Objectives: We sought to evaluate the effect of AF on the immediate and long-term (23 years) outcome of patients undergoing BMV.

Methods: The immediate procedural and the long-term clinical outcome after BMV of 139 patients with AF were collected and compared with those of 381 patients in normal sinus rhythm (NSR).

Results: Patients with AF were older (43.3 vs. 29.7 years; $p < 0.001$), had frequently a history of systemic embolism (9.4% vs. 1.6%, $p< 0.001$) and of mitral commissurotomy (28.1% vs. 19.4%, p=0.035). Patients with AF had more frequently a Wilkins score > 8 (51.4% vs. 30.9%, $p <0.001$), a larger left atrium (41cm^2 vs. 32cm^2, p= 0.001) and a lower transmitral gradient (11.1 mmhg vs. 16.6 mmhg, $p < 0.001$).

BMV was equally successful in the two groups (90.6% vs. 94%, p=0.187) but resulted in a smaller post BMV area (2cm^2 vs. 2.15cm^2, p=0.012) with a lower mitral valve area gain (0.9cm^2 vs. 1 C, p=0.015). BMV was not associated with a higher risk of complications (4.3% vs. 4.7%, p= 0.844).

After a mean follow-up of 74 months, patients with AF had the same rate of restenosis (28.3% vs. 25.6%, p=0.96) but required more frequently a mitral valve replacement (16.3% vs. 7.7%, p= 0.012). They also experienced higher rates of systemic embolism (3.8% vs. 0.6%, p=0.018) and had a lower rate of event free survival (52.2% vs 68.8%, p= 0.047). In the group of patients in AF, predictive factors for combined adverse events including death, restenosis, and systemic embolism. Predictive factors of mitral valve replacement are: post BMV area < 2cm^2 (OR: 2.5, 95% CI [1.2; 5.18], p= 0.014), procedural complications including severe mitral regurgitation and tamponnade (OR: 3.95, p= 0.009) and NYHA ≥ II during follow up (OR: 3.46, $p <0.001$).

Conclusion: Our data support the fact that patients with AF have worse immediate and long term outcomes after BMV. Post BMV area <2cm^2, procedural complications and dyspnea predict adverse events during follow up.

0351

French experience in tricuspid valve-in-valve implantation for bioprosthetic valve failure

François Godart (1), Younes Boudjemlline (2), Alban Baruteau (3), Jérôme Petit (3), François Sassolas (4)
(1) CHRU Lille, Hôpital Cardiologique, Cardiologie infantile et congénitale, Lille, France – (2) CHU Hôpital Necker Enfants Malades-APHP, Cardiologie pédiatrique, Paris, France – (3) Centre chirurgical Marie Lannelongue, Cardiologie infantile et congénitale, Paris, France – (4) CHU Lyon, Cardiologie infantile et congénitale, Lyon, France

Tricuspid valve-in-valve (VIV) implantation has recently emerged as a possible therapeutic option when a bioprosthetic valve degenerates. A French retrospective study is reported.

From 2010 to end 2014, 9 patients underwent tricuspid VIV implantation. There were 4 females and 5 males. Pts were in functional NYHA class III. Seven pts had congenital heart disease, 1 pt a rheumatic disease, 1 pt a cardiomyopathy. Causes for implantation were tricuspid stenosis (n = 4), a mixed lesion combining tricuspid stenosis and regurgitation (n = 4), and one tricuspid regurgitation. In addition, 2 of them suffered from protein losing enteropathy (PLE).

Implantation was performed under general anaesthesia using a femoral approach at a mean age of 29.5±18 years (9-60 years). Two pts underwent pre-dilatation of the lesion and a pre-stenting was performed in 6. VIV implantation was realized under pacing in 3 pts. A 22-mm Melody valve (Medtronic) was implanted in 6 pts, and an Edwards Sapien valve in 3 (one 23-mm, one 26mm, and one 29-mm valve). Implantation succeeded in all despite 2 embolizations (1 in RA and 1 in RV); the embolized stent could be stabilized within the tricuspid annulus in both by a self-expandable stent before subsequent successful VIV implantation using a second valved stent. During follow-up (mean 10 months and up to 24 months), all pts but one were clinically ameliorated (mean functional NYHA class II) including the 2 pts with PLE (increase in albumin level). The mean tricuspid gradient decreased significantly from 9.4±2.3mm Hg before to 3.9±0.4mm Hg after implantation. Two pts died during follow-up but death was not valved stent related.

To conclude, tricuspid VIV implantation is an effective procedure using both the Melody and the Edwards Sapien valves. Knowledge of the true minimal diameter is the key point to choose the appropriate valved stent. This promising technique has good immediate and mid-term results but further studies with longer follow-up and including more pts are necessary

0398

Predictors of functional tricuspid regurgitation after successful left-sided valve surgery

Leila Bezdah, Mohamed Gzara, Ahmed Chetoui, Slim Sidhom, S.Mohamed, Walid Maghraoui, W.Ouchtati, Moustapha Diakité, Hédi Baccar
Hôpital Charles Nicolle, Cardiologie, Tunis, Tunisie

Introduction: Functional tricuspid regurgitation (TR) is probably the most common and anticipated complication of left-sided heart valve pathology, especially mitral valve diseases. Whether preoperative functional TR will regress or progress after successful left-sided valve surgery is unknown. The aim of this study was to identify the predictors of significant TR after successful left-sided valve surgery.

Methods: A retrospective analysis was performed on a total of 56 patients who underwent left-sided valve surgery (mitral or mitro-aortic valve surgery). We have excluded patients who had organic TR.

All patients had complete clinical examination and echocardiographic studies preoperatively and clinical and echocardiographic follow-up postoperatively.

Results: Mean operative age of patients was 49,3±13,7 years with a sex-ratio of 0,8. Tricuspid annuloplasty was associated to left-sided valve surgery in 18 (32%) patients. Postoperatively, significant TR was found in 13 patients (23%) with a mean follow-up of 20,5±33 months. Patients with significant postoperative TR were more often female (83% vs 48%, p = 0,03), had more often a previous mitral commissurotomy (58% vs 23%, p=0,02) and showed a higher prevalence of significant preoperative TR (69% vs 42%, p=0,04). Postoperatively, residual pulmonary hypertension (p=0,04), dilatation of left atrium (p=0,02) and dilatation of right cardiac cavities (p=0,01) were significant risk factors for development or progression of TR after surgery.

Conclusion: Late onset or progression of functional TR after successful left-sided valve surgery is a significant clinical entity as it displays a great impact on patient prognosis. So, the identification of clinical and echocardiographic predictors of late TR allows an adequate screening of patients that will require tricuspid valve repair at the time of initial left-sided valve surgery.

0407

Evaluation of the tricuspid annulus size: clinical implications from comparison between 2D-transthoracic and 3D-transesophageal echocardiography

Julien Dreyfus, Guillaume Durand-Viel, C.Cimadevilla, Eric Brochet, Alec Vahanian, David Messika-Zeitoun
CHU Bichat-Claude Bernard-APHP, Cardiologie, Paris, France

Background: Tricuspid annuloplasty is recommended during left-heart valve surgery when tricuspid annulus (TA) is dilated, independently of the degree of tricuspid regurgitation, but the methodology to measure TA and thresholds are not clearly defined. We aimed to compare TA diameter (TAD) measurements performed using bi-dimensional transthoracic echocardiography (2D-TTE) in the 4 different views to three-dimensional measurements performed during transesophageal echocardiography (3D-TEE) and to define thresholds of TA enlargement for routine practice.

Methods: 2D-TTE measurement of the TAD was performed in parasternal long-axis view of the right ventricle inflow, parasternal short-axis, apical 4-chamber (A4C) and sub-costal views in 195 prospectively enrolled patients and 66 healthy volunteers. 3D dynamic volumetric datas of the TA were also acquired by TEE using a matrix array transducer (X7-2t, Philips) in the 195 patients. Multiplanar reconstructions were performed offline using dedicated software (QLab7, Philips) to measure the long-axis (LA) of the TA.

Results: In the 195 patients, TAD measurements were not different between the 4 TTE views (P=0.13), but A4C was the most feasible and the most reproducible method (Table). TAD measurement in A4C view by TTE (3.90±0.62cm) was well correlated (r=0.84, $p<0.0001$) to LA by 3D-TEE (4.33±0.63cm), but with a systematic 4mm underestimation. In the healthy volunteers, mean value of TAD in A4C was 3.2±0.4cm or 1.8±0.23cm/m² and the upper limit of 95% confidence interval was 4.2cm or 2.3cm/m².

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