Early surgery in valve infective endocarditis in a tertiary care center in a developing country (Tunisia)

Bassem Jerbi (1), Leila Abid (2), Souad Mallek (2), Dorra Abid (2), Souad Mallek (2), Hentati Mourad (2), Kamoun Samir (2)

(1) Centre hospitalier de Versailles, service de cardiologie, Le Chesnay, France - (2) CHU Hedi Chaker, service de cardiologie, Sfax, Tunisie.

Between January 2001 and December 2005, 117 patients with infective endocarditis on native valves were operated in the active phase of the disease. The average age of our patients was 40.32 years with a male ascendency. The causal heart disorder was found in 89% of the cases, dominated by rheumatoid arthritis. The germ in cause was isolated in 52.7% of the cases. The cases of infective endocarditis with severe prosthetic dysfunction and embolic in 18 cases. The average operating delay was of 16.38±16.88 days with regard to the beginning of the antibiotic treatment. We realized valvular aortic replacement at 31 patients with reconstruction of the ring in ten cases, a valvular mitral replacement at 35 patients, a mitroaortic replacement at 20 patients, a reconstructive mitral surgery in 26 cases, and a reconstructive tricuspid surgery in five cases.

The early mortality was 20.5%. The follow-up was 89% with an average recession of 3.1 years and a late mortality of 7%. The aim of this study is to analyze the immediate and late results of the surgery of infective endocarditis in the active phase and to bring to light the prognostic factors of mortality.

Is redo percutaneous mitral balloon valvuloplasty indicated in patients with mitral restenosis?

Leila Abid, B Jerbi, Morched Hadrich, Dorra Abid, Imène Trabelsi, Salma Krishène, S Mallek, Mohamed Sahnoun, F Triki, Mourad Hentati, Samir Kamoun

Hôpital Hedi Chaker, service de cardiologie, Sfax, Tunisie.

It is unknown if patients who developed symptomatic mitral restenosis after PMV may benefit from repeat percutaneous mitral balloon valvuloplasty (PMV). Our purpose is to assess the immediate and long-term outcomes of repeat PMV for post-PMV mitral restenosis.

We report the immediate outcomes and long-term clinical follow-up results of 73 patients (mean age 29.95 years, 80.6% women) with symptomatic mitral restenosis after prior PMV, who were treated with a repeat PMV at 51.73±29.4 months after the initial PMV. The mean follow-up period was 58, 85 months. There was a significant increase in the mitral valve area (1.08±0.21 to 1.75±0.32; p<0.001), and decrease in the mean transvalvular gradient (15.28±6.84 to 8.67±4.07 mm Hg; p<0.001) and the mean left atrial pressure (25.01±7.33 to 14.75±5.88 mm Hg; p<0.001). Mean pulmonary artery pressure decreased significantly with redo PMV (47.5±14.73 to 34.38±9.57; p<0.001).

The onset of new mitral regurgitation had occurred in 15 patients (21, 7%) Successful procedural outcome was achieved in 79, 6% of patients. No patient developed severe mitral regurgitation after redo PMV. There were no in-hospital complications. Early symptomatic improvement after redo PMV of 1 NYHA functional class was obtained in 96.7% of the patients. During the follow-up period, there were no deaths, and 10 (13, 69%) patients required mitral valve replacement.

Overall, 44 patients (60, 27%) were alive without further valvular intervention at follow up after redo PMV. All of these patients were in NYHA class I or II at follow up. The probability of event-free survival (alive and free of mitral valve replacement and/or NYHA class >II) at follow up was 91.2%.

Clinical and hemodynamic results of percutaneous mitral valvuloplasty in patients with mitral stenosis and pulmonary artery hypertension

Bassem Jerbi (1), Leila Abid (2), Souad Mallek (2), Triki Faten (2), Hentati Mourad (2), Kamoun Samir (2)

(1) Centre hospitalier de Versailles, service de cardiologie, Le Chesnay, France - (2) CHU Hedi Chaker, service de cardiologie, Sfax, Tunisie.

Introduction: The percutaneous balloon mitral valvuloplasty (PMBV) became the procedure of choice of the mitral stenosis with favorable morphological characteristics. The development of the pulmonary hypertension (PH) is a frequent in patients with mitral stenosis. However, its influence on results of the PMBV is unknown.

Aim: To determine the impact of the PH on immediate and long term results of the PMBV.

Patients and methods: Retrospective study that spreads on 6 years (from 1996 to 2002) regrouping all patients having undergone a PMBV for the first time. Clinics, echographic, hemodynamic data of patients have been collected. 72 patient had a systolic arterial pulmonary pressure (SPP) 60 mmHg (group H) whereas 217 had a SPP <60 mmHg (group N).

Results: Group H patients were older, had more acute pulmonary edema at admission, an echographic score >8, tricuspid regurgitation and smaller pre PMBV mitral surface. A bad result was noted in 11.4% in group H against 8.6% in group N (p=0.04). Pre procedural complications were similar, except for the severe mitral regurgitation, more often frequent in the group H. During a mean follow-up of 92 months, fifty-three patients in group H and 204 patients in group N were free of cardiac events. The NYHA class I or II were met more in the N group. The residual systolic pulmonary pressure was higher in H group.

Conclusion: The PMBV is an efficient procedure even in presence of PH in spite of the pejorative character that it confers on the immediate and long-term prognosis.

Adverse impact of pre-therapeutic gradient on outcome in patients with trans-aortic valve implantation: a monocentric experience

Nicolas Amabile (1), Ramzi Ramadan (2), Said Ghostine (1), Alexandre Azmoun (2), François Raoux (1), Ngoc-Tram To (1), Yacine Haddouche (1), Claude Cassat (3), Patrick Dupouy (4), Simon Elhadiad (5), Remi Nottin (2), Christophe Causseun (1)

(1) Cardiology department, Centre Marie Lannelongue, Le Plessis Robinson, France - (2) Cardiac Surgery Department, Centre Marie Lannelongue, Le Plessis Robinson, France - (3) Cardiology department , CHU Limoges, Limoges, France - (4) Cardiology department, HP Antony, Antony, France - (5) Cardiology department, CH Lagny Marne La Vallée, Lagny Sur Marne, France.

Background: Although trans aortic valve implantation (TAVI) is a promising alternative solution for patients who could not undergo conventional surgery, few data are available regarding post-procedure complications among these fragile subjects.

Objectives: We sought to evaluate the factors associated with adverse outcome in patients with TAVI.

Methods: Clinical, biological and echocardiographic characteristics of the patients were assessed before implantation. Patients were followed up to 30 days after procedure. Our main primary end-point was the composite of death+stroke+acute pulmonary edema at day 30.

Results: Between November 2008 and March 2010, n=55 patients underwent TAVI in our institution (mean age=84.4±0.7 y; 40% men; mean STS score=25.2±1.3; 65% transfemoral). Primary endpoint occurred in n=9 subjects (n=2 deaths; n=1 stroke; n=6 pulmonary edema), who presented a longer inhospital stay (14.4±3.2 vs. 9.2±0.6 days, p=0.008).

Patients experiencing the primary endpoint were comparable to the others in terms of age, gender, renal function, comorbidities, type of percutaneous
approach and STS score. The pre-implantation aortic gradient was lower in patients with adverse outcome (35.9±4.0 vs. 55.0±2.9 mmHg, p=0.007), yet the left ventricular ejection fraction (LVEF) 56.4±1.9 vs. 58.4±6.0% (p=0.7) and effective orifice area (0.34±0.03 vs. 0.37±0.02 cm²/m², p=0.12) did not significantly differ between the groups. Among these patients, n=7 had LVEF>50%.

Receiver operating curve analysis showed a significant relationship between aortic gradient and primary end-point (AUC= 0.8±0.07, p=0.002). Multivariate analysis identified presence of a low trans-aortic gradient (<40 mmHg) as the sole predictor of primary endpoint (HR=9.3 [1.9-45.0], p=0.006).

Conclusion: Patients with baseline low trans aortic gradient, as a result of either altered LVEF or paradoxical low flow aortic stenosis syndrome, have a higher incidence of major complications after TAVI and should be identified before procedure.

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TAVI with the Edwards-SAPIEN endoprosthesis : impact of a systematic “oversizing” policy on aortic regurgitation

Eric Van Belle (1), Mariam Samim (2), Pieter Stella (2), Jolanda Klun (2), Faiez Ramjamkhan (2), Gerjjan Siewsverda (2), Pierfrancesco Agostoni (2), Marieke Hiliaert (2), Francis Juthier (3), Alain Prat (3), Les Van Herwerden (2), Pieter Doevendans (2)

(1) CHRU de Lille, Département de Cardiologie, Lille, France - (2) Université Medical Center, Department of Cardiology, Utrecht, Pays-Bas - (3) CHRU de Lille, Département de Chirurgie Cardiaque, Lille, France

Purpose: Implantation of an “undersized” prosthesis has been proposed as a major cause of moderate to severe para-valvular AR after transcatheter aortic valve implantation (TAVI). We evaluated the impact of a prospective and systematic “oversizing” implantation policy of the EDWARDS-SAPIEN prosthesis para-valvular aortic regurgitation (AR) inconsecutive patients.

Methods: To grade AR, 2D transthoracic echocardiography was performed before, before discharge and 1 month after the procedure. Aortic annulus diameter was measured by TEE at baseline. The “oversizing” policy was defined as the following: 1) Patients with an annulus > 24mm during the screening were excluded from TAVI; 2) A 26mm prosthesis was used in all patient with an annulus >21mm and the TA approach could be preferred when appropriate; 3) in patients with an annulus 21mm, a 26mm prosthesis was also used every time the predilatation with a 23mm balloon suggested that the largest prosthesis could be accommodated.

Results: A 26mm prosthesis was used in 16/22 (73%) and a 23mm prosthesis in 6/22 (27%). “Oversizing” as estimated by the cover index (100x(prosthesis diameter - annulus diameter) / TEE/prosthesis diameter )) was 12.4±3.3%. At baseline the mean annulus diameter was 22.0±1.3 and a significant AR was observed in 9/22 patients (41%). It was mild, moderate or severe respectively in 5 patients (23%), 3 patients (13%) and 1 patient (5%). AT 1 month follow-up a significant AR was observed in 5/18 patients (27%). It was mild, moderate or severe respectively in 5 patients (27%), 0 patient (0%) and 0 patient (0%) all cases. Only mild ARs appeared at 1 month in 5 out of the11 patients with no AR at baseline.

Conclusion: Using a systematic “oversizing” policy resulted in no moderate to severe AR after 1 month follow-up. These data provide additional support to the concept that systematic “oversizing” of the Edwards-SAPIEN valve is an important safety measure.

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Hypoxemia due to right-to-left interatrial shunt with no pulmonary artery hypertension. One centre experience with transcatheter closure including 63 consecutive patients.

François Godart, Rachid Bouallal, Adelaïde Richard, Charles Francart

Hôpital Cardiovasculaire, Service des Maladies Cardiovasculaires Infantiles et Congénitales, CHRU de Lille, Lille, France

Hypoxemia related to interatrial right-to-left shunt may have a significant impact on exercise tolerance. We report here one centre experience in transcatheter closure of interatrial RL shunt.

From August 1995 to 2009, 63 consecutive patients (37 females and 26 males, mean age 54±24 years), underwent transcatheter closure of interatrial RL shunt because of cyanosis and shortness of breath at exercise. Associated malformations were modified Fontan (n = 4), Ebstein anomaly (n = 1), RV hypoplasia (n = 1), pectus excavatum (n = 2), aortic aneurysm (n = 1). Ten pts had a past history of stroke. A real platypnea-orthodeoxia syndrome was noticed in only 17 pts. The vast majority of patients had cardiac catheterization under local anaesthesia with a sole fluoroscopic control. None of them had pulmonary artery hypertension. Transcatheter closure was performed with a Sideris device (n = 10), a PFO Amplatzer occluder (n = 40), an ASD Amplatzer occluder (n = 8), a Cardioseal device (n = 3), a VSD Amplatzer occluder (n = 2). Device implantation succeeded in all but two (1 Sideris and 1 Cardioseal device). The fluoroscopic time was 12±8 minutes.

All patients had better clinical tolerance after closure with an oxygen saturation >92%. All underwent serial echocardiographic follow-up with bubble study. One month after implantation, no shunt was noticed in all but 6 pts (tiny RL shunt). In 5 of these remaining pts, the 6-month control did not see any residual shunting.

Transcatheter closure of interatrial RL shunt responsible of cyanosis is an effective and a safe method. Many devices using a double disk system can be employed and provide excellent results. The classic platypnea-orthodeoxia syndrome is observed in < 25% of this population.

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Decrease in left atrium volume after successful balloon mitral valvuloplasty: an echographic and hemodynamic study

Saroumadi Adavane (1), Satheesh Santhosh (2), S Karthikeyan (2), Siriram Rajagopal (2), Stéphane Ederhy (1), J Balachander (2), Nabila Haddour (1), Ariel Cohen (1)

(1) Saint Antoine Hospital, Cardiology, Paris, France - (2) Jawaaharl Institute of Postgraduate Medical Education and Research, Pondicherry, India

Background: Left atrium (LA) remodeling has a crucial adverse impact on outcome and prognosis in mitral stenosis (MS). Few studies have reported the effect of balloon mitral valvuloplasty (BMV) on LA volume. The aim of this study was to assess the evolution of LA volume immediately and 1 month after successful BMV in patients in sinus rhythm.

Methods: Thirty-three consecutive patients (70% women; age 31±8 years; range 19-45) with moderate to severe MS (mitral valve area 1.5 cm²) who underwent successful BMV were included prospectively. Using two-dimensional echocardiography, and according to the prolapse endocardial method, LA volume and LA indexed to body surface area were determined before BMV, 24 hours and 1 month after BMV. Pulmonary artery-right ventricular (PA-RV) gradients, reflecting pulmonary pressures, and pulmonary vascular resistance were measured.

Results: Mitral valve area increased from 0.88±0.16 to 1.55±0.26 cm² (p<0.0001). Mean mitral valve gradient (MVG) decreased from 16±6 to 6±2 mmHg (p=0.0001) immediately after BMV. Indexed LA volume fell from 56±14 to 48±12 mL/m² (p=0.0002) immediately after BMV and to 45±13 mL/m² at 1 month (p<0.0001). Only patients with a median LA volume 55 mL/m² before BMV had a significant reduction in LA volume (p=0.0001). Decrease in LA volume was correlated with decreases in PA–RV peak diastolic gradient (r=0.45, p=0.008) and MVG (r=0.35, p=0.04).

Conclusion: In patients with MS in sinus rhythm, successful BMV results in an immediate decrease in LA volume. This reduction, maximal immediately after BMV, correlates with decreases in MVG and PA–RV peak diastolic gradient, and is significant only when LA volume before BMV is severely enlarged.