Mitral Valve Disease: The Latest Publications You Need to Know About

Robert O. Bonow, MD, MS
Northwestern University Feinberg School of Medicine
Bluhm Cardiovascular Institute
Northwestern Memorial Hospital
Editor-in-Chief, JAMA Cardiology

No Relationships to Disclose
Mitral Valve Disease: The Latest Publications You Need to Know About

- Primary mitral regurgitation
- Secondary mitral regurgitation
- Transcatheter technologies
Strain Echocardiography and Functional Capacity in Asymptomatic Primary Mitral Regurgitation With Preserved Ejection Fraction

Amgad Mentias, MD, Peyman Najli, MD, A. Marc Gillinov, MD, L. Leonardo Rodriguez, MD, Grant Reed, MD, Tomislav Mihaljevic, MD, Rakesh M. Suri, MD, DPhil, Joseph F. Sabik, MD, Lars G. Svensson, MD, PhD, Richard A. Grimm, DO, Brian P. Griffin, MD, Milind Y. Desai, MD


• 737 patients
• Myxomatous ≥3+ MR
• LVEF >60%
• Non-dilated LV
  LVESD <4 cm
  LVEDD <3.3 cm/m²
• Mean follow-up 8.3 years
• 737 patients
• Myxomatous ≥3+ MR
• LVEF >60%
• Non-dilated LV
  LVESD <4 cm
  LVEDD <3.3 cm/m²
• Mean follow-up 8.3 years
Strain Echocardiography and Functional Capacity in Asymptomatic Primary Mitral Regurgitation With Preserved Ejection Fraction

Amgad Mentias, MD, Peyman Najil, MD, A. Marc E. Zwirell, MD, Tomislav Mihaljevic, MD, Rakesh M. Suri, MD, MPH, Richard A. Grimm, DO, Brian P. Griffin, MD, Milosz A. Hannan, MD


- 737 patients
- Myxomatous ≥3+ MR
- LVEF >60%
- Non-dilated LV
  - LVESD <4 cm
  - LVEDD <3.3 cm/m²
- Mean follow-up 8.3 years
Strain Echocardiography and Functional Capacity in Asymptomatic Primary Mitral Regurgitation With Preserved Ejection Fraction

Amgad Mentias, MD, Peyman Najli, MD, A. Marco Barlach, MD, Tomislav Mihaljevic, MD, Rakesh M. Suri, MD, MS, FACC, Richard A. Grimm, DO, Brian P. Griffin, MD, M. Michelle L. McElhinney, MD, FACC, FESC


- 737 patients
- Myxomatous ≥3+ MR
- LVEF >60%
- Non-dilated LV
  - LVESD <4 cm
  - LVEDD <3.3 cm/m²
- Mean follow-up 8.3 years
Strain Echocardiography and Functional Capacity in Asymptomatic Primary Mitral Regurgitation With Preserved Ejection Fraction

Amgad Mentias, MD, Peyman Najl, MD, A. Marc Gillinov, MD, L. Leonardo Rodriguez, MD, Grant Reed, MD, Tomislav Mihaljevic, MD, Rakesh M. Suri, MD, DPhil, Joseph F. Sabik, MD, Lars G. Svensson, MD, PhD, Richard A. Grimm, DO, Brian P. Griffin, MD, Milind Y. Desai, MD

Subclinical Myocardial Dysfunction in Asymptomatic Mitral Regurgitation

“Watchful Waiting 2.0”**

Philippe B. Bertrand, MD, MSc, PhD,a,b Pieter M. Vandervoort, MD,a,b
Effect of Pulmonary Vascular Pressures on Long-Term Outcome in Patients With Primary Mitral Regurgitation

Amgad Mentias, MD, Krishna Patel, MD, Harsh Patel, MD, A. Marc Gillinov, MD, Joseph F. Sabik, MD, Tomislav Mihaljevic, MD, Rakesh M. Suri, MD, DPhil, L. Leonardo Rodriguez, MD, Lars G. Svensson, MD, PhD, Brian P. Griffin, MD, Milind Y. Desai, MD

J Am Coll Cardiol 2016;67:2952-2961

- 1318 patients
- Primary ≥3+ MR
- LVEF >60%
- NYHA functional class:
  - 54% FC I
  - 31% FC II
- Mean follow-up 7.1 years
Effect of Pulmonary Vascular Pressures on Long-Term Outcome in Patients With Primary Mitral Regurgitation

Amgad Mentias, MD, Krishna Patel, MD, Harsh Patel, MD, Tomislav Mihaljevic, MD, Rakesh M. Suri, MD, DHR, Brian P. Griffin, MD, Milind Y. Desai, MD

J Am Coll Cardiol 2016;67:2952-2961

• 1318 patients
• Primary >3+ MR
• LVEF >60%
• NYHA functional class:
  54% FC I
  31% FC II
• Mean follow-up 7.1 years

Chi-square for mortality

- Clinical model (STS score + Flail mitral leaflet + Indexed LV-end systolic diameter)
- Clinical model + baseline RVSP

P<0.001
Effect of Pulmonary Vascular Pressures on Long-Term Outcome in Patients With Primary Mitral Regurgitation

Amgad Mentias, MD, Krishna Patel, MD, Harsh Patel, MD, Tomislav Mihaljevic, MD, Rakesh M. Suri, MD, Dilip M. Shah, MD, Brian P. Griffin, MD, Milind Y. Desai, MD

J Am Coll Cardiol 2016;67:2952-2961

- 1318 patients
- Primary ≥3+ MR
- LVEF >60%
- NYHA functional class:
  - 54% FC I
  - 31% FC II
- Mean follow-up 7.1 years

![Graph showing survival (percent) over follow-up (Years)]
Effect of Pulmonary Vascular Pressures on Long-Term Outcome in Patients With Primary Mitral Regurgitation

Amgard Mentias, MD, Krishna Patel, MD, Harsh Patel, MD, A. Marc Gillinov, MD, Joseph F. Sabik, MD, Tomislav Mihaljevic, MD, Rakesh M. Suri, MD, DPht, L. Leonardo Rodriguez, MD, Lars G. Svensson, MD, PhD, Brian P. Griffin, MD, Milind Y. Desai, MD

J Am Coll Cardiol 2016:67:2952-2961

EDITORIAL COMMENT

Pulmonary Pressures and Outcome in Primary Mitral Regurgitation

Paradigm Shift From Rung to Ladder*

Patrizio Lancellotti, MD, PhD, a,b Christophe Martinez, MD, a Anne Bernard, MD, PhD a,c
Twenty-Year Outcome After Mitral Repair Versus Replacement for Severe Degenerative Mitral Regurgitation

Analysis of a Large, Prospective, Multicenter, International Registry

Siham Lazam, MS*
Jean-Louis Vanoverschelde, MD, PhD*
Christophe Tribouilloy, MD, PhD
Francesco Grigioni, MD, PhD
Rakesh M. Suri, MD, PhD
Jean-François Averine, MD
Christophe de Meester, PhD
Andrea Barbieri, MD
Dan Rusinaru, MD, PhD
Antonio Russo, MD
Agnès Pasquet, MD, PhD
Hector I. Michela, MD
Marianne Huebner, PhD
Joseph Maalouf, MD
Marie-Annick Clavel, DVM, PhD
Catherine Szymanski, MD, PhD
Maurice Enríquez-Sarano, MD
On behalf of the MIDAS (Mitral Regurgitation International Database) Investigators

Twenty-Year Outcome After Mitral Repair Versus Replacement for Severe Degenerative Mitral Regurgitation
Analysis of a Large, Prospective, Multicenter, International Registry

EDITORIAL

Valve Repair
A Durable Surgical Option in Degenerative Mitral Regurgitation

Bernard D. Prendergast, DM
Michele De Bonis, MD

Silam Lazam, MS*
Jean-Louis Vanoverschelde, MD, PhD*
Christophe Tribouilloy, MD, PhD
Francesco Grigioni, MD, PhD
Rakesh M. Suri, MD, PhD
Jean-Francois Aveline, MD
Christophe de Meester, MD
Andrea Barbieri, MD
Dan Rusinaru, MD, PhD
Antonio Russo, MD
Agnes Pasquet, MD, PhD
Hector I. Michelela, MD
Marianne Huebner, PhD
Joseph Maalouf, MD
Marie-Annick Clavel, DVM, PhD
Catherine Szymanski, MD, PhD
Maurice Enriquez-Sarano, MD
On behalf of the MIDA (Mitral Regurgitation International Database) Investigators

Relation of Mitral Valve Surgery Volume to Repair Rate, Durability, and Survival

Joanna Chikwe, MD, a,b Nana Toyoda, MD, a Anelechi C. Anyanwu, MD, a Shinobu Itagaki, MD, MSc, a Natalia N. Egorova, PhD, c Percy Boateng, MD, a Ahmed El-Eshmawi, MD, a David H. Adams, MD a

J Am Coll Cardiol 2017;69:2397-2406

- 5475 patients
- Surgery for primary MR
- NY State 2002-2013
- 41 hospitals
- 313 surgeons
Relation of Mitral Valve Surgery Volume to Repair Rate, Durability, and Survival

Joanna Chikwe, MD, a,b Natalia N. Egorova, PhD, c

J Am Coll Cardiol 2017

- 5475 patients
- Surgery for primary MR
- NY State 2002-2013
- 41 hospitals
- 313 surgeons
Relation of Mitral Valve Surgery Volume to Repair Rate, Durability, and Survival

Joanna Chikwe, MD, PhD
Natalia N. Egorova, PhD

J Am Coll Cardiol 2017

- 5475 patients
- Surgery for primary MR
- NY State 2002-2013
- 41 hospitals
- 313 surgeons

- Median volume per surgeon: 10/yr
- Higher volume – higher repair rate
- Higher volume – higher 1 yr survival
- >25/yr – reoperation less common
- Low volume surgeons in high volume, high repair institutions have high repair rates
Relation of Mitral Valve Surgery Volume to Repair Rate, Durability, and Survival

Joanna Chikwe, MD, A Nana Toyoda, MD, Aenechichi C. Anyanwu, MD, Shinobu Itagaki, MD, MSc, Natalia N. Egorova, PhD, Percy Baateng, MD, Ahmed El-Eshmawi, MD, David H. Adams, MD

J Am Coll Cardiol 2017;69:2397-2406

EDITORIAL COMMENT

The Specialty of Mitral Valve Repair

Marc Gillinov, MD, Stephanie Mick, MD, Rakesh M. Suri, MD

Vinay Badhwar, MD, J. Scott Rankin, MD, Xia He, MS, Jeffrey P. Jacobs, MD, James S. Gammie, MD, Anthony P. Furnary, MD, Frank L. Fazzalari, MD, Jane Han, MSW, Sean M. O’Brien, PhD, and David M. Shahian, MD


2011-2014
62,545 patients
1070 centers

Composite Scores
Median = 93.2%
IQR: 92.3% to 94.2%
Centers of Excellence in Mitral Valve Repair

Criteria:

- MV surgery volume requirement (center and surgeon)
- Expert periprocedural imaging capabilities
- Access to transcatheter technology
- Transparency regarding outcomes including: repair rates, mortality rates, stroke rates, repair durability
Exercise Dynamics in Secondary Mitral Regurgitation
Pathophysiology and Therapeutic Implications

Philippe B. Bertrand, MD, MSc, PhD
Ehud Schwammenthal, MD, PhD
Robert A. Levine, MD
Pieter M. Vandervoort, MD

Exercise Dynamics in Secondary Mitral Regurgitation

Pathophysiology and Therapeutic Implications

Philippe B. Bertrand, MD, MSc, PhD
Ehud Schwammenthal, MD, PhD
Robert A. Levine, MD
Pieter M. Vandervoort, MD
Transcatheter Therapy for Mitral Regurgitation
Clinical Challenges and Potential Solutions

Paul Sorajja, MD
Martin B. Leon, MD
David H. Adams, MD
John G. Webb, MD
R. Saeid Farivar, MD, PhD

Transcatheter Therapy for Mitral Regurgitation
Clinical Challenges and Potential Solutions

Paul Sorajja, MD
Martin B. Leon, MD
David H. Adams, MD
John G. Webb, MD
R. Saeid Farivar, MD, PhD

Transcatheter Mitral Valve Replacement for Patients With Symptomatic Mitral Regurgitation

A Global Feasibility Trial

David W.M. Muller, MBBS, MD, a Robert Saeid Farivar, MD, b Paul Jansz, MBBS, PhD, a Richard Bae, MD, b
Darren Walters, MBBS, MPhil, c Andrew Clarke, MBBS, c Paul A. Grayburn, MD, d Robert C. Stoler, MD, d Gry Dahle, MD, e
Kjell A. Rein, MD, f Marty Shaw, MBBS, g Gregory M. Scalia, MBBS, h Mayra Guerrero, MD, i Paul Pearson, MD, i
Samir Kapadia, MD, i Marc Gillinov, MD, i Augusto Pichard, MD, h Paul Corso, MD, h Jeffrey Popma, MD, i
Michael Chuang, MD, i Nathan Fleishman, MD, i on behalf of the Tentative..
Transcatheter Mitral Valve Replacement for Patients With Symptomatic Mitral Regurgitation: A Global Feasibility Trial

David W.M. Muller, MBBS, MD, Robert Saeid Farivar, MBBS, MD, Darren Walters, MBBS, MPH, Andrew Clarke, MBBS, Pat Kjell A. Rein, MD, Marty Shaw, MBBS, Gregory M. Scallan, Samir Kapadia, MD, Marc Gillinov, MD, Augusto Pichard, Michael Chuang, MD, Philipp Blanke, MD, Jonathon Leipsic on behalf of the Tendyne Global Feasibility Trial Investigators

J Am Coll Cardiol 2017;69:381-391
Transcatheter Mitral Valve Replacement for Patients With Symptomatic Mitral Regurgitation
A Global Feasibility Trial

David W.M. Muller, MBBS, MD, a Robert Saeid Farivar, MD, b Paul Jansz, MBBS, PhD, a Richard Bae, MD, b Darren Walters, MBBS, MPH, c Andrew Clarke, MBBS, c Paul A. Grayburn, MD, d Robert C. Stoler, MD, d Gry Dahle, MD, e Kjell A. Rein, MD, f Marty Shaw, MBBS, f Gregory M. Scalia, MBBS, f Mayra Guerrero, MD, f Paul Pearson, MD, f Samir R. Kapadia, MD, f Ming Gilioli, MD, f Antonio Pinto-Esricht, MD, b Paul Green, MD, b Gary Bizen, MD, b

EDITORIAL COMMENT

Transcatheter Mitral Valve Replacement Clears the First Hurdle

Howard C. Herrmann, MD, a W. Randolph Chitwood, Jr, MD b
Transcatheter Mitral Valve Replacement
Insights From Early Clinical Experience and Future Challenges

Ander Regueiro, MD, Juan F. Granada, MD, François Dagenais, MD, Josep Rodés-Cabau, MD

J Am Coll Cardiol 2017;69:2175-2192
Transcatheter Mitral Valve Replacement for Degenerated Bioprosthetic Valves and Failed Annuloplasty Rings

Sung-Han Yoon, MD, Brian K. Whisenant, MD, Sabine Bleiziffer, MD, Victoria Delgado, MD, Niklas Schofer, MD, Lena Eschenbach, MD, Buntoar Fujita, MD, Rahul Sharma, MD, Marco Ancona, MD, Ermela Yzeiraj, MD, Stefano Cannata, MD, Colin Barker, MD, James E. Davies, MD, Antonio H. Frangieh, MD, Florian Deuschl, MD, Tomaz Podlesnikar, MD, Masahiko Asami, MD, Abhijeet Dhoble, MD, Anthony Chyou, MD, Jean-Bernard Masson, MD, Harindra C. Wijeyasundera, MD, Daniel J. Blackman, MD, Rajiv Rampat, MBBS, Maurizio Taramasso, MD, Enrique Gutierrez-Ibanes, MD, Tarun Chakravarty, MD, Guilherme F. Attizzani, MD, Tsuyoshi Kaneko, MD, S. Chiu Wong, MD, Horst Sievert, MD, Fabian Nielitsch, MD, David Hildick-Smith, MD, Luis Nombela-Franc, MD, Lenard Conrad, MD, Christian Hengstenberg, MD, Michael J. Reardon, MD, Albert Markus Kasel, MD, Simon Redwood, MD, Antonio Colombo, MD, Saibal Kar, MD, Francesco Maisano, MD, Stephan Windecker, MD, Thomas Pilgrim, MD, Stephan M. Ensminger, MD, Bernard D. Prendergast, MD, Joachim Schofer, MD, Ulrich Schaefer, MD, Jeroen J. Bax, MD, Azeem Latib, MD, Raj R. Makkar, MD

J Am Coll Cardiol 2017;70:1121-1131
Transcatheter Mitral Valve Replacement for Degenerated Bioprosthetic Valves and Failed Annuloplasty Rings

Sung-Han Yoon, MD,1* Brian K. Whisenant, MD,2 Sabine Bleiziffer, MD,3 Victoria Delgado, MD,4 Niklas Schofer, MD,2 Lena Eschenbach, MD,2 Buntaro Fujita, MD,5 Rahul Sharma, MD,2 Marco Ancona, MD,6 Ermela Yzeiraj, MD,1 Stefano Cannata, MD,1 Colin Barker, MD,1 James E. Davies, MD,1 Antonio H. Frangieh, MD,7 Florian Deuschi, MD,6 Tomaz Podlesnikar, MD,1 Masahiko Asami, MD,8 Abhyeet Dhoble, MD,0 Anthony Chyou, MD,8 Jean-Bernard Masson, MD,9 Harindra C. Wijeyasuryaya, MD,10 Daniel J. Blackman, MD,1 Rajiv Rampat, MBBS,8 Maurizio Taramasso, MD,6 Enrique Gutierrez-Ibanes, MD,11 Tarun Chakravarty, MD,3 Guilherme F. Attizzani, MD,9

1Internal Medicine, Department of Cardiovascular Medicine, Northwestern University, Chicago, Illinois; 2Cardiovascular Medicine, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts; 3Cardiovascular Medicine, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina; 4Cardiovascular Medicine, University of California, San Francisco School of Medicine, San Francisco, California; 5Cardiovascular Medicine, Mattel Children’s Hospital UCLA, Los Angeles, California; 6Cardiovascular Medicine, University of Louisville, Louisville, Kentucky; 7Cardiovascular Medicine, University of Miami, Miami, Florida; 8Cardiovascular Medicine, Beth Israel Deaconess Medical Center, Boston, Massachusetts; 9Cardiovascular Medicine, University of Turin, Turin, Italy; 10Cardiovascular Medicine, Royal Melbourne Hospital, Melbourne, Victoria, Australia; 11Cardiovascular Medicine, Munich Heart Alliance, Munich, Germany.
Mitral Valve Disease: The Latest Publications You Need to Know About

- Primary mitral regurgitation
- Secondary mitral regurgitation
- Transcatheter technologies