented the short term benefits of PPVI implantation using the Melody™ valved stent (Medtronic Inc, Minneapolis, USA) for dysfunctional right ventricle to pulmonary artery (RV-AP) conduits.

This review discusses the development, current status and future endeavors of the Melody valve in the pulmonic position.

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Key Words

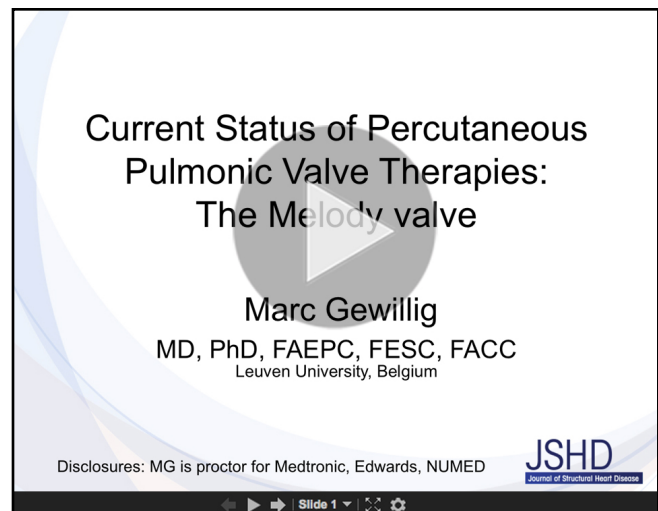
Pulmonic valve therapy • Melody valve

Conflict of Interest

The author is proctor for Medtronic, Edwards, NuMed.

References

1. Bonhoeffer P, Boudjemline Y, Saliba Z, Merckx J, Aggoun Y, Bonnet D, et al. Percutaneous replacement of pulmonary valve in a right-ventricle to pulmonary-artery prosthetic conduit with valve dysfunction. *Lancet* 2000;356(9239):1403-1405. DOI: 10.1016/S0140-6736(00)02844-0
2. McElhinney DB, Hellenbrand WE, Zahn EM, Jones TK, Cheatham JP, Lock JE, et al. Short- and medium-term outcomes after transcatheter pulmonary valve placement in the expanded multicenter US melody valve trial. *Circulation* 2010;122(5):507-516. DOI: 10.1161/CIRCULATION-HA.109.921692
3. Nordmeyer J, Lurz P, Khambadkone S, Schievano S, Jones A, McElhinney DB, et al. Pre-stenting with a bare metal stent before percutaneous pulmonary valve implantation: acute and 1-year outcomes. *Heart* 2011;97(2):118-123. DOI: 10.1136/hrt.2010.198382
4. McElhinney DB, Cheatham JP, Jones TK, Lock JE, Vincent JA, Zahn EM, et al. Stent



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- fracture, valve dysfunction, and right ventricular outflow tract reintervention after transcatheter pulmonary valve implantation: patient-related and procedural risk factors in the US Melody Valve Trial. *Circulation. Cardiovascular interventions* 2011;4(6):602-614. DOI: [10.1161/CIRCINTERVENTIONS.111.965616](https://doi.org/10.1161/CIRCINTERVENTIONS.111.965616)
5. Feltes TF, Bacha E, Beekman RH 3rd, Cheatham JP, Feinstein JA, Gomes AS, et al. American Heart Association Congenital Cardiac Defects Committee of the Council on Cardiovascular Disease in the Young; Council on Clinical Cardiology; Council on Cardiovascular Radiology and Intervention; American Heart Association. Indications for cardiac catheterization and intervention in pediatric cardiac disease: a scientific statement from the American Heart Association. *Circulation*. 2011;7;123(22):2607-2652. DOI: [10.1161/CIR.0b013e31821b1f10](https://doi.org/10.1161/CIR.0b013e31821b1f10)
 6. Boshoff DE, Cools BL, Heying R, Troost E, Kefer J, Budts W, et al. Off-label use of percutaneous pulmonary valved stents in the right ventricular outflow tract: time to rewrite the label? *Catheterization and cardiovascular interventions : official journal of the Society for Cardiac Angiography & Interventions* 2013;81(6):987-995. DOI: [10.1002/ccd.24594](https://doi.org/10.1002/ccd.24594)
 7. Gillespie MJ, Rome JJ, Levi DS, Williams RJ, Rhodes JF, Cheatham JP, et al. Melody valve implant within failed bioprosthetic valves in the pulmonary position: a multicenter experience. *Circ Cardiovasc Interv*. 2012;5(6):862-870. DOI: [10.1161/CIRCINTERVENTIONS.112.972216](https://doi.org/10.1161/CIRCINTERVENTIONS.112.972216)
 8. Meadows JJ, Moore PM, Berman DP, Cheatham JP, Cheatham SL, Porras D, et al. Use and performance of the Melody Transcatheter Pulmonary Valve in native and postsurgical, nonconduit right ventricular outflow tracts. *Circ Cardiovasc Interv*. 2014;7(3):374-380. DOI: [10.1161/CIRCINTERVENTIONS.114.001225](https://doi.org/10.1161/CIRCINTERVENTIONS.114.001225)
 9. Morray BH, McElhinney DB, Cheatham JP, Zahn EM, Berman DP, Sullivan PM, et al. Risk of coronary artery compression among patients referred for transcatheter pulmonary valve implantation: a multicenter experience. *Circulation. Cardiovascular interventions* 2013;6(5):535-542. DOI: [10.1161/CIRCINTERVENTIONS.113.000202](https://doi.org/10.1161/CIRCINTERVENTIONS.113.000202)
 10. Nordmeyer J, Khambadkone S, Coats L, Schievano S, Lurz P, Parenzan G, et al. Risk stratification, systematic classification, and anticipatory management strategies for stent fracture after percutaneous pulmonary valve implantation. *Circulation* 2007;115(11):1392-1397. DOI: [10.1161/CIRCULATIONAHA.106.674259](https://doi.org/10.1161/CIRCULATIONAHA.106.674259)
 11. Cools B, Budts W, Heying R, Boshoff D, Eyskens B, Frerich S, Troost E, Gewillig M. Medium term follow-up after percutaneous pulmonary valve replacement with the Melody® valve. *IJC Heart & Vasculature* 2015;7:92-97. DOI: [10.1016/j.ijcha.2015.02.014](https://doi.org/10.1016/j.ijcha.2015.02.014)
 12. Van Dijk I, Budts W, Cools B, Eyskens B, Boshoff DE, Heying R, et al. Infective endocarditis of the Melody valved stent in comparison to surgical implants in Right Ventricular Outflow Tract. *Heart*. 2015;101(10):788-93. DOI: [10.1136/heart-jnl-2014-306761](https://doi.org/10.1136/heart-jnl-2014-306761)

Cite this article as: Gewillig M. Current Status of Percutaneous Pulmonic Valve Therapies: The Melody Valve. *Journal of Structural Heart Disease* 2015;1(2):33-34. DOI: <http://dx.doi.org/10.12945/j.jshd.2015.012.14>