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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±11kg (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 Krichchenko 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 4/6mm 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 7F 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

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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/transverse 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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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 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 (3-55)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.

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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 intervensional catheterization closure of traumatic induced VSD during the last ten years. We had 5 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 transfemopage 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 echographic 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 irrigation dose was 160 (103-203) Gycm2. Non 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.