Wilkins score for severe mitral stenosis: what is beyond the procedural considerations?

Majed Hassine, Itihel Mechri, Ghassan Chniti, Marouen Mahjoub, Mejdi Ben Massoud, Nidhal Bouchahida, Zohra Dridi, Fethi Betbout, Habib Gauna
Hôpital Fattouma Bourguiba, Cardiologie A, Monastir, Tunisie

Background: Percutaneous transvenous mitral balloon valvotomy (PTMV) optimal results usually achieved when echocardiographic Wilkins score (WS) is ≤8. WS ≥9 represent a gray zone in which only some patients have good results.

Aim: The aim of this study was to determine the early and long term results of this procedure in patients with WS 8 or less and at the gray WS zone.

Methods: Retrospective review of clinical records of patients with rheumatic SM submitted to PTMV from January 1990 to December 2010. Follow-up was obtained by clinical records when available. Procedure was considered unsuccessful when post-procedure MV area (MVA) was ≤1.5cm².

Results: We analyzed data for 378 patients with a WS ≤11, 80.5% were women. Mean age at the time of repair was 33 years (10 to 76 years) and the mean follow up time was 74 months. Before the procedure, 33.9% had a WS ≤9. WS from 9 to 11 represent a gray zone in which only some patients have good results.

During follow up, patients in the gray zone had significantly lower event rates of restenosis (33.6% vs. 17.8%, p<0.001) and required more frequently the long term there is a risk of restenosis. The purpose of this study was to determine the factors predicting restenosis after PTMV.

Conclusion: Despite a high rate of restenosis, PBMC is very effective and safe in children, and consider that it should be the procedure of choice for young patients with symptomatic rheumatic mitral stenosis.

Factors predicting mitral restenosis after successful percutaneous mitral commissurotomy

Leila Bezdah, Emma Allouche, Hubin Ben Ahmed, S.Mohamed, Slim Sidhom, W.Ouchtiti, Hédi Baccar
Hôpital Charles Nicolle, Cardiologie, Tunis, Tunisie

Introduction: Percutaneous mitral commissurotomy (PMC) is the alternative treatment of choice for mitral stenosis (MS). Its immediate and medium term results are comparable to those of surgical commissurotomy, however in the long term there is a risk of restenosis. The purpose of this study was to determine the factors predicting restenosis after PMC.

Methods: 322 patients (66% women), average age: 35±13 years (9-75 years) having a tight MS and treated by PMC with Inoué balloon. The anatomic aspect of the mitral apparatus before PMC has been studied according to the criteria of the Wilkins score with a concomitant study of the state of mitral commissures. The primary success of PMC was defined as follows: mitral area (MA) post-PMC >1.5cm² and gain in MA ≥25% and mitral regurgitation (MR) ≤grade 2. Mitral restenosis is defined as a MA ≤1.5cm² and/or loss >50% of initial gain in MA.

Results: The rate of primary success of PMC was 86% and mean MA post PMC was 1.82±0.33 cm² compared to MA pre-PMC of 1.50±0.18cm² (p<0.0001). Opening of two commissures has been observed in 74% of patients. After an average period of 62±32 months, only 12% of patients had a dyspnea stage III-IV of NYHA, MA was 1.64±0.3cm² (p<0.001) and mitral restenosis happened in 47 patients (20%) after a period of 60.4±27 months (22-124 months). The independent predictors of mitral restenosis after a successful PMC were: previous surgical commissurotomy, Wilkins score >8, MA after PMC <1.8 cm² and absence of bicommissural opening post PMC.

Conclusion: A favorable anatomy of mitral apparatus and the optimisation of immediate result of PMC are the guaranty for the maintenance of good result in the long term.

Evolution of mitral organic valve disease in Vietnam during last two decades

Inês Cazaubiel (1), Bernard Jang (2)
(1) CHU Hôpital Saint Antoine-APHP, Cardiologie, Paris, France – (2) CHU Bichat-Claude Bernard-APHP, Cardiologie, Paris, France

Introduction: Currently, degenerative etiologies of valvular diseases predominate in developed countries, but there are few data in developing countries like Vietnam.

Methods: This Vietnamese retrospective study included 2734 patients who had mitral valve surgery in the Heart Institute, in Ho Chi Minh City, Vietnam. They were divided into two periods: 1636 cases in 1995-2000 and 1098 cases...
in 2005-2010. The etiology and type of valvular heart disease have been classified on the basis of surgicaleports.

Results: The distribution of etiologies differed significantly different between the two periods (p<0.0001). We noted a decrease in rheumatic valvular disease with 1,558 cases (95%) in the first period and 894 cases (81%) in the second period. Consistently, we observed an increase in degenerative etiology from 1.6% to 16%, and particularly fibroelastic degeneration: 20 (1.6%) and 146 (13.3%) cases. The mechanism of valvular disease (mitral regurgitation versus mixed mitral valve disease and mitral stenosis) differed significantly (p=0.0001) for both periods. With regard to mitral regurgitation cases only, degenerative etiologies increased from 11.4% to 38.5% of cases between the two periods (p=0.0001). Patients had a mean age of 36.3 years with a female predominance (two thirds of patients), especially in rheumatic etiologies. Age (p=0.0001) and the proportion of urban residents (p=0.04) was increased in degenerative causes.

Conclusion: The study shows the emergence of degenerative valvular disease in Vietnam and a decrease in rheumatic valvular heart disease, which nevertheless remains the most common etiology.

0493 Mutations in the gene encoding FilGAP as a cause for mitral valve prolapse
Antoine Rimbert, Damien Duval, Florence Kyndt, Simon Lecointe, Vincent Probst, Thierry Le Tourneau, Jean Mérot, Jean-Jacques Schott, U1087, Nantes, France

The mitral valve prolapse (MVP) is a common cardiac disorder which affects 2-4% of the population and remains one of the most frequent indications for valvular surgery. The familial nature of MVP has been proposed for many years and so far, FLNA remains the only identified gene.

Recently, it has been shown that FLNA mutations deregulate the RhoA/Rac1 GTPases balance and provided evidences for a role of the Rac1 specific GTPase activating protein, FilGAP, in this network. FilGAP is a recognized FlnA-binding RhGTPase-activating protein.

Giving the tight interactions of FlnA and FilGAP, we first tested, using a candidate gene approach, the hypothesis that FilGAP, encoded by ARHGAP24, could be involved in MVP.

We have sequenced ARHGAP24 in 95 MVP operated patients and identified 3 rare missense mutations in highly conserved residues (FilGAP p.R95Q; p.P417H and p.T481M). One mutation was novel and the 2 others present a minor allele frequency lower than 1% in EVS. Moreover, p.T481M co-segregates with the pathology in a family with 3 affected patients.

We then investigated the impact of these mutations in HEK293 cells. The role of FilGAP is to decrease Rac1 activity and thus to regulate cell processes involved in actin cytoskeleton properties as adhesion, protrusion and intracellular dynamics.

From pull-down assays, we have shown that FilGAP mutations alter Rac1 GTPase activity and significantly decrease the FilGAP interaction with the active form of Rac1 (p<0.01). We have also shown, using the XCELLigenec system, that cell adhesion and spreading was significantly increased with mutated FilGAP (p<0.01). Our results indicate that ARHGAP24 variants are loss-function mutations.

Moreover, we demonstrate that FilGAP mutations alter the downstream signaling pathway by two different mechanisms. FilGAP p.P417H and p.T481M decrease the interaction with FlnA while p.R95Q impacts the plasma membrane anchorage.

This work reinforces the involvement of GTPases pathway in MVP pathogenesis.

0539 Value of the mean mitral gradient predictive of dyspnea in mitral stenosis in stress echo Doppler cardiac at peak effort
Fadila Daimellah (1), Saléha Lebahi (1), Saïda Khelli (1), Zakia Bennoui (1), Imene Hachemaoui (1), Djohar Hannoun (2), Youcef Laid (2), Mohand Said Issad (1)

(1) CHU Béni Messous, Cardiologie, Alger, Algérie – (2) Institut National de Santé Publique, Alger, Algérie

Background: In stress echo Doppler of mitral stenosis (MS), the cut-point of the mean mitral gradient (MMG) at the peak of the effort proposed by the American Recommendations for mitral dilation is 15mmHg. However, this value is questioned in the literature.

Objective: In stress echo Doppler, determine the peak effort cutoff value of the MMG prediction of the occurrence of dyspnea justifying percutaneous mitral dilation in patients with MS.

Methodology: Prospective descriptive study conducted in the Cardiology Department Hospital Béni Messous (Algeria) between March 2008 and December 2010. Have been included patients with mitral area ≤2 cm², functional class I to III NYHA and systolic pulmonary artery pressure ≤60mm Hg at rest. Dyspnea was sought to stress test on a treadmill (30W/3min). Dyspneic patients are those who have stopped the examination for a load ≤90W due to the occurrence of severe dyspnea. The stress echo Doppler was performed on table echocardiography (30W/3min). The MMG was measured at baseline and at the end of each level to the peak of the effort.

Results: Three hundred patients were included (mean age 42.3±1.3 years, 81.3% female). At the end of the stress test, 182 had dyspnea (60.6%). Areas under the curve of the MMG at peak stress is equal to 0.80, 95% confidence interval: 0.75-0.85 (p<10^-5). In predicting dyspnea justifying percutaneous mitral dilation, the optimal cutoff value of the MMG corresponds to 33.5 mmHg; sensitivity=0.55, specificity=0.96, positive likelihood=13.21, positive predictive value (PPV) =95%, positive predictive error (PPE) =5%, Information Expected Capacity (IEC) =109. However, the diagnostic quality of the MMG at maximum effort with the cut point of 15 mmHg proposed by the American Recommendations is low: sensitivity=0.98, specificity=0.008, positive likelihood=0.98, PPV=60.0%, PPE=0.0%, IEC= 0.25.

Conclusion: In this study, the optimal cutoff value of the MMG predictive peak effort dyspnea justifying the percutaneous mitral dilation is 33.5 mmHg, above the cut point proposed by American Guidelines.

January 17th, Saturday 2015

0179 Assessment of paravalvular aortic regurgitation after transcatheter aortic valve implantation using cardiac magnetic resonance imaging: a comparative study with echocardiography and angiography
Najime Bouhazm (1), Eric Durand (1), Jerome Caudron (2), Fabrice Bauer (1), Matthieu Godin (1), Christophe Tiron (1), Carlos Rodriguez Camacho (1), Alain Cribier (1), Jean-Nicolas Dacher (2), Hélène Eltchalinoff (1)

(1) Hôpital Charles Nicolle, Cardiologie, Rouen, France – (2) Hôpital Charles Nicolle, Radiologie, Rouen, France

Assessment of paravalvular aortic regurgitation (AR) after transcatheter aortic valve implantation (TAVI) using Edwards SAPIEN XT valve remains challenging using transhoracic echocardiography (TTE) or angiography. Cardiac magnetic resonance imaging (c-MRI) has a low intraobserver and interobserver variability in the assessment of regurgitant volumes and might be more reliable to assess AR post-TAVI. We therefore aimed to evaluate the value of c-MRI to assess paravalvular AR after TAVI. Between February 2012 and March 2013, 132 consecutive patients underwent successful TAVI using exclusively Edwards SAPIEN XT prosthesis. AR was evaluated by c-MRI, TTE and angiography in 45 patients (27 women, mean age 84.1±1.7 years). Angiography was performed immediately after TAVI whereas TTE and c-MRI were performed one month after implantation. At baseline c-MRI, the mean aortic regurgitant fraction (ARF) was 21.3±12.5%. A significant AR (≥ grade II) was present in 24 (56%) patients using c-MRI (30< ARF≤50 Y%) whereas it was only observed in 18 (40%) and 12 (27%) patients using TTE and angiography, respectively. Interestingly, there was a poor correlation between c-MRI and TTE (r=0.16, p=0.28) and between c-MRI and angiography (r=0.30, p=0.06). In contrast, there was a good correlation between TTE and angiography (r=0.70, p<0.001). TTE underestimated AR by one degree in 9 patients, and by two degrees in 6 patients as compared to c-MRI. The results of our study suggest that TTE and angiography may underestimate...