



IX Congresso
Novas Fronteiras
em Medicina
Cardiovascular

22 a 24 de Fevereiro 2019

The Village Praia
D'El Rey - Óbidos

Surgical Mitral Repair (MVr) vs Replacement (MVR)

Evidência no prognóstico

ANGELO LUCAS NOBRE

Mitral Repair vs Replacement

Decisions regarding the optimal treatment of chronic MR are based on multiple variables, including:

- MR type
- MR severity
- Hemodynamic consequences
- Disease stage
- Patient comorbidities
- Experience of the heart valve team and its members (primary determinant).

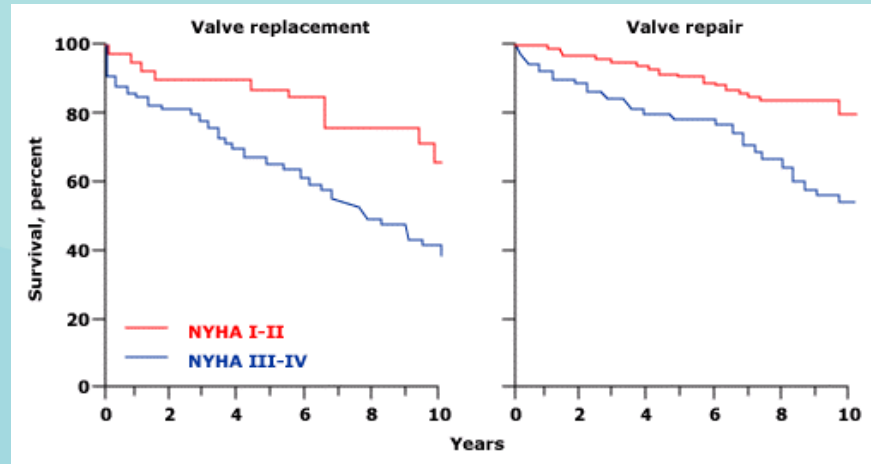


Mitral Repair vs Replacement

Primary MR

- Whenever feasible, **mitral valve repair is strongly preferred over mitral valve replacement ***
- Common techniques for mitral valve repair for primary MR include:
 - Nonresection techniques using artificial **chords** or ipsilateral chordal transfer
 - **Triangular resection with annuloplasty ring**
 - **Sliding leaflet valvuloplasty with annuloplasty ring**

Vassileva CM, et al. Long-term survival of patients undergoing mitral valve repair and replacement: a longitudinal analysis of Medicare fee-for-service beneficiaries. *Circulation* 2013; 127:1870.



- Ling LH, Enriquez-Sarano M, Seward JB, et al. Early surgery in patients with mitral regurgitation due to flail leaflets: a long-term outcome study. *Circulation* 1997; 96:1819.
- Tribouilloy CM, Enriquez-Sarano M, Schaff HV, et al. Impact of preoperative symptoms on survival after surgical correction of organic mitral regurgitation: rationale for optimizing surgical indications. *Circulation* 1999; 99:400.
- Enriquez-Sarano M, Schaff HV, Orszulak TA, et al. Valve repair improves the outcome of surgery for mitral regurgitation. A multivariate analysis. *Circulation* 1995; 91:1022.
- Yau TM, El-Ghoneimi YA, Armstrong S, et al. Mitral valve repair and replacement for rheumatic disease. *J Thorac Cardiovasc Surg* 2000; 119:53.
- Thourani VH, Weintraub WS, Guyton RA, et al. Outcomes and long-term survival for patients undergoing mitral valve repair versus replacement: effect of age and concomitant coronary artery bypass grafting. *Circulation* 2003; 108:298.
- Enriquez-Sarano M, Schaff HV, Frye RL. Mitral regurgitation: what causes the leakage is fundamental to the outcome of valve repair. *Circulation* 2003; 108:253.

Mitral Repair vs Replacement

Secondary MR

- Surgical treatment for secondary MR should be **considered only after appropriate medical and device therapies** have been instituted.
- Common techniques for mitral valve repair for secondary MR include:
 - restrictive remodeling with **a rigid annuloplasty ring**
 - chordal-sparing **mitral valve replacement**.
- **Ischemic MR** (a type of secondary MR)
 - survival is similar following MVR with chordal sparing and MVR.
 - Recurrent MR, CV admission HF-rate adverse events is greater MVR.

Mitral Repair vs Replacement

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

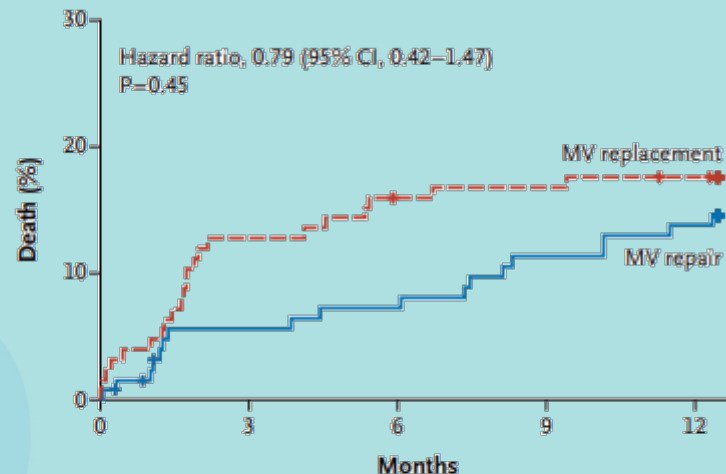
Mitral-Valve Repair versus Replacement for Severe Ischemic Mitral Regurgitation

Michael A. Acker, M.D., Michael K. Parides, Ph.D., Louis P. Perrault, M.D.,

N ENGL J MED 370;1 NEJM.ORG JANUARY 2, 2014

- **No significant difference** in left ventricular reverse remodeling or survival at 12 months
- Replacement provided a more durable correction of MR, but there was no significant between-group difference in clinical outcomes.

A Death



No. at Risk

MV repair	126	116	114	109	106
MV replacement	125	109	104	103	101

Mitral Repair vs Replacement

THE NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

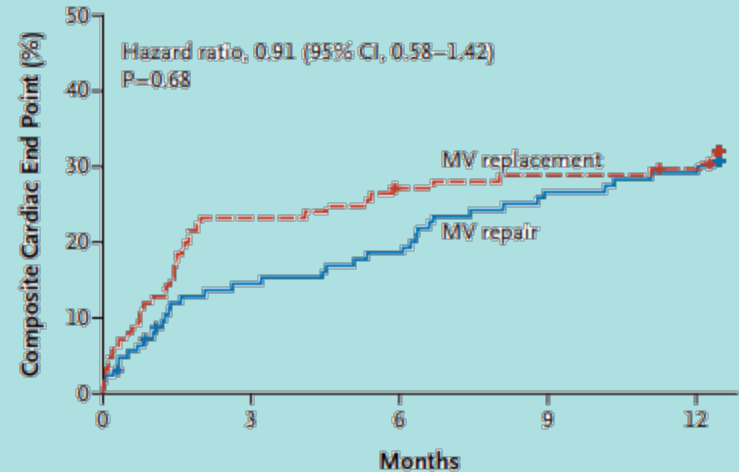
Mitral-Valve Repair versus Replacement for Severe Ischemic Mitral Regurgitation

Michael A. Acker, M.D., Michael K. Parides, Ph.D., Louis P. Perrault, M.D.,

N ENGL J MED 370;1 NEJM.ORG JANUARY 2, 2014

- **No significant difference** in left ventricular reverse remodeling or survival at 12 months
- Replacement provided a more durable correction of MR, but there was no significant between-group difference in clinical outcomes.

B Composite Cardiac End Point



No. at Risk

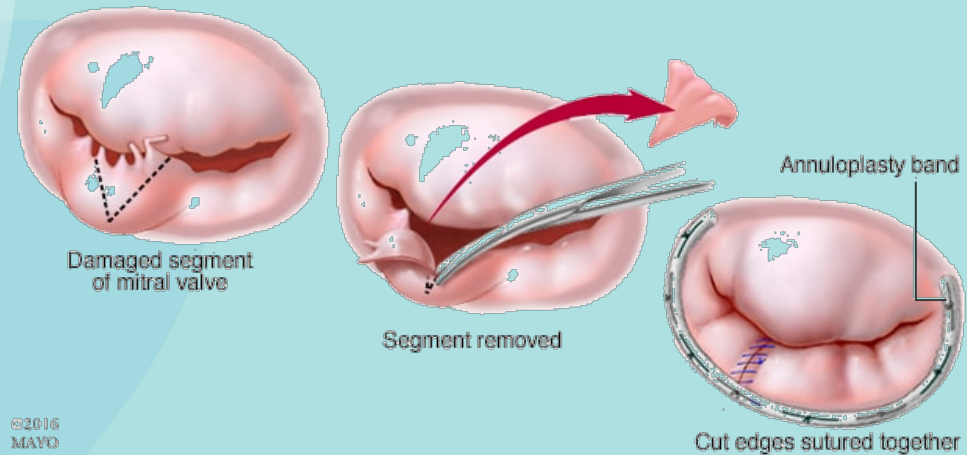
MV repair	126	105	100	90	87
MV replacement	125	96	90	88	86

The composite end point of the rate of major adverse cardiac or cerebrovascular events included death, stroke, subsequent mitral-valve (MV) surgery, hospitalization for heart failure, and an increase in the New York Heart Association class of 1 or more. Crosses indicate that patients' data were censored at that point.

Mitral Repair vs Replacement

MVr Indications

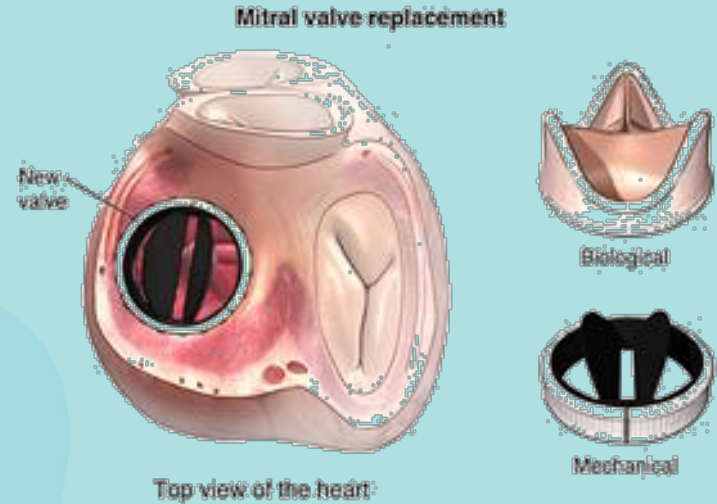
- Limited calcification of the leaflets or annulus
- Prolapse of less than one-third of either leaflet
- Pure annular dilatation
- Valvular perforations
- Incomplete papillary muscle rupture



Mitral Repair vs Replacement

MVR Indications

- Extensive calcification or degeneration of a leaflet or annulus
- Prolapse of more than one-third of the leaflet tissue
- Extensive chordal fusion, calcification, or papillary muscle rupture



Mitral Repair vs Replacement

The
American Journal
of
Cardiology

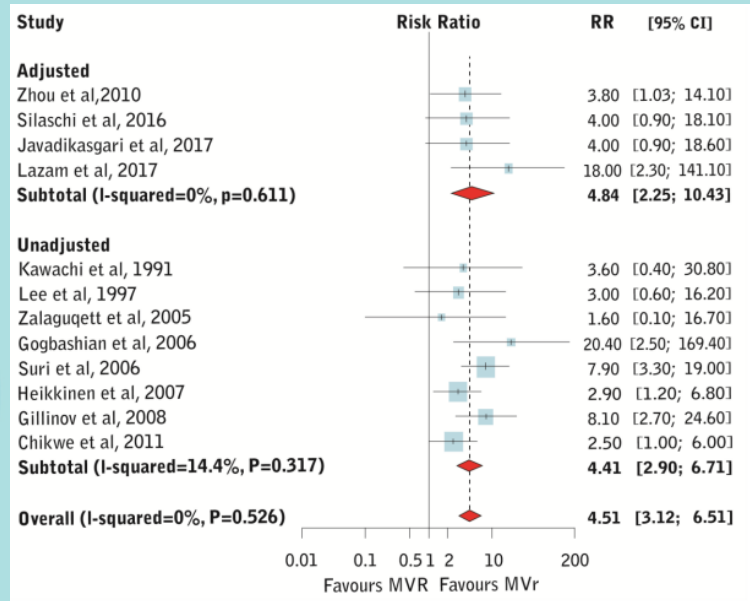
February 1, 2019 Volume 123, Issue 3, Pages 446–453

Meta-Analysis Comparing Mitral Valve Repair Versus Replacement for Degenerative Mitral Regurgitation Across All Ages

Joon Chul Jung, MD, Myoung-Jin Jang, PhD, Ho Young Hwang, MD, PhD

- 12 retrospective studies from 5 electronic databases that included over 4200 patients compared mitral valve repair (n = 2950) versus replacement (n = 1252) for degenerative MR across all age groups.
- The investigators found that in terms of all-cause mortality and regardless of age, patients who underwent mitral valve repair had a lower risk of all-cause mortality, early mortality, and reoperation than those who underwent mitral valve replacement.

RISK RATIO (RR) OF EARLY MORTALITY After Mitral Valve Repair (MVr) And Mitral Valve Replacement (MVR)



Mitral Repair vs Replacement

The
American Journal
of
Cardiology

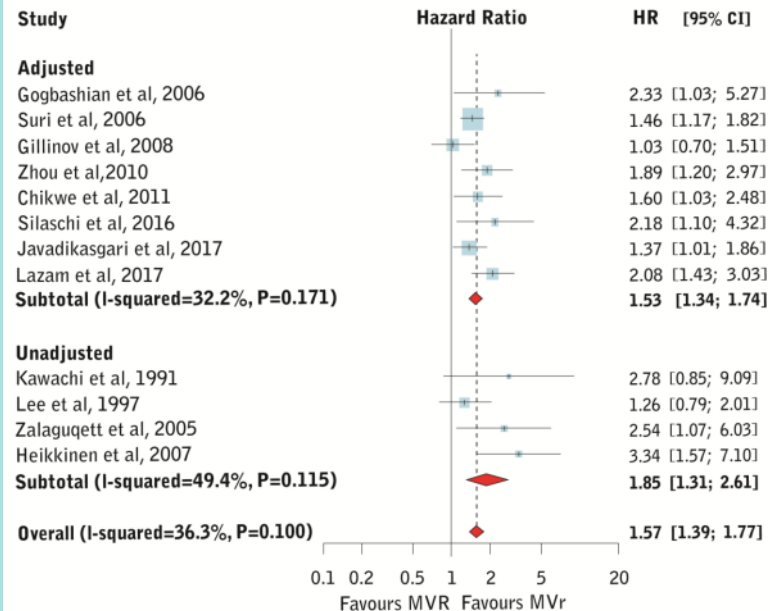
February 1, 2019 Volume 123, Issue 3, Pages 446–453

Meta-Analysis Comparing Mitral Valve Repair Versus Replacement for Degenerative Mitral Regurgitation Across All Ages

Joon Chul Jung, MD, Myoung-Jin Jang, PhD, Ho Young Hwang, MD, PhD

- 12 retrospective studies from 5 electronic databases that included over 4200 patients compared mitral valve repair (n = 2950) versus replacement (n = 1252) for degenerative MR across all age groups.
- The investigators found that in terms of all-cause mortality and regardless of age, patients who underwent mitral valve repair had a lower risk of all-cause mortality, early mortality, and reoperation than those who underwent mitral valve replacement.

HAZARD RATIO (HR) OF ALL-CAUSE MORTALITY After Mitral Valve Repair (MVR) And Mitral Valve Replacement (MVR)



Mitral Repair vs Replacement

The
American Journal
of
Cardiology

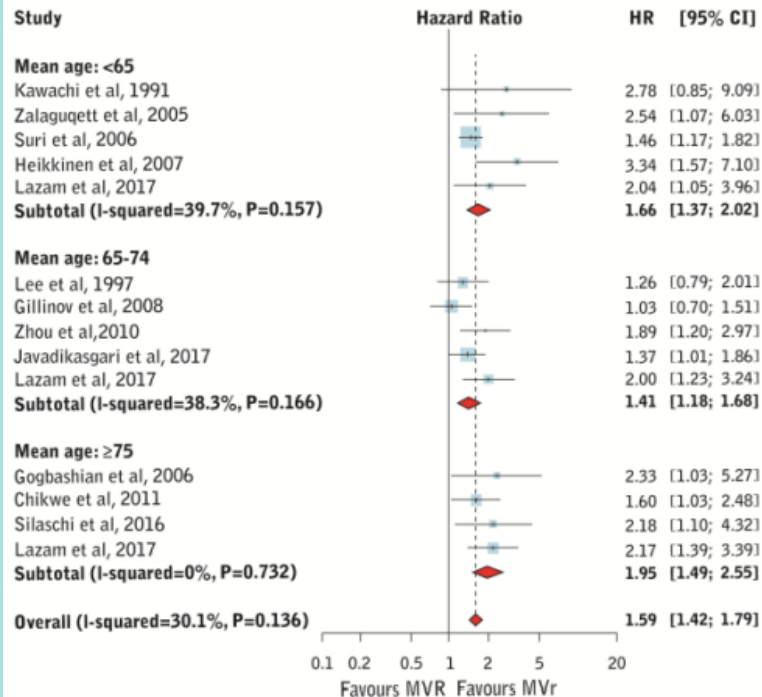
February 1, 2019 Volume 123, Issue 3, Pages 446–453

Meta-Analysis Comparing Mitral Valve Repair Versus Replacement for Degenerative Mitral Regurgitation Across All Ages

Joon Chul Jung, MD, Myoung-Jin Jang, PhD, Ho Young Hwang, MD, PhD

- 12 retrospective studies from 5 electronic databases that included over 4200 patients compared mitral valve repair (n = 2950) versus replacement (n = 1252) for degenerative MR across all age groups.
- The investigators found that in terms of all-cause mortality and regardless of age, patients who underwent mitral valve repair had a lower risk of all-cause mortality, early mortality, and reoperation than those who underwent mitral valve replacement.

SUBGROUP ANALYSIS REGARDING HR OF ALL-CAUSE MORTALITY AFTER MVR AND MVR ACCORDING TO THE AGE



Mitral Repair vs Replacement

The
American Journal
of
Cardiology

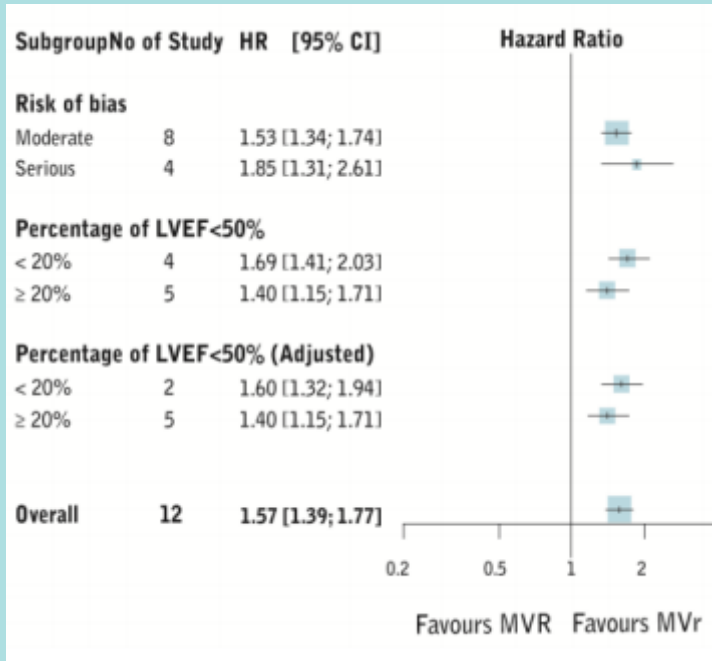
February 1, 2019 Volume 123, Issue 3, Pages 446–453

Meta-Analysis Comparing Mitral Valve Repair Versus Replacement for Degenerative Mitral Regurgitation Across All Ages

Joon Chul Jung, MD, Myoung-Jin Jang, PhD, Ho Young Hwang, MD, PhD

- 12 retrospective studies from 5 electronic databases that included over 4200 patients compared mitral valve repair (n = 2950) versus replacement (n = 1252) for degenerative MR across all age groups.
- The investigators found that in terms of all-cause mortality and regardless of age, patients who underwent mitral valve repair had a lower risk of all-cause mortality, early mortality, and reoperation than those who underwent mitral valve replacement.

SUBGROUP ANALYSIS REGARDING HR OF ALL-CAUSE MORTALITY AFTER MVR AND MVR **ACCORDING TO LVEF**



Mitral Repair vs Replacement

The
American Journal
of
Cardiology

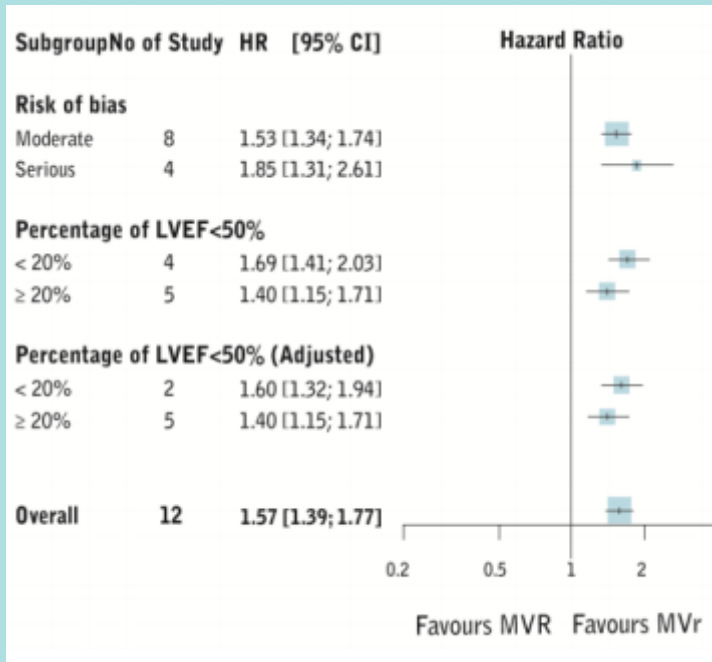
February 1, 2019 Volume 123, Issue 3, Pages 446–453

Meta-Analysis Comparing Mitral Valve Repair Versus Replacement for Degenerative Mitral Regurgitation Across All Ages

Joon Chul Jung, MD, Myoung-Jin Jang, PhD, Ho Young Hwang, MD, PhD

- 12 retrospective studies from 5 electronic databases that included over 4200 patients compared mitral valve repair (n = 2950) versus replacement (n = 1252) for degenerative MR across all age groups.
- The investigators found that in terms of all-cause mortality and regardless of age, patients who underwent mitral valve repair had a lower risk of all-cause mortality, early mortality, and reoperation than those who underwent mitral valve replacement.

SUBGROUP ANALYSIS REGARDING HR OF ALL-CAUSE MORTALITY AFTER MVR AND MVR **ACCORDING TO LVEF**



Mitral Repair vs Replacement

The
American Journal
of
Cardiology

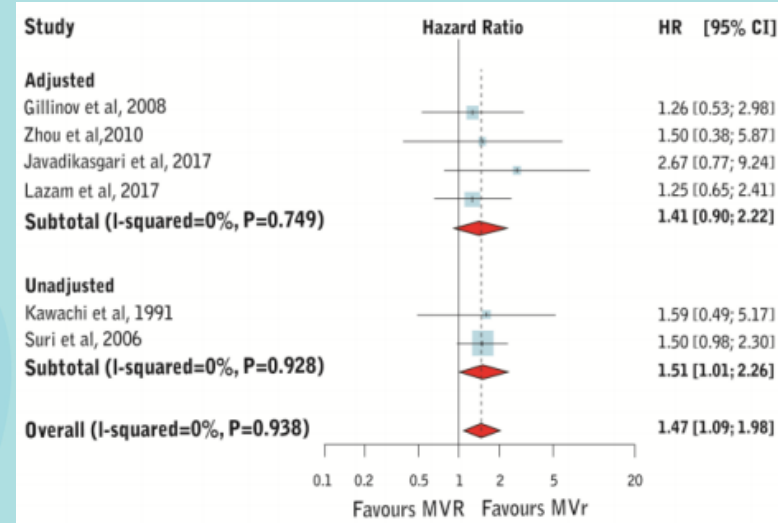
February 1, 2019 Volume 123, Issue 3, Pages 446–453

Meta-Analysis Comparing Mitral Valve Repair Versus Replacement for Degenerative Mitral Regurgitation Across All Ages

Joon Chul Jung, MD, Myoung-Jin Jang, PhD, Ho Young Hwang, MD, PhD

- 12 retrospective studies from 5 electronic databases that included over 4200 patients compared mitral valve repair (n = 2950) versus replacement (n = 1252) for degenerative MR across all age groups.
- The investigators found that in terms of all-cause mortality and regardless of age, patients who underwent mitral valve repair had a lower risk of all-cause mortality, early mortality, and reoperation than those who underwent mitral valve replacement.

HR OF FREEDOM FROM REOPERATION AFTER MVr AND MVR



Mitral Repair vs Replacement

The
American Journal
of
Cardiology

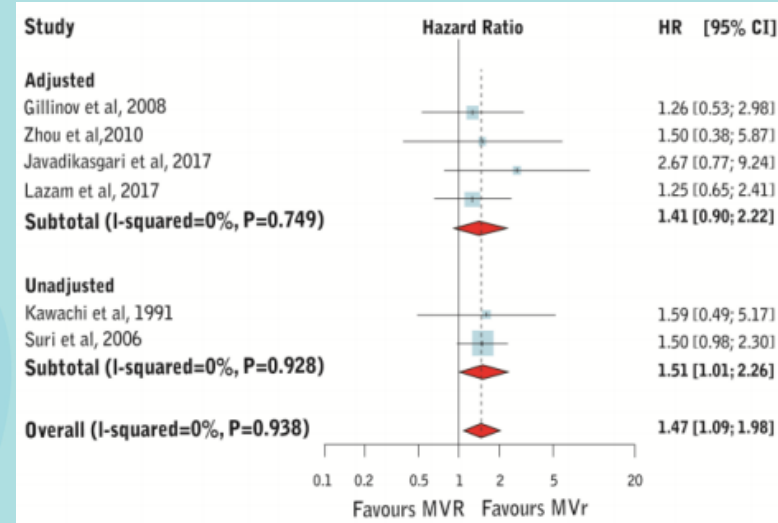
February 1, 2019 Volume 123, Issue 3, Pages 446–453

Meta-Analysis Comparing Mitral Valve Repair Versus Replacement for Degenerative Mitral Regurgitation Across All Ages

Joon Chul Jung, MD, Myoung-Jin Jang, PhD, Ho Young Hwang, MD, PhD

- 12 retrospective studies from 5 electronic databases that included over 4200 patients compared mitral valve repair (n = 2950) versus replacement (n = 1252) for degenerative MR across all age groups.
- The investigators found that in terms of all-cause mortality and regardless of age, patients who underwent mitral valve repair had a lower risk of all-cause mortality, early mortality, and reoperation than those who underwent mitral valve replacement.

HR OF FREEDOM FROM REOPERATION AFTER MVr AND MVR



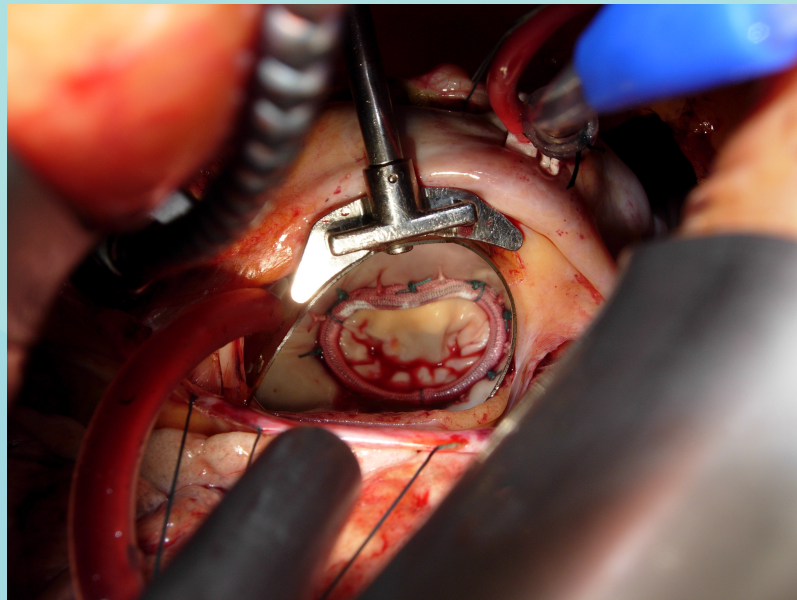
Mitral Repair vs Replacement

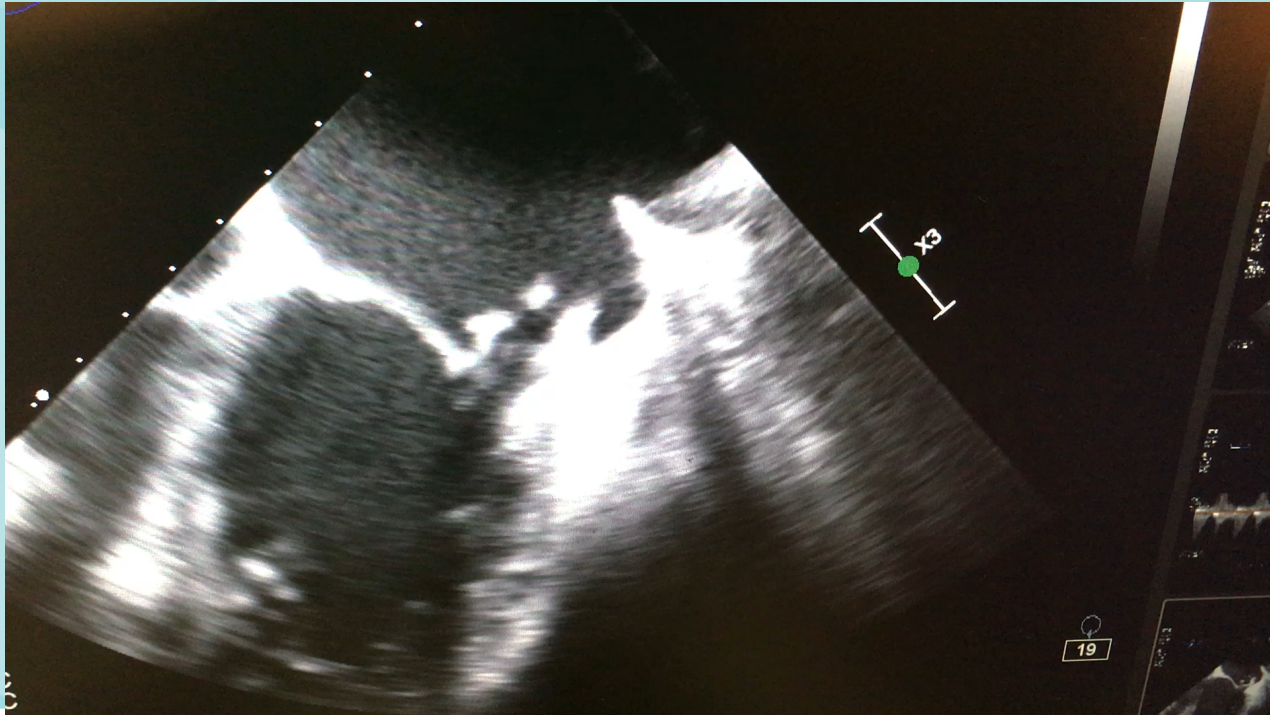
Mini-Invasive vs Conventional

Severe Primary Mitral Valve Regurgitation

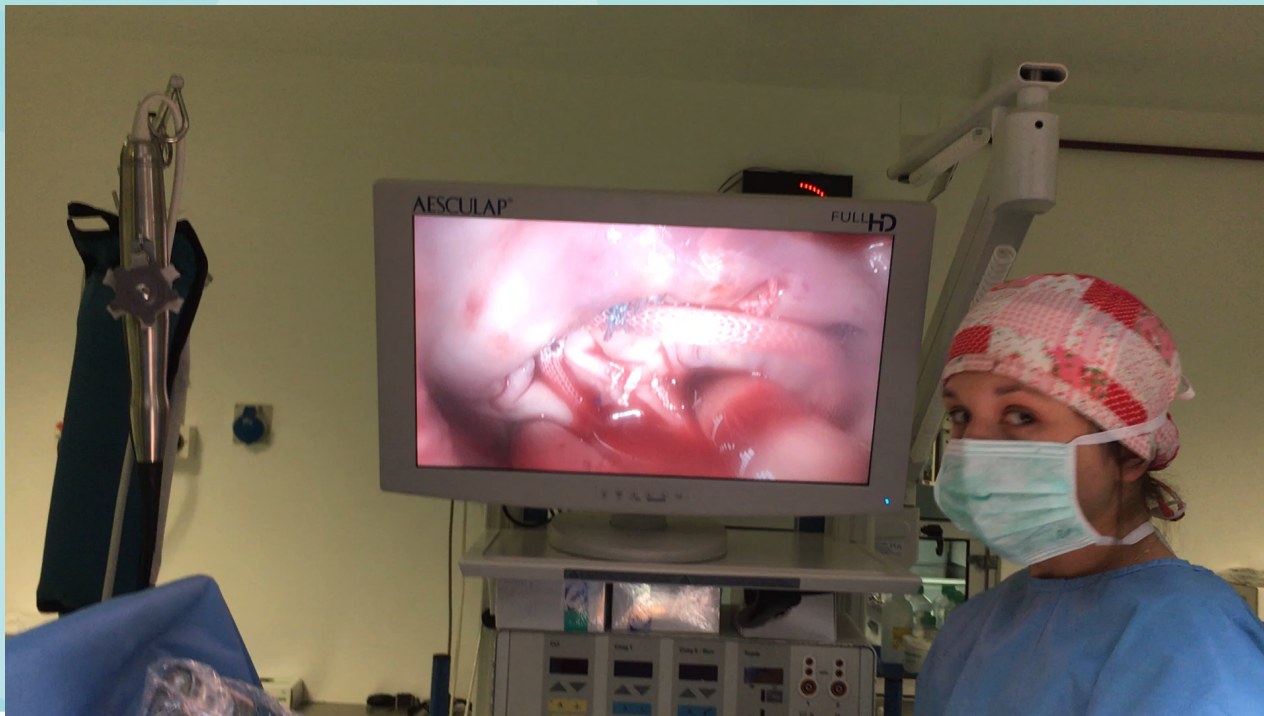
Casselmann and colleagues described the results of 187 patients who had undergone MIS MVRepair in a 4-year study.[17] The operative technique was successfully performed in all but two patients. Therefore, success rate was almost 100 % and it proved immediate technical feasibility of the minimally invasive procedure. Freedom from MV reoperation was $99.5 \% \pm 0.5 \%$ at 30 days, $97.1 \% \pm 1.4 \%$ at 1 year and $93.3 \% \pm 2.6 \%$ at 4 years.

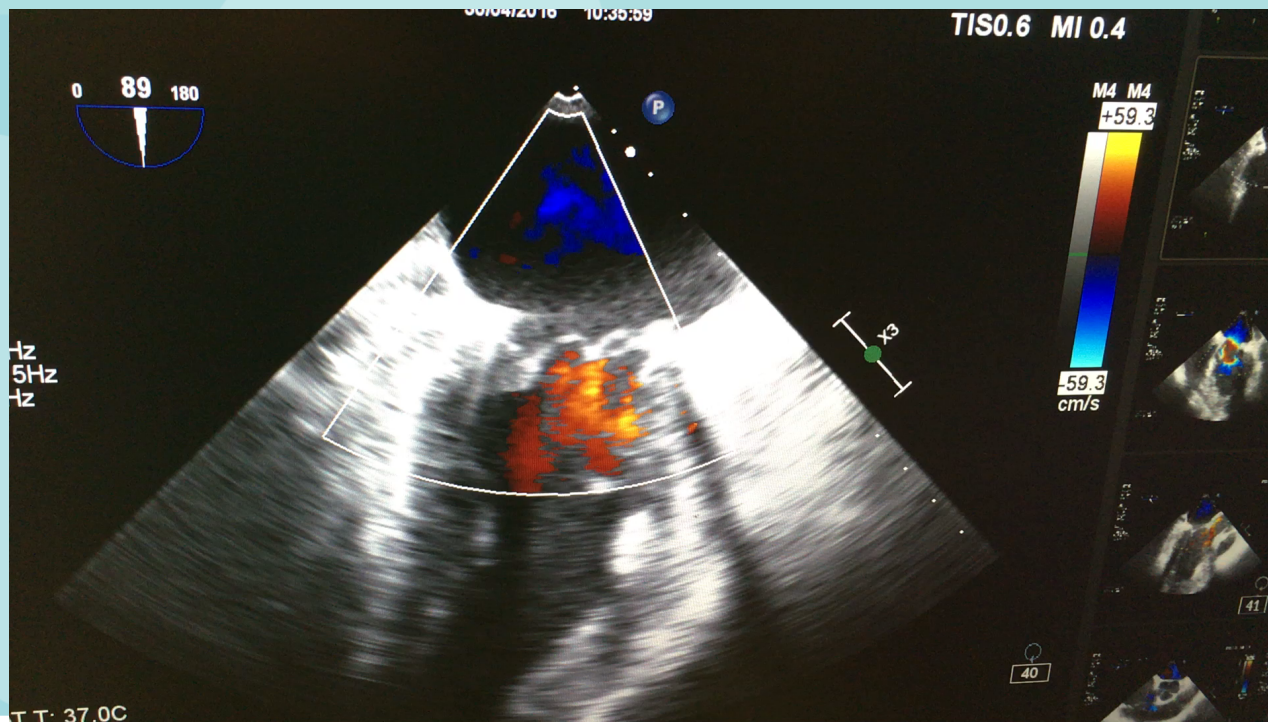
Seeburger and colleagues described the results of 1,339 patients who had undergone MIS MVRepair in an 8-year study.[4,35] Success rate was almost 100 %. The 5-year Kaplan-Meier estimation for freedom from MV reoperation was 96.3 %. The 30-day mortality rate was 2.4 % and the 5-year survival rate was 82.6 %. Davierwala and colleagues described the results of 3,438 patients who had undergone minimally invasive MV surgery during 1999-2010, of which 2,829 were MVRepairs.[21] For MVRepair, the survival rates were $87.0 \pm 0.7 \%$ and $74.2 \pm 1.4 \%$ at 5 and 10 years, respectively. The rates of freedom from reoperation were $96.6 \pm 0.4 \%$ and $92.9 \pm 0.9 \%$ at 5 and 10 years, respectively.

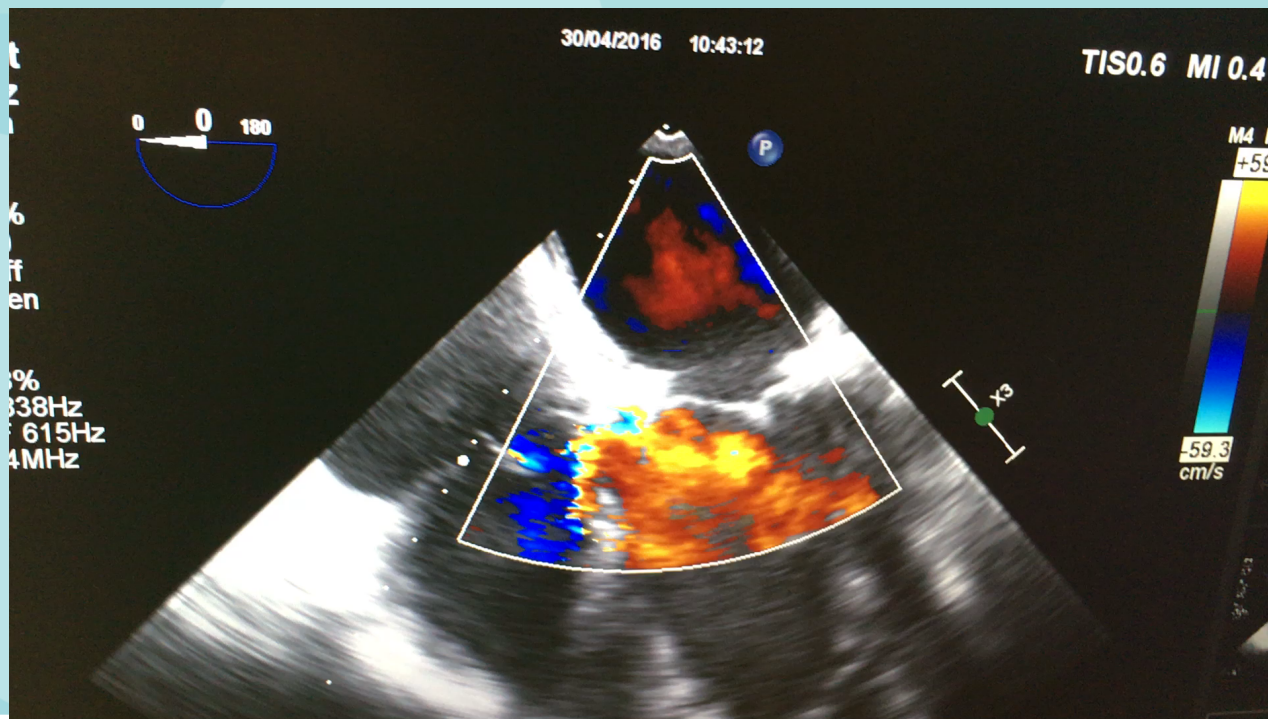












Conclusions

- Repair is better than replace either on the short and long term results
- Respect is better than resect unless absolutely needed
- Minimally invasive is better than sternotomy