

Methods: The patient's mean age was 15, 5 months (from 6 to 24 months) and their mean weight was 8, 6 (4- 13, 5) kg. In addition, 2 patients were under 5 Kg. mean symptoms were recurrent pulmonary infections (7 patients), dyspnea (5 patients) and 2 of them had patent cardiac failure. All completed follow-up (3 months – 6 years).

Results: The mean PDA diameter was 4.4, 8(2- 6) mm. dilated left ventricular was noticed in all cases and pulmonary hypertension within 7 cases. The device was implanted successfully in all the patients. Sizes of the device were 10/8 in one case, 8/6 in 9 cases, 6/4 in 6 cases. Aortography showed initial total occlusion in 65.8% of patients. At 3-month follow-up, total occlusion was observed in 100% of patients. No deaths or significant complications were associated with the procedure during the study period. One patient develop hemopericardium with tamponade witch treated successfully by pericardiocentesis.

Conclusions: In children under 2 years of age, percutaneous closure of large patent ductus arteriosus using an Amplatzer occluder was a safe and effective procedure.

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One-stage percutaneous Melody pulmonary valve implantation: a single-center experience in 21 consecutive patients.

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Purpose: Right ventricular outflow tract (RVOT) reconstruction in infancy or childhood leads to lifetime iterative surgery for pulmonary stenosis or regurgitation. Transcatheter pulmonary valve implantation (TPVI) was developed with the aim to reduce the number of reoperations and operative-related morbidity.

Methods and Results: From 12/2008 to 03/2010, 21 patients were referred to Marie-Lannelongue Hospital for TPVI. Mean age was 24 yrs (11.5-55 yrs), mean weight was 60 kg (20-85 kg). Most of them had a Tetralogy of Fallot variant (n=12) and 70% had 3 or more previous surgery. RVOT stenosis was predominant in 90% of patients. RVOT reconstruction techniques were : valved conduit (n=12), non-valved conduit (n=1), homograft (n=6), RVOT patch (n=2). RVOT balloon inflation test was performed only if cardiac CT scan showed coronary arteries located next to the RVOT. Two patients were excluded, 1 because an aorto-pulmonary fistula after Ross operation, and 1 with previous arterial switch because of compression of the reimplanted left coronary artery at RVOT balloon inflation test. Initial stenting and TPVI were performed during the same procedure in 18/19. There was immediate significant decrease in right ventricular systolic pressure (mean 88.6 to 52.2 mmHg), mean RVOT gradient (mean 43.7 to 22 mmHg) and pulmonary regurgitation (grade 2 or more before, none after). One patient with a 16mm homograft had significant residual stenosis (mean RVOT gradient 45 mmHg) after Melody implantation. All patients were discharged within 2 days. At a mean follow-up of 9.3 months (1 to 24 months) all patients are alive and well and neither Melody valve dysfunction nor stent fracture or migration was noticed.

Conclusion: Percutaneous pulmonary valve implantation is a safe alternative to surgery. Our experience suggests that patients with RVOT conduit < 18 mm and those with previous arterial switch operation should be referred to surgery without considering transcatheter procedure.

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Percutaneous right outflow tract valve implantation: when should we pre-stent?

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Introduction: Percutaneous pulmonary valve insertion has been recently introduced in clinical setting. Patient selection is widely accepted. Initial

results demonstrated early and differed stent fractures that make consider pre-stenting as a previous step for the procedure. To date, differed or intra-procedure pre-stenting are both accepted techniques.

Patients and methods: We reviewed patients included over the last 6 months in the prospective study (REVALV) for patients undergoing RVOT intervention for severe stenosis and/or insufficiency. Only valved stent group is analyzed here. All patients undergoing valved stent implantation are previously pre-stented with a bare metal stent according to present recommendations. Thirty-seven patients were included, distributed in two groups according moment of pre-stenting: differed pre-stenting (bare metal stent implantation several days before valved stent implantation -20 patients-) and same procedure pre-stenting (bare metal stent implantation at the same procedure of valved stent implantation-17 patients-). For analytical purposes, we considered RVOT anatomy (homograft, synthetic tube, patch-extended RVOT or native outflow tract).

Results: Overall, no differences were found regarding mean procedure times (77,35 vs 96,88, p=NS) and time of hospitalization (2,95 vs 3,63, p=NS). Mean delay time from pre-stenting to valvulation was 196,5±68 days. Rv to Ao ratio improvement from basal to valvulation was significantly better in intra-procedure pre-stenting group (0,172 vs 0,373, p=0,009). Concerning complications, bare metal stent mobilization happened just after implantation while trying to place valved stent delivery gain. Two pelvic hematomas were observed (one of each group).

Conclusions: Intra-procedure pre-stenting influences final result when considering RV-to-Ao ratio improvement, probably related to increase radial strength. The risk, however, remains higher as freshly implanted bare metal stent can mobilize, especially in native RVOT. Stratification of patient should be considered while choosing candidates for valved stent implantation.

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Effect of aging at repair on Tissue Doppler imaging parameters in patients with aortic coarctation

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Background: Despite successful repair of aortic coarctation (AoC), changes in the left ventricular (LV) regional myocardial function are reported. The aim of this study was to assess the left ventricular systolic function in patients after the successful repair of aortic coarctation using tissue Doppler imaging (TDI) according to the age of aortic coarctation repair.

Methods: 31 patients (mean age, 12.0 +/- 4.2 years) followed up after a successful surgical repair of aortic coarctation (mean follow up, 8,6 ±7,6 years) were studied by echocardiography . The study population was divided in two groups: patients repaired at age 2 years (Group 1, n=17) and patients repaired at age > 2 years (group 2, n=14). The TDI parameters and the conventional echocardiographic indices of the left ventricular systolic function were analyzed and compared between the two groups.

Results: Standard echocardiographic studies revealed normal global left ventricular (LV) function. The LV dimensions, LV ejection fraction, LV shortening fraction, indexed LV mass did not differ between the examined groups. Among the studied LV filling parameters, peak early (E wave) transmitral flow velocity, as well as deceleration time DT, was similar between the two groups. The Tei index was also not affected by the age at repair of aortic coarctation. Regarding TDI measures, the early diastolic and the systolic velocities on the lateral side of the mitral annulus were significantly higher in group 1 than in group 2 (Sa : 12,7±2,59 cm/s vs 10,6± 1,8 cm/s, p=0,025 ; Ea : 20,7± 3,4 cm/s vs 17,3± 4,7 cm/s, p= 0,03) . TDI velocities on the septal side of the mitral annulus and on the right ventricle (RV) free wall side of the tricuspid annulus were not different between early (before 2 years) and late (after 2 years) repair of the aortic coarctation. There were no differences of the TDI or conventional parameters between hypertensive and normotensive patients.

Conclusion: Left ventricular systolic performance in patients after the surgical repair of aortic coarctation reveals tendency to decrease at follow-up in patients repaired at age > 2 years despite a satisfactory results after surgery.