Sat. Jul 8, 2017

ROOM 4

AEPC-YIA Presentation

AEPC-YIA Presentation (II-YIA)

Chair:Satoshi Yasukochi(Heart Center, Nagano Children's Hospital, Japan)
Chair:Gurleen Sharland (President of AEPC)
9:30 AM - 10:00 AM ROOM 4 (Exhibition and Event Hall Room 4)

[II-YIA-01] Ascending aortic haemodynamic flow changes are stable in bicuspid aortic valve disease

○Malenka Bissell, A. T. Hess, M. Loudon, S. Neubauer, S. G. Myerson （University of Oxford, UK）

9:30 AM - 10:00 AM

[II-YIA-02] Risk stratification of sudden death in pediatric patient with ventricular pre-excitation: is there a difference between symptomatic and asymptomatic patients?

○Véronique Atallah[1], Jérôme Lacotte[2], Mina Ait Said[2], Fiorella Salerno[2], Jérôme Horvilleur[2], Damien Bonnet[1], Alice Maltret[1,2] （1.APHP, Necker Enfants Maladies Hospital, Cardiology Pediatric, Paris, France, 2.Jacques Cartier Institute, Cardiology, Massy, France）

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[II-YIA-03] Long-term outcome following percutaneous closure of isolated secundum atrial septal defects in children: a french nationwide series of 1000 consecutive patients

○ZAKARIA JALAL[1], LUCIA MAURI[2], CLAIRE DAUPHIN[3], CELINE GRONIER[4], SEBASTIEN HASCOET[2], BRUNO LEFORT[5], MATHIAS LACHAUD[6], JEROME PETIT[3], CAROLINE OVAERT[7], ALAIN FRAISSE[8], XAVIER PILLOIS[1], JEAN-BENOIT THAMBO[1], ALBAN-ELOUEN BARUTEAU[8] （1.UNIVERSITY HOSPITAL OF BORDEAUX, BORDEAUX, FRANCE, 2.CENTRE CHIRURGICAL MARIELANNELONGUE, LE PLESSIS ROBINSON, FRANCE, 3.UNIVERSITY HOSPITAL OF CLERMONT FERRAND, CLERMONT FERRAND, FRANCE, 4.UNIVERSITY HOSPITAL OF STRASBOURG, STRASBOURG, FRANCE, 5.UNIVERSITY HOSPITAL OF TOURS, TOURS, FRANCE, 6.INSTITUT DU THORAX, NANTES, FRANCE, 7.HÔPITAL LA TIMONE, MARSEILLE, FRANCE, 8.DIVISION OF CARDIOLOGY, DEPARTMENT OF PEDIATRICS, ROYAL BROMPTON HOSPITAL, LONDON, UK）

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[II-YIA-01] Ascending aortic haemodynamic flow changes are stable in bicuspid aortic valve disease

○Malenka Bissell, A. T. Hess, M. Loudon, S. Neubauer, S. G. Myerson (University of Oxford, UK)

Introduction:
Aortic dilation in bicuspid aortic valve disease is thought to be at least in part caused by helical flow changes in the ascending aorta. We sought to examine whether these haemodynamic changes develop over time.
Methods:
All participants from our initial cohort were invited to undergo a 4D flow MRI assessment 3 years after the initial visit. The datasets were analysed using well described CMR parameters. Aortic valve function and ascending aortic diameters were assessed using 2D flow and anatomical MRI sequences.
Results:
64/100 participants returned for follow-up at a mean of 3.4 years (2.8 to 4.4). Of the remaining 36 participants 16 had undergone aortic valve (± ascending aortic) replacement (AVR± AA), 3 had undergone valve repair, 1 patient had died of endocarditis, 2 had MRI contraindications at follow-up, 12 declined follow-up and 2 were lost to follow-up. Age range at initial study visit was 8-69 years. Mean ascending aortic growth was 0.3mm (range 0-1.7mm/year). There was no difference in growth rate between the flow groups normal flow, right-handed helical flow and complex flow (p=0.78). There was also no statistically significant progression of flow angle, flow displacement, rotational flow and wall shear stress. Interestingly, 4/6 (67%) patients with a left-handed flow underwent AVR+-AA, compared to 19% in the right-handed flow group.
15/64 (23%) participants had an aortic growth rate >0.5mm/year. Even in this group progression of haemodynamic flow abnormalities was minimal: Peak velocity 2.4±0.6 m/s to 2.4±0.6 m/s; flow angle 20±8 degree to 20±10 degree; normalised flow displacement 0.139±0.063 to 0.144±0.51; wall shear stress 0.88±0.28 to 0.96±0.40.
Conclusion:
This is the first large prospective longitudinal follow-up study examining haemodynamic flow changes using 4D flow MRI. We have shown that both ascending aortic growth and haemodynamic flow changes are largely stable over a 3 year follow-up period suggesting slow disease progression in the majority of patients. Previous work has shown left handed helical flow is not seen in health and a high proportion of these participants underwent aortic valve or ascending aortic surgery, suggesting that left handed helical flow may be a predictor of likelihood of intervention.

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Introduction: Incidence of atrial fibrillation is known to increase at teen age. Its rapid conduction by an accessory pathway with a short anterograde refractory period can be dramatic. If symptomatic accessory pathway are usually followed and managed either by medication at younger age or by catheter ablation, many asymptomatic ventricular pre-excitation are under the radar and first symptom can be life-threatening. Hopefully, with the electrocardiogram (EKG) generalization, many accessory pathway are now diagnosed at teen age. The aim of this study was to assess the electrophysiological characteristics of ventricular pre-excitation in young patient to determine if there is a difference between symptomatic and asymptomatic accessory pathway and to compare management in regards of EP finding and symptoms.
Methods: We retrospectively investigate data of every patients with ventricular pre-excitation with or without symptom who underwent endocardial electrophysiology testing. Procedure was done under general anesthesia for every patient under 12 years old. Accessory pathway anterograde effective refractory period was determined with an extrastimuli protocol at baseline and after isoproterenol infusion. Accessory pathway was said to be malignant if anterograde effective refractory period was equal or under 240 ms at baseline and 200 ms after Isoproterenol infusion or if the shorted pre excited RR interval was less than 250 ms.
Results: From october 2009 to october 2016, 253 consecutive electrophysiology testing (EP) were realized for 229 patients under the age of 18 years who had an electrophysiology testing for ventricular pre-excitation on baseline EKG. Mean age at procedure was 12.1 years old (range 5 weeks to 17.9 years). If the great majority of patients with accessory pathway were symptomatic (187 – 81%), for 42 (19%) children ventricular pre-excitation was discovered on an electrocardiogram done incidentally. Among asymptomatic ventricular pre-excitation patients, 19/42 (45.2%) had malignancy criteria on electrophysiology testing (no missing data), while there were only 37/172 (21.5%) on the symptomatic group (15 missing data), with a significative p-value (=0.00171).
Conclusion: Children and adolescents with ventricular pre-excitation seems to have greater risk of sudden death if asymptomatic. Endocardial electrophysiological study is mandatory for every patients with ventricular pre-excitation before teen age.

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Introduction: Transcatheter closure has become the preferred treatment strategy in most cases of isolated, secundum atrial septal defect (ASD). Although widely used, data on long-term outcomes in the pediatric population are scarce. We aimed to assess procedural characteristics, early clinical outcome, long-term device-related complications and the electrical remodeling after transcatheter closure of isolated ASD in children.
Methods: A 1998-2014 retrospective multicentre study was performed at 8 French tertiary institutions, including all patients <18 yo who attempted a percutaneous ASD closure with an Amplatzer Septal Occluder.
Results: 1000 children [38% males, median age: 9 yrs (0.7-18.0), median weight: 27 kg (6-92)] were referred for transcatheter ASD closure. They all had a significant left-to-right shunting assessed by right ventricular dilation and/or a 1.5:1 Qp/Qs ratio; Median ASD size was 15 mm in transthoracic echography (TTE).
ASD closure was guided by fluoroscopy and transoesophageal echocardiography in 627 cases (62.7%) or TTE in 373 cases (37.3%). Procedural success rate was 94% with a median occluder size of 19-mm (4 - 40).
Device placement was unsuccessful in 60 patients (6%) due to unfavourable anatomy in 38, early device embolization in 12 and other causes in 10 patients.
Follow-up (FU) data were available for 829 patients. After a mean FU of 53 ± 31 months (range, 5–204), all patients were alive and 96% were asymptomatic. Long-term complications included supraventricular arrhythmias (n=6) and pulmonary hypertension (n=2). No cardiac erosion, late ASO dislodgement or stroke occurred.
Seventy-one women had pregnancy during FU without any associated complication. From an electrical standpoint, supraventricular arrhythmias occurred in 6 patients, no late atrioventricular block was observed and there was no significant difference between preprocedural and last follow-up ECG.
Conclusions: Our large-scale pediatric cohort confirms that transcatheter closure of isolated secundum ASDs is a safe procedure in children, with a favourable long-term outcome and no life-threatening delayed complication.