Background: Modalities (undermining annuloplasty – UA- vs mitral valve replacement – MVR-) and outcome of surgical treatment of functional mitral regurgitation (FMR) are still debated.

Objectives: Early and mid-term outcome of patients operated for symptomatic severe FMR; Comparison of respective results of UA and MVR.

Methods: Inclusion criteria: Severe FMR due to either ischemic or non ischemic cardiac disease; Heart failure symptoms despite optimal medical treatment; LVEF<40%.

Primary endpoints: In-hospital mortality; Late CV mortality

Secondary endpoints: Evolution of LVEF after surgery; Recurrence of MR.

Results: 59 consecutive patients included between 1997 and 2011, mean age=65±10.1, ischemic disease in 41 (70%), heart failure symptoms in all, LVEF=36±6%,ERO=41±17 mm².Surgical procedures included 12UA and 47 MVR with only 8 (13%) concomitant CABG. MVR and UA groups were comparable for age, ischemic etiology, LVEF, ERO and sPAP (all p>0.5).

In-hospital mortality: 3.3% overall, 8.3% in UA group and 2.1% in MVR group (p=0.36).Eight-year survival free from CV death: 58±13% in the total population, 60±18% in the UA group and 72±10% in the MVR group (p=0.48). By multivariable analysis, older age (1.22 [1.05-1.42], p=0.008) and LV end-diastolic diameter (1.25 [1.05-1.49], p=0.01) independently predicted late mortality with borderline effect of pre-op LVEF (1.09 [0.99-1.2], p=0.08) whereas type of surgery did not (1.7 [0.38-7.55], p=0.48). LVEF did not change between pre-op and late FU echo in the MVR group (36±6% vs 36±10%, p=0.68) but tended to decrease in the UA group (37±5.8% vs 31±12%, p=0.1). In the UA group, 50% of patients experienced recurrence of significant MR (mean post-op ERO=19±4 mm²) whereas no patients in the MVR group presented with post-op MR.

Conclusions: Despite severe clinical and echocardiographic presentation, surgical treatment of FMR can be performed with an acceptable operative risk and mid-term survival. MVR is a reasonable approach, which does not expose patients to MR recurrence, particularly frequent after UA.

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Minimally invasive approach for mitral valve surgery, as safe and as reliable than sternotomy. Does it should be the standard approach? Experience in 368 patients

Vincent Doisy, Marc Vigneron, Fabrice Wautot, Jean-Philippe Frieh, Nicolas Chavanis, Alain Curtill Clinique du Tonkin, Villeurbanne, France

To assess the reliability of minimally invasive approach, as this approach is contest in France we review part of our experience in one center.

Methods: From January 2009 to April 2012, 368 patients were operated of isolated mitral surgery in a single center. In a retrospective study we analyze follow-up with focus on surgical approach to emphasize on the safety of minimally invasive strategy.

During that period video-assisted procedure was performed for 222 patients and 146 underwent standard sternotomy.

Results: Results on different parameters are analyzed, we report no difference in mortality, in-hospital stay length, stroke, bleeding, use of catecholamine between the two groups. Cross clamping, ECC times were longer in minimally invasive group. ICU time was longer in standard sternotomy group. In terms of efficiency upon plasty results, results were better in the minimally invasive group with 90.4% success of plasty when planned.

All parameters are detailed in the study.

Reliability of the procedure is modulated by experience of surgeon, two surgeons are mainly involved in minimally invasive program, they are more experienced in mitral plasty so that explain good repair vs replacement rate in this group.

Conclusion: On the basis of this retrospective study we conclude that minimally invasive approach is as safe as standard approach for mitral surgery and as reliable on repair rate in mitral regurgitation.

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Preoperative atrial fibrillation predicts outcome after valve repair for mitral valve prolapse

Catherine Szymanski (1), Julien Magne (2), Dan Rusinaru (1), Alexandre Fournier (1), Sonia Mezghani (1), Marcel Peltier (1), Gilles Touati (3), Christophe Tribouilloy (1)

(1) Inserm, ERI I2, CHU Amiens Sud, département de cardiologie, Amiens Cedex 1, France – (2) University Hospital Sart Tilman, Department of Cardiology, Liège, Belgique – (3) University Hospital Amiens, Department of Cardiac Surgery, Amiens, France

Background: The aim of this study is to assess the impact of preoperative AF on outcome in patients undergoing MVR for mitral valve prolapse (MVP).

Methods: Between 1991 and 2009, 348 consecutive patients underwent MVR for MR due to MVP (follow-up: mean duration: 105±50 months). Echocardiography was performed preoperatively and 9 to 12 months after surgery.

Post operative left ventricular dysfunction (LVD) was defined as ejection fraction (EF) ≤ 50%. Results: There were 81 patients (23.3%) in AF at baseline. Preoperative EF decreased from 67.2±6.6% to 58.9±10.1% post operatively (p<0.0001). Patients in AF were older (70±9 vs. 64±11 years, p<0.0001), more often in NYHA III – IV class (p=0.028), had a significantly higher EuroSCORE (4.4±5.7 vs 2.8±2.4, p<0.0001). At baseline, patients in AF had a lower preoperative EF (64±11 vs. 68±9%, p=0.001). Early mortality was 4.9% in patients with preoperative AF vs. 1.9% in sinus rhythm (n=5, p=0.13). Multivariate analysis did not identify AF as a predictor of early mortality whereas EuroSCORE (p=0.001) and low pre-operative EF (p=0.001) were independent risk factors for early mortality. On multivariate analysis adjusted for EuroSCORE, NYHA III – IV class and preoperative LVEF, preoperative AF was identified as an independent predictors of overall mortality (OR 1.9; p=0.03) and of occurrence of heart failure (OR 2.2, p=0.054). After adjustment for gender, EuroSCORE, NYHA III-IV class and preoperative EF, preoperative AF and pre-operative EF were the 2 predictors of post-operative LVD (OR 2.2 p=0.025 and OR 1.04, p=0.03 respectively).

Conclusion: Preoperative AF is an independent predictor of long term mortality and post-operative LVD after MVR for MVP.

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What are long-term results of percutaneous mitral commissurotomy in patients with few or no symptoms?

Claire Bouleti, Bernard Iung, Eric Brochet, David Messika-Zeitoun, Dominique Himbert, Bertrand Cormier, Eric Garbarz, Alec Vahanian Hôpital Bichat-Claude Bernard APHP, cardiologie, Paris, France

Purpose: Percutaneous mitral commissurotomy (PMC) has enabled patients (pts) to be treated at an earlier stage of their disease than by surgery.

However, very long-term results have not been specifically studied in this context.

Methods: From 1986 to 1995, 237 patients in NYHA class I or II underwent PMC in our department. Mean age was 46±12 years; 74 patients (31%) had atrial fibrillation and 22 (9%) had a history of commissurotomy. Most patients were in NYHA class II (232 pts; 98%). As assessed by echocardiography, mean valve area was 1.1±0.2 cm² (±1.5 cm² in all cases); 40 patients (17%) had pliable valves and mild subvalvular disease, 145 (61%) had severe subvalvular disease, and 52 (22%) had calcified valves. PMC used a single-balloon in 5 pts, a double-balloon in 93 and the Inoue balloon in 139.

Results: After PMC, valve area increased to ≥1.9±0.3 cm² as assessed by 2D echo. Severe mitral regurgitation (grade ≥3/4) occurred in 4 patients (1.7%). There were no other severe immediate complications. Good immediate results (valve area ≥1.5 cm² without mitral regurgitation ≤2/4) were obtained in 223 patients (94%). The 20-year actuarial rate of survival without surgery or repeat PMC and in NYHA class I or II was 41±4% in the whole population.

After good immediate results, the 20-year rate of good functional results was 42±5%. A Cox multivariate model identified 2 predictors of good late functional results after good immediate results: young age (p=0.05) and a large valve area after PMC (p<0.002). In the 142 patients aged ≥50 years, the 20-rate of good functional results was 50±6%.
Conclusion: In patients with severe mitral stenosis and few or no symptoms, PMC 1) Can be safely performed 2) Provides good immediate and long-term results in a large variety of patients. 3) Should be considered in particular in patients aged ≤50 years, in whom it prevents functional deterioration in half of the cases 20 years after PMC.

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Factors predicting mitral restenosis after successful percutaneous mitral commissurotomy