fibrillation (AF). We present procedural and mid-term outcomes of 220 patients undergoing LAA closure at our institution.

Methods: From 2002 to 2008, non-dedicated Amplatzer devices (ND) were used (patent foramen ovale (PFO), atrial septal defect (ASD), ventricular septal defect, and prototypic occluders). Since 2009 the Amplatzer Cardiac Plug (ACP) has been implanted. Procedures were performed under local anesthesia and fluoroscopic guidance only. Device sizing was performed by contrast injections into the LAA, taking the outer diameter of the delivery sheath as reference for size estimates. Patients were discharged on dual antiplatelet therapy for 1- to 6 months, some continued acetylsalicylic acid for other reasons.

Results: A total of 220 consecutive patients (mean age 72±10.2 years) with a mean CHA2DS2-VASc Score of 3.0±2.1 and HAS-BLED score of 2.7±1.2 were analyzed. NDs were used in 32 patients (15%), AGPs in 188 patients (85%). LAA closure was successful in 213 patients (97%, i.e., 88% in ND group, 98% in ACP group, p=0.004). Concomitant procedures were coronary angiography in 66%, PCI in 24%, PFO/ASD closure in 29%, TAVI in 6%, and AF ablation in 6%. The combined safety endpoint of cardiac tamponade (2.7%), need for surgical conversion (1.8%), in-hospital, death (0%), myocardial infarction (0%), and stroke (1.4%; major 0.5%) was reached by 5.9% of patients (n=13). Long-term follow-up was available in 69% (n=151), mean 2.6±0.43 years, yielding 403 patients years. Cerebrovascular- or systemic embolism occurred in 2% (n=3), resulting in a stroke rate of <1% per 100 patient years. Major bleeding occurred in 4 patients (2.6%), i.e., 1% per 100 patient years.

Conclusion: Transcatheter LAA closure with Amplatzer devices can be performed as an alternative to OAC with an acceptable rate of procedural adverse events. Long-term outcome with very low stroke and bleeding rates. The net benefit of LAAO compared to OAC increased with improved devices and with longer follow-up.

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A meta-analysis of randomized trials comparing percutaneous closure of patent foramen ovale to medical therapy
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Purpose: To assess the benefit of percutaneous patent foramen ovale (PFO) closure compared to medical therapy alone.

Methods: We performed a meta-analysis of 4 randomized trials (MIST, Closure-1, RESPECT, PC) including a total of 1224 patients treated by PFO closure compared to 1226 patients treated medically. P values were calculated using ar afsun sinus transformation to take into account studies with no events.

Results: The rates of the primary end point (Death/Stroke/±TIA) (figure1) and stroke were significantly reduced by the PFO closure by 30% (RR 0.70, p=0.02) and 37% (RR 0.63, p=0.005) respectively. (Figure 1). The rates of major bleeding were comparable between groups (RR 1.1) while the risk of atrial fibrillation was significantly increased in the closure arms (RR 4.43, p=0.0003)

Conclusions: The meta-analysis of randomized trials demonstrates a significant reduction of the risks of primary endpoints and stroke but an increase of the risk of atrial fibrillation by PFO closure as compared to medical therapy.

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Hemodynamic effect of iatrogenic atrial septal defect after percutaneous mitral valve repair using the MitraClip device
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Aim: Percutaneous mitral valve repair (PMVR) using the MitraClip device has become a valid and promising alternative for high-risk patients with symptomatic mitral regurgitation. The procedure involves transseptal puncture and results in a new atrial septal defect (ASD) after withdrawal of the 22F MitraClip guiding catheter. The functional effect of the new atrial septal defect is not defined.

Methods: In 28 patients with symptomatic mitral regurgitation undergoing PMVR using the MitraClip device, 3D TEE was used to measure by direct en-face imaging of the area of the new atrial septal defect, to determine the resulting left-to-right atrial shunt volume and define the left atrial pressure reduction resulting from the new ASD. Analysis of the velocity time integral (VTI) across the septal defect after withdrawal of the guiding catheter allowed calculation of the shunt volume. Doppler analysis of the mitral flow was performed before and after withdrawal of the MitraClip guiding catheter to determine the change in inflow into the left atrium. Direct left atrial pressure measurements were obtained before and after withdrawal of the MitraClip guiding catheter.

Results: Mitral valve regurgitant volume by color Doppler 3D TEE was determined as the product of vena contracta areas defined by direct planimetry and velocity time integral using continuous-wave Doppler. Regurgitant volume was reduced from 86±31 ml preintervention to 43±22 ml postintervention. The new ASD had an effective area of 0.19 cm², 44% of the area of the 22F guiding catheter. Considering the VTI across the septal defect of 72±25 cm/sec, the left-to-right atrial shunt volume was calculated to be 13±5 ml per heart beat. The diastolic forward flow across the mitral valve was reduced by 15±11 ml per heart beat immediately after withdrawal of the MitraClip guiding catheter. Mean left atrial pressure was reduced from 17±8 mmHg with the guiding catheter still in the left atrium to 15±5 mmHg after withdrawal of the guiding catheter.

Conclusion: The creation of a new ASD as consequence of the large diameter MitraClip guiding catheter results in volume and pressure relief of the left atrium. This contributes significantly to the hemodynamic changes implemented by the MitraClip procedure.

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Long-term mortality after percutaneous mitral valve repair using the edge-to-edge technique
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Purpose: Percutaneous Mitral Valve (MV) repair using the edge-to-edge technique is increasingly used in high-risk patients with symptomatic severe MV insufficiency. We report the all-cause mortality rates in patients who underwent percutaneous MV repair.

Methods: In total, 87 high-risk patients who underwent percutaneous MV repair using the edge-to-edge technique between 01-2009 and 01-2013 were included. The one and two years survival rates were reported.

Results: The mean age of the included patients was 76±9.3 years (70.1% male), with a NYHA functional class ≥ 3 in 53.1% and a logistic EuroScore of 25.2±15.7%. During a mean follow up of 1.5±1.1 years (range 0 – 4.0 years) 21 patients (24.1%) died. The in-hospital mortality rate was 3.4%. The one- and two years survival rates were 86.3% and 73.6%, respectively. At baseline, the survivors were younger (73.3±1.5 years versus 78± 7.9 years, HR 1.1 95% CI 1.0-1.2, p=0.005), had a lower NYHA functional class (3.1±0.5 versus 3.4±0.6, HR 3.1 95% CI 1.3-7.4, p=0.01), and lower logistic NT pro BNP level (7.7±1.0 pg/ml versus 8.4±1.0 pg/ml, HR 1.6 95% CI 1.1-2.3, p=0.01). Age and logistic NT pro BNP level were both independent predictors for mortality after correction for NYHA functional (HR 1.1, p=0.002 for age, HR 1.9, p=0.006 for logistic NT pro BNP).

Conclusion: The all-cause mortality rate after percutaneous MV repair using the edge-to-edge technique in high risk patients seems to be acceptably high and might be predicted by age and NT pro BNP.

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Comparison between STS score and logistic EuroScore for predicting mortality after percutaneous mitral valve repair
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Purpose: The Logistic Euroscore (LES) and Society of Thoracic Surgeons (STS) score are used to identify high-risk or inoperable patients eligible for percutaneous Mitral Valve (MV) repair, using the edge-to-edge clip technique. We aimed to examine the correlation between LES and STS scores, and the performance characteristics in patients who underwent percutaneous MV repair.

Methods: In total, 87 high-risk patients who underwent percutaneous MV repair using edge-to-edge technique between 01-2009 and 01-2013 were included. The performance of the LES and STS scores was evaluated.

Results: The mean age of the included patients was 76±9.3 years (70.1% male), with a NYHA functional class ≥ 3 in 93.1%. The combination of in-hospital or 30-days mortality rate was 3.4%. The mean LES was 25.2±15.7, and mean STS score 13±8.86. A LES of ≥ 20% was present in 54% and a STS score ≥ 10% in 61% of patients. The Pearson correlation coefficient showed a moderate association between LES and STS scores (r = 0.64, p=0.001). The area under the receiving operating curve for the prediction of in-hospital or 30-days mortality after percutaneous MV repair was 0.75 for LES and 0.66 for STS score.

Conclusion: The LES and STS score are inadequate to predict mortality after percutaneous MV repair using the edge-to-edge technique in high-risk patients. Clinical judgment and the ‘heart team’ should play a key role in selecting patients for percutaneous MV repair.