Left Atrial Appendage

CRT-141

Comparison Of Watchman And ACP Devices In The Left Atrial Appendage

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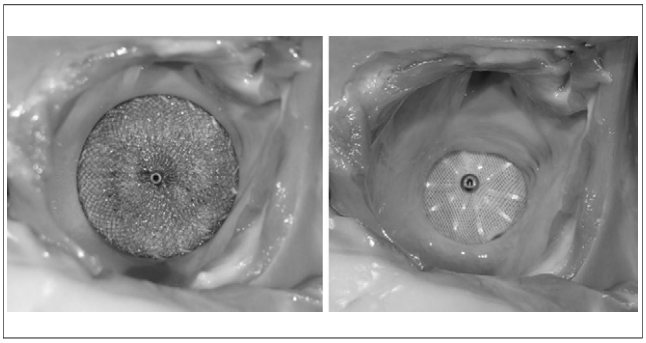
Conformation to the left atrial appendage anatomy of a 16 mm ACP device (Amplatzer, Golden Valley MN) and a 21 mm Watchman (Boston Scientific, Natick, MA) was compared in a fresh canine heart ex vivo. The atrial wall of a heart from an 8-month hound-type 21 kg male dog was removed to allow visualization and deployment of the devices into the left atrial appendage. Each device was deployed, measured, and photographed for conformation to the left atrial appendage in the same heart in order to assess fit in identical anatomy.

Watchman had 51% less surface exposure (154 mm^2) compared to the ACP device (314 mm^2). The ACP device was appeared to impinge on the mitral valve compared to the Watchman. In addition, the superior edge of the ACP device was closer to the pulmonary vein ostia compared to that of Watchman. These data demonstrate superior positioning of Watchman compared to the ACP device in the left atrial appendage with lower risk of affecting other cardiac structures.

ACP (Figure 1) and Watchman (Figure 2) device placement in the left atrial appendage in the same canine heart. The mitral valve is impinged by the placement of the ACP device, but not the Watchman device.



Mitral Valve

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Long-term Follow-up Of Mitral Valvuloplasty With Single Balloon, Independent Predictors Of Survival And Event Free Survival

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Objectives: Mitral balloon valvuloplasty (MBV) with single balloon (MBVSB) is the less expensive technique to perform mitral balloon valvuloplasty. The objectives were to evaluate long-term follow-up (FU) of MBVSB Balt and to determine independent predictors of survival and event-free survival.
Methods: From 1987 to 12-31-2011, 526 procedures of mitral balloon valvuloplasty was performed, 404 (77.1%) with MBVSB Balt, being 256 procedures with long-term FU. The balloon diameter was 25 mm in 5 procedures and 30 mm in 251, mean dilatation area 7.02±0.30 cm^2. The FU was 54.6±32.8 (1 to 174) months. To determine independent predictors of survival and event-free survival it was used the multivariate Cox analysis.
Results: Mean age was 38.0±12.6 (13 to 83) years, being 222 (86.7%) female, 215 (84.0%) in sinus rhythm, echo score (ES) 7.2± 1.5 (4 to 14) points and echo mitral valve area (MVA) pre-MBVSB 0.93±0.21 cm^2. Mean pre and post-mitral balloon valvuloplasty area (Gorlin) was 0.90±0.20 and 2.02±0.37 cm^2 ($p<0.001$) and success MVA ≥1,5 cm^2 in 241 (94.1%) procedures and mean pulmonary artery pressure pre and post mitral balloon valvuloplasty were 27±10 and 20±7 mmHg. Three (1.2%) patients began the FU with severe mitral regurgitation. At the end of the FU 119 (46.5%) patients were in NYHA FC I, 70 (27.3%) in FC II, 53 (20.7%) in FC III, 3 (1.2%) in FC IV and there were 11 deaths (4.3%). There were 17 (8.2%) patients with new severe mitral regurgitation at the end of the FU. Twelve (4.7%) patients were submitted to new mitral balloon valvuloplasty, 27 (10.5%) to mitral valve surgery and 70 (26.3%) patients used no medication at the end of the FU. Independent predictors of survival were: ES ≤8 ($P<0.001$, HR=0.116, 95% IC 0.035-0.384), age ≤ 50 years old (P=0.011, HR 0.203, 95% IC 0.059-0.693) and absence of mitral valve surgery in the FU (P=0.004, HR 0.170, 95% IC 0.050-0.571). Independent predictors of event-free survival were: absence of prior comissurotomy ($P<0.002$, HR 0.318, 95% IC 0.151-0.667), female (P=0.036, HR 0.466, 95% IC 0.229-0.951) and MVA post mitral balloon valvuloplasty ≥ 1.50 cm^2, $P<0.001$, HR 0.466, 95% IC 4.884-28.457) in multivariate Cox analysis.
Conclusions: MBVSB Balt was efficient with durable results similar to other techniques. Independent predictors of survival were: ES ≤8, age ≤ 50 years old and absence of mitral valve surgery in the FU. Independent predictors of event-free survival were: absence of prior comissurotomy, female gender and MVA post mitral balloon valvuloplasty ≥ 1.50 cm^2.

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Mitral Leaflet Separation Index Is An Accurate Measure For Mitral Stenosis

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Aim: Evaluation of the MLS index as a measurement for Mitral stenosis.
Methods: 2D Echocardiography was done in 50 patients with MS in this study: Group1 consisted of 25 patients in sinus rhythm with mean age was 28.6 ± 5.6 years. Four of the patients were male (16%), and 21 were female (84%). Six patients had mild, 13 had moderate and 6 had severe Mitral stenosis Group II consisted of 25 patients suffering from atrial fibrillation. The mean age was 37.4 ± 9.8 years. Twelve of the patients were male (48%), 13 were female (52%). Three patients had mild, 14 had moderate and 8 had severe Mitral stenosis.

Patients with significant other valvular lesions or heavily calcified Mitral valve were excluded from the study.

The MVA was assessed by planimetry and pressure half time. MLS index\was measured in end diastole, as the maximal separation at the tips of mitral leaflets in the parastenal long axis (PLX) and apical 4 chamber (A4C) views.
Results: ROC curves for group I demonstrated that in the PLX view, severe Mitral stenosis was predicted by a MLS of 8.05 mm or less had a 82% sensitivity and 100% specificity for planimetry (MVA= −.167 +(.162 × MLS), r=.835, $p < .001$) and MLS of 8.25 mm or less with a 85% sensitivity and 100% specificity for PHT (MVA = −.122 + (.155 ×MLS), r= .753,$p < .001$). In the apical 4chamber view, severe Mitral stenosis was predicted by a MLS of 7.9 mm or less with a 82% sensitivity and 86% specificity for planimetry (MVA = −.268 +(.176 × MLS), r = .837, $p <.001$), and 8.25 mm with a 81% sensitivity and 100% specificity for PHT MVA = −.303 +(.177 ×MLS), r = .799, $p <.001$) ROC curves for Group II demonstrated In the PLX view, severe Mitral stenosis was predicted by a MLS of 7.25 mm or less with a 89% sensitivity and 90% specificity for planimetry (MVA= −.013 + (.139 × MLS), r= .611, $p < .001$) and MLS of 7.75 mm or less with a 84% sensitivity and 100% specificity for PHT (MVA = −.203 + (.168 ×MLS), r = .710, $p < .001$). In the apical 4chamber view, severe Mitral stenosis was predicted by a MLS of 7.65 mm or less with a 89% sensitivity and 100% specificity for planimetry (MVA = −.122 +(.152 × MLS), r = .759, P value <.001) , and 7.9 mm with a 84% sensitivity and 100% specificity for PHT (MVA = −.261 + (.174 ×MLS), r = .840, P value <.001).

For both groups MVA by planimetry= −0.304 + (0.052×MLS(PLX view) + (0.125×MLS(A4C view)) , r=0.828; $P < 0.001$)

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Conclusion: The MLS index is a new easy and practical method for assessment of mitral stenosis severity.

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Mitral Balloon Valvuloplasty Long-term Follow-up Of Single Balloon Versus Inoue Balloon Techniques. Independent Predictors Of Survival And Event Free Survival

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Objectives: The single balloon (SB), that is the less expensive technique to perform mitral balloon (MBV) valvuloplasty. This study aimed to demonstrate that MBV with SB Balt has similar outcome and long-term follow-up (FU) than MBV performed with the Inoue worldwide accepted technique.
Methods: From 1987 to 12/31/2011 a total of 526 procedures were performed, being 312 procedures with a FU, 56 (17.9%) with Inoue balloon (IB), the IB group (IBG) and 256 (82.1%) SB Balt group (SBG). The mean FU in IBG was 33±27 (2 to 118) and in SBG 55±33 (1 to 198) months (P<0.0001). Univariate analysis and multivariate Cox analysis were utilized to determine independent predict variables of survival and event free survival (EFS) in both technique groups and major events were (death, cardiac surgery and new MBV).
Results: In IBG and SBG there were: female 42 (75.0%) and 222 (86.7%) procedures, (P=0.0276), mean age 37.3±10.0 (19 to 63) and 38.0±12.6 (13 to 83) years (P=0.7138), sinus rhythm 51 (91.1%) and 215 (84.0%), (P=0.1754), echo score (ES) 7.6±1.3 (5 to 10) and 7.2±1.5 (4 to 14) points (P=0.0528), echo mitral valve area (MVA) pre-MBV 0.96±0.18 and 0.93±0.21 cm^2 (P=0,2265). Post-MBV mean MVA (Gorlin) were 2.00±0.52 and 2.02±0.37 cm^2 (P=0.9550) and at the end of the FU there were: echo MVA 1.71±0.41 and 1.54±0.51 cm^2 (P=0.0552), new severe mitral regurgitation in 5 (8.9%) and 17 (6.6%) patients (P=0.5633), new MBV in 1 (1.8%) and 13 (5,1%), (P=0.4779), mitral valve surgery in 3 (5.4%) and 27 (10.4%), (P=0.3456), deaths 2 (3.6%) and 11 (4.3%) deaths, (P=1.000), being cardiac deaths 1 (1.8%) and 9 (3.5%), (p=1.0000), major events 5 (8.9%) and 46 (18.0%), (P=0.1449). In univariate analysis and multivariate Cox analysis the SB or IB technique used do not predict survival or EFS and independent risk factors to survival (multivariate Cox analysis with 2 models with 5 and 6 variables) were: age <50 years (P=0.016, HR=0.233, 95% IC 0.071-0.764), ES ≤8 (P<0.001, HR=0.105, 95% IC 0.34-0.327), MBV dilatation area (P<0.001, HR 16.838, 95% IC 3.353-84.580) and mitral valve surgery in the FU (P=0.001, HR=0.152, 95% IC 0.050-0.459) and to EFS: prior commissurotomy (P=0.012, HR=0.390, 95% IC 0.187-0.813) and post-MBV MVA ≥1.50 cm^2 (P<0.001, HR=7.969, 95% IC 3.413-18.608).
Conclusions: MBV with SB and IB were equally efficient with similar survival and EFS in the FU. Independent predictors of survival were: age <50 years, ES ≤8 points, MBV dilatation area and mitral valve surgery in the FU and of event EFS: prior commissurotomy and post-MBV MVA ≥1.50 cm^2.

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Major clinical Outcomes after Mitral Valve Repair in Low Risk Patients

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Background: To report the short-term clinical outcomes of patients with severe mitral valve regurgitation undergoing mitral valve repair.
Methods: Four hundred forty patients who underwent mitral valve repair between 2003 to August 2012 in our Institution were identified by using a Society of thoracic Surgeon (STS) standardized database. We excluded those patients who had previous coronary artery bypass surgery or valve surgery or endocarditis from the study. The STS mortality risk sore 3 was used as a cutoff point to define the study group.
Results: Three hundred fifty nine patients with STS mortality risk score lower than 3 were included in the analysis. Observed 30-day mortality and other major clinical outcomes and predicted outcomes are presented in the following table.

Major Postoperative Clinical Outcomes after Mitral Valve Repair.

	Observed Outcomes (N=359)	STS Predicted Outcomes
Mortality (%)	2 (0.6)	0.6
Stroke (%)	4 (1.1)	1.0
Renal-failure (%)	1 (0.3)	2.0
Total ICU hours	43.2±65.7	
Prolonged ventilation (%)	21 (5.8)	5.7
LOS (days)	5.9±4.5	
Postoperative atrial fibrillation (%)	100 (27.9)	
Total PRBC (ml)	301.5±581.8	
Readmission to hospital (%)	31 (8.6)	
Moderate or Severe postoperative mitral valve regurgitation (%)	4 (1.1)	
STS Predicted Morbidity or Mortality (%)		10.8

Conclusions: Our single center experience of isolated mitral valve repair in patients with STS mortality score lower than 3 is generally in concordance with the predicted STS outcome rates. The postoperative mitral regurgitation was lower than reported rates in published articles.

Other

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Follow-up Results And Health-related Quality-of-life After Implantation Of Left Ventricular Passive Containment Device For Heart Failure And Dilated Cardiomyopathy

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Objective: We conducted a prospective study of the clinical outcomes and health-related quality-of-life after implantation of the CorCap cardiac support device (Acorn Cardiovascular Inc.) for dilated cardiomyopathy.
Methods: The CorCap was implanted in case of dilated cardiomyopathy (left ventricular end-diastolic diameter >60 mm. and <80 mm., left ventricular ejectionfraction <30%), symptoms of heart failure (NYHA class III or IV) despite maximal medical therapy, and good renal, pulmonary and hepatic functions. Echocardiographic follow-up and evaluation with the SF-36 questionnaire were performed. An average 25.1 ± 4.3 follow-up was available.
Results: Forty patients were included. A statistically significant improvement was evident in mean left ventricular ejection fraction, end-diastolic diameter, end-diastolic volume and volume index, end systolic diameter, end-systolic volume and volume index, left ventricular sphericity index at the last follow-up vs. baseline. The cumulative mortality was 10% (no follow-up deaths after the 1st postoperative year). The average physical health domain scores (physical functioning, role physical, general health) were statistically improved. Average mental health domain scores were also increased. Concomitant mitral