Complications after transcatheter ASD closure with the amplatzer septal occluder

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The aim of this study is to report complications of transcatheter ASD closure using the Amplatz Septal Occluder (ASO) (St Jude Medical). From December 1999 to October 2013 (April 2014), 760 patients underwent ASD closure with the ASO. Closure was mostly performed under general anesthesia and transesophageal echocardiography control. Choice of the device diameter was established after balloon sizing and measurement of the stretched diameter.

Mean age of the patients was 31.9±22 years (0.5 month – 84 years). The stretched diameter was 22.5±6.6 mm (5-40mm) and device dimension 22±6.7mm (4-40mm). Duration of the procedure was 41±15 minutes (10-120 minutes) and fluoroscopic time 7.6±5.65 minutes (1-92 minutes). Dose of radiation was 18.7±22 Gy.cm² (median 12 Gy.cm²).

Implantation succeeded in 96% of repair attempts mainly to deficient rim. No device related death was noticed. Embolization occurred in 4 pts (0.5%): 1 in the aorta, 1 in the left ventricle, and 2 in the pulmonary artery. All but one underwent surgical extraction and ASD closure. The patient with aortic embolization had percutaneous device extraction and underwent subsequently successful implantation with a larger device. No patient required blood transfusion for any groin hematoma. One patient without aortic rim had hemopericardium one month after implantation; this was corrected by drainage with no recurrence and ASD full occlusion was noticed on colour Doppler control. No late complication was observed. The rate of full occlusion on Doppler control is more than 90%, and the remaining have trivial shunt.

Transcatheter ASD occlusion with the Amplatz Septal Occluder is a safe and effective procedure. The rate of immediate complication is very low and need for immediate surgery following the implantation is rare (<1%). No device related death was noticed.

Aim: To describe the early and midterm outcome after atrio-ventricular valve regurgitation in univentricular hearts: outcomes after repair

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Objective: To describe the early and mid-term outcome after atrio-ventricular valve regurgitation in univentricular hearts: outcomes after repair

Methods: Retrospective review of patients undergoing procedure for AVV regurgitation at any phase of univentricular palliation from 1998-2013. Patient and procedure related variables were analyzed.

Results: 28 consecutive patients underwent 34 procedures for moderate+ AVV regurgitation at a median age of 3.7 years. 29% of patients had a common, 25% had dominant left, 14% had dominant right AVV and 32% two AVV. All patients underwent repair after first procedure without early mortality. At hospital discharge patients preserved their ventricular function (FS <30%; preop 17% vs. postop 21%, NS) and only 14% had moderate+ residual regurgitation. Dominant left AVV and postoperative moderate+ regurgitation were univariate risk factors for death and transplantation. Younger age, need for repair before superior cavo-pulmonary shunt and significant residual regurgitation were univariate risk factors for AVV reparation. Freedom from death and transplantation was 84% (CI 95%±0.14) at 5 and 10 years. Survival free from AVV reoperation was 77% (CI 95%±0.18) at 5 years and 66% at 10 years (CI 95±0.25). At last visit, 91% of survivors were in class NYHA 1-2 without ventricular dysfunction and with mild or less AVV regurgitation.

Conclusion: Patients with UVH and moderate+ atrio-ventricular valve regurgitation can profit from AVV repair without deterioration of their ventricular function but remain at increased risk for death and AVV reoperation.

Radiation dose reduction in pediatric coronary CT: assessment of effective dose and image quality

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Aim: to assess the impact of different scanning protocols on radiation dose and image quality for pediatric coronary computed tomography.

Materials and Methods: 100 children underwent coronary computed tomography after arterial switch operation from November 2012 to March 2014. Scans were done using two different scanner models without difference in scanning and image reconstruction parameters: Lightspeed VCT and Discovery HD750, 64-slice from GE Healthcare. Two consecutive changes in scanning protocols were performed: 1) the use of adaptive statistical iterative reconstruction (ASIR) instead of filtered back projection (FBP) for image reconstruction; 2) the optimization of scan acquisition parameters (current and tube voltage reduction). Premedication (beta-blocker) was used for all children to obtain heart rate < 80 BPM. Effective dose (ED) was calculated with the dose-length product method with a conversion factor adjusted for patient age. Image quality was evaluated by the referring physician. Scans were classified as « excellent », « good » or « with significant artifacts ».

Results: Patients were divided in three age groups: 0-4, 5-7 and 8-18 years. After adjustment for scan settings, median ED decreased by 28% (3.9 mSv, IQR 2.8-4.2), 40% (0.9 mSv, IQR 0.6-2.6) and 65% (0.7 mSv, IQR 0.5-0.9) for 0-4, 5-7 and 8-18 years age groups (p<0.05), respectively. The prospective protocol (PULSSE) was used in 40% of children. The reduction in radiation dose was not associated with reduction in diagnostic image quality.

Conclusions: Coronary CT can be obtained at very low radiation doses in pediatric patients using ASIR and prospective ECG-triggered acquisition with optimized scan parameters.

Extracardiac or chromosomal anomalies strongly influence parental treatment decision and postnatal survival of neonates with prenatally diagnosed congenital heart diseases

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Objectives: To assess the impact of extracardiac or chromosomal anomalies on parental decision of termination of pregnancy and on survival rates in newborns with prenatally diagnosed congenital heart diseases.

Methods and results: 2057 consecutive foetuses with congenital heart disease diagnosed from January 2002 to December 2011 were included: 1258 (61%) in-born neonates and 799 (39%) terminations of pregnancy (TOP). The overall prevalence of major extracardiac or chromosomal anomalies was 18.6%. Of the 1258 newborns, 121 had a major associated anomaly but only 55 were identified before birth. Prenatally identified associated anomalies were significantly lower in the newborn group in comparison with the TOP group (4% vs 31%, p<0.0001). They were also lower in the surviving group at one year of follow up (75% vs 20.7%, p<0.0001). A 4-fold increase of death rate was observed if an associated anomaly was identified (IC95% [2.5, 4.8]).