0076
Transcatheter closure of the arterial duct with the Occlutech PDA occluder
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Purpose Transcatheter closure of the arterial duct using the Occlutech PDA occluder.

Methods and results From March 2013 to April 2015, 16 patients underwent percutaneous arterial duct closure with the new Occlutech PDA occluder. There were 10 females and 6 males. All patients had significant L-to-R shunt with enlarged left ventricle.

At implantation, the mean age was 87 months (median 35 months) and mean weight was 16.1kg (7.2 to 54kg). The procedure was realized under local anaesthesia. Size of the duct was 2.96±0.94mm (range 1.7 to 5.5mm) on angiography. According to Krichenko classification of PDA, ducts were: type A (n=14), Type B (n=1) and type E (n=1). The systolic pulmonary artery pressure was 43±17mmHg (range 24 to 91mmHg). Implantation succeeded in all. Closure was performed by the standard 6/8mm occluder (n=8), the standard 6/8mm occluder (n=3), the standard 5/7mm occluder (n=3), the standard 3.5/5mm (n=1) and the standard 8/10mm occluder (n=1) using a 6 or 7 F delivery sheath. After implantation, trivial shunt was noticed on angiography in 12 patients, 4 had no shunt. The fluoroscopic time was 6.5±8.7 minutes and radiation dose 6.0±4 Gycm². After closure, femoral thrombosis was noticed in 2 patients but resolved completely under heparin therapy. On control Doppler echocardiography (1 to 18 months), duct was closed in all patients but one with only one month follow-up. No obstruction of the left pulmonary artery or isthmic stenosis was noticed.

Conclusions Percutaneous closure of PDA with the new Occlutech PDA occluder is safe and effective. The device is easy to handle and there is no learning curve for operators using the classic Amplatzer duct occluder.

Further studies with longer follow-up are necessary to confirm these good results.

The author hereby declares no conflict of interest

0280
Percutaneous balloon angioplasty of aortic recoarctation before one year of age
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Objective The main objective was to evaluate the safety and the efficacy of balloon angioplasty of post-surgical aortic recoarctation before one year of age. The secondary objective was to identify factors potentially associated with a failure of the procedure.

Method Data from children who have one or more balloon angioplasty for aortic recoarctation before one year of age were retrospectively collected from 2006 to 2014.

Results 14 children (17 procedures) have been included. The procedure immediately failed in 2 patients who underwent a new surgery. All the other 12 patients still remained free of recoarctation after one procedure for 10 of them, 2 procedures for another one and 3 procedures for the last one. Three complications due to the procedure occurred: one iliac artery thrombosis, one coronary embolism and one transitory stroke. These complications totally recovered before discharge. No aortic dissection or aneurysm has been reported. Comparing the 5 procedures which need a further intervention with the others, we observed that a higher peak gradient measured during the catheterization before (45mmHg (range 36-60) vs 32mmHg (range 10-47)) and after the angioplasty (36mmHg (range 30-50) vs 25mmHg (range 5-50)), and a lower ratio balloon size/vascular arch diameter (1.07 (range 0.88-1.20) vs 1.28 (range 0.94-1.82)) were associated with a failure of the procedure.

Conclusion Balloon angioplasty of aortic recoarctation before one year of age is efficient. A lower ratio balloon size/transverse arch diameter was associated with a higher failure of the procedure that suggests the use of bigger balloon.

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0361
Transcatheter closure of patent ductus arteriosus: the Tunisian experience
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Background Transcatheter closure of patent ductus arteriosus (PDA) is considered as the standard treatment of PDA due to its easy technical feasibility and its successful outcomes. But this procedure remains depending on the operator experience and the cardiology center.

Aim To evaluate the feasibility and the effectiveness of transcatheter closure of PDA at the Fatouma Bourguiba department, Monastir, Tunisia.

Method We carried out a retrospective study on patients who underwent transcatheter closure of PDA in during the period of 2011-2014. Data about symptoms, characteristics of PDA, procedure of closure and complications were retrieved.

Results There were 23 patients, of whom 17 were females, who underwent transcatheter closure of PDA during the study period. Median age was 5.5 years (1 months-21 years), and median body weight was 13 (3.5-55)kg. Growth retardation was found in 13 patients. The diameter of PDA ranged from 3 to 7mm with a median of 3.8mm and the dilatation of the left ventricle was found in 9 patients. Device deployed in all patients was the Amplatzer ductal occlude (ADO). Median fluoroscopy time was 14.6 (2.2-56) min and procedure time was 50 (27-145) min. Complete closure was achieved in most patients (95.7%), whereas device migration in the pulmonary artery occurred one patient (4.3%). No major complication occurred during or after the procedure. Hospital discharge was at 2 days in the most of cases.

Conclusion Transcatheter closure method is a safe and effective alternative to close PDA and to avoid surgical complications. The results of this procedure depend of the operator experience.

The author hereby declares no conflict of interest

0398
Transcatheter closure of traumatic induced VSD
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Traumatic induced VSD is a rare but serious disease because of the acute hemodynamic changes. We reported one center experience in the interventional catheterization closure of traumatic induced VSD during the last ten years. We had 3 patients with four VSD. Mean age was 60 (40-71) years. VSD was muscular secondary to external trauma in one patient, and to transapical transcatheter replacement of both of the aortic and mitral valves in the second. Last patient had membranous and muscular VSD post Ross-Konno intervention. All patients had acute congestive heart failure. All procedures were performed under general anesthesia and transesophageal echocardiography control. Arteriovenous loop was always used to introduce the delivery sheath to the left ventricle. VSDs diameter was evaluated by echography and ranged from 9 to 13mm. Device diameter was chosen 1 to 2mm over the echo- graphic measures. Multiple devices were used (Amplatzer® septal occluder, Amplatzer® muscular VSD occluder, Occlutech® Figulla septal occluder). Mean procedures time was 113 (100-145) min, and mean irradiation dose was 160 (103-203) Gycm2. No significant residual shunt was observed in all patients, but the heart failure was resolved in all. Complications were registered in three procedures: transient hemolytic anemia, severe bradycardia, tricuspid cordage rupture and groin hematoma.

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Conclusion Traumatic VSD closure is required because of the acute hemodynamic changes. Transcatheter closure is effective. Complications are frequent because of the critical clinical status.

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0231
Neonatal left ventricular 2D strain to predict aortic coarctation

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Background Although coarctation of the aorta could be suspected prenatally, the diagnosis is not certain before birth and remains difficult in the neonatal period especially when ductus arteriosus is open. 2D strain, a recent echocardiographic tool to assess myocardial performance, allows the early detection of abnormal myocardial deformation.

Objective The aim of this study was to assess the accuracy of left ventricular 2D strain to predict aortic coarctation in neonates with patent ductus arteriosus.

Patients and Methods This was a single centre prospective study. Neonates with patent ductus arteriosus and prenatal/postnatal suspicion of isthmic coarctation were included. Left ventricular (LV) 2D strain was performed for each patient. Patients were divided into three groups: those who developed coarctation (group 1, n=9), those who had normal aorta after ductal closure (group 2, n=10), and a control group of healthy neonates with patent ductus arteriosus (group 3, n=20).

Results The median age of gestation was 38+4 weeks of amenorrhea and the median birth weight was 3.088kg. The interobserver agreement was good for the assessment of LV 2D strain. Although radial strain was significantly decreased in group 1 (17.76 vs 40.19 in group 2, p<0.001), there was only a trend in the alteration of longitudinal and circumferential strain (-16.34 vs -16.84, p=0.059 & -10.41 vs – 13.88, p=0.053 respectively).

Conclusion LV 2D strain seems to be effective for the early diagnosis of aortic coarctation before the ductus arteriosus closes.

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0123
Right ventricular form and function after surgical closure of atrial septal defect

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Background Surgical closure of ASD is a safe and effective means of eliminating interatrial shunting. The response of the right heart by age to this intervention is incompletely understood. We sought to assess the right heart’s response by echocardiographic parameter over a five-year follow-up period.

Methods Twenty-one consecutive patients had a surgical closure for ASD (9 sinus venosus and 12 defect with rim deficiency). We define two groups: group 1 formed with patients aged under 12 years at the moment of the surgery and group 2 with patients aged over 12 years old. The patients were assessed with echocardiography, before the procedure and at 1, 2 and 5 years.

Results The mean ASD size was 26±7.4mm. The difference between the two groups at one year was significant, four-chamber right ventricular (RV) size (21 vs. 25mm/m²), paradoxical septal motion (38% vs. 50%), right atrial length (24 vs. 27mm/m²), RV fractional area change (RVFAC) (38% vs. 34%), tricuspid lateral annular systolic velocity (S’) (11 vs. 9cm/s), RV dP/dt (530 vs. 380), isovolumetric velocity and isovolumic acceleration (IVA) (3.4 vs. 2.2 m/s²), and echocardiographically determined pulmonary artery systolic pressure decreased significantly and was maintained at 5 years follow-up only in group 1. At 5 years, 39% of patients had persistent RV enlargement in group 2.

Conclusions Right heart morphology undergoes rapid improvement within one year of defect closure in young patients (<12 years) while patients aged over 12 years had less improvement and persistent RV enlargement or pulmonary hypertension, or both, at five year.

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