to conventional echocardiographic parameters of RV and left ventricular (LV) function. The relationships between the evolution of RV-PSS, peri-operative parameters and the type of CHD were assessed.

Results: Mean RV-PSS at baseline was −19.5±4.8. RV-PSS was moderately correlated with the heart rate (r=0.49), the LV Tmad (r=0.48), the TAPSE (r=−0.54) and the tricuspid S’ wave (r=−0.44)(all p<0.05). RV-PSS was decreased in cyanotic CHD (p=0.05), in children with congestive symptoms (p=0.01) and increased in ASD (p=0.02). RV-PSS was higher in RV volume increased condition such as ASD than in RV pressure increased condition such as Fallot tetralogy (p=0.006). RV-PSS decreased after surgery (p=0.0001). Mean difference between pre- and post-operative RV-PSS was 7.5±4.4. The difference was correlated with initial RV-PSS (r=−0.80), the weight (r=0.54), the ultrafiltration rate (r=0.43)(all p<0.05) but not with the duration of aortic clamp, the duration of extracorporeal circulation (n=31), the troponin peak level nor the lactates peak level. A higher difference was associated with a shorter duration of mechanical ventilation (p=0.04) and a shorter stay in intensive care unit (P=0.03). RV-PSS was better at discharge (median 6 days, p=0.0009) but remained lesser than at the initial exam (p=0.0001).

Conclusion: RV-PSS decrease after surgery of CHD. This decrease seems mainly related to loading condition rather than to RV contractility given its condition such as Fallot tetralogy (p=0.006). RV-PSS is a unique tool particularly suited to define myocardial anatomy and fibrosis. The purpose of the study is to define the feasibility and the role of CMR in children with HCM as well as the influence of myocardial fibrosis on left ventricular (LV) diastolic function in children.

Methods: CMR protocol included T2 weighted sequence in short axis view, TRIPLE IR FSE sequence, cine SSFP in short axis, two-chamber, three and four chamber view without contrast and perfusion analysis and late enhancement after injection of contrast agent. If left ventricular wall thickness seemed asymmetric, the size and location of relatively thickened segments were noted. Echocardiography analyzed LV diastolic function.

Results: A total of 60 patients were included in the study. Age at diagnosis was 3 years (range 1 day to 16 years). Mean age at CMR was 11 years (range 1-18 years). CMR was successfully performed in all patients, revealing a better performance in comparison to echocardiography to define precisely the anatomy of LV hypertrophy. Mean LV mass was estimated at 94±41g/m². LV hypertrophy was concentric in 32 patients, asymmetric in 28 patients, with evidence of LV non-compassion aspect in 7 patients. The right ventricle was affected in 7 cases. Presence of LV fibrosis was detected in 6 patients in LV septum. Perfusion defects were present in 5 patients in papillary muscles. LV function was reduced (LV ejection fraction < 55%) in 7 patients. While LV fibrosis was rare, LV diastolic dysfunction was found in the majority of children.

Conclusion: CMR in children with HCM is feasible and it contributes to anatomic definition and tissue analysis. LV diastolic function in pediatric HCM is common but is not related to fibrosis or perfusion defects. Prognostic value of fibrosis and perfusion defects have to be evaluated.

4087
Dilatable pulmonary artery band: results of interventional dilatation and clinical outcome
Sophie Malezkadeh-Milani, Zakaria Jalal, Daniel Tamisier, Olivier Raissy, Damien Bonnet, Younes Boudjemline

CHU Hôpital Necker Enfants Malades-APHP, Cardiologie pédiatrique, Paris, France

Pulmonary artery (PA) banding is performed in various conditions: as a destination therapy for congenitally corrected transposition (CCTGA), as a palliative procedure for multiples ventricular septal defect (VSD) or as a transient stage before debanding for muscular VSD.

Aims: All children who had dilatation of PA band were reviewed. Reason for PA band, for cardiac catheterisation, hemodynamics pre and post dilatation and outcome were recorded.

Results: Between 2002 and 2014, 28 patients were identified. Diagnosis was VSD and aortic coarctation (N=17), multiple VSD or muscular VSD (N=9) and CCTGA (N=2). 17 patients had aortic arch repair and PA band and 11 had PA band only. PA band were dilatable (N=27) and resorbable (N=1). Median age at surgery was 16 days (2-279). Reason for dilatation of the PA band was supra systemic RV pressure in 4 patients, aortic recoarctation in 1, cyanosis in 7, RV failure in 1, supra systemic LV pressure in 2 CCTGA patients and spontaneous reduction of VSD in other patients. At catheterisation, median age was 20 months (4,7-92), median weight and mean saturation were 11kg (6,3-42) and 96% (86-100). There

Conclusion: Women can successfully complete pregnancy after a Fontan palliation, only if pre-partum cardiac condition has been completely evaluated and is satisfactory. Anticoagulation should be recommended to prevent severe thrombo-embolic complications during pregnancy.
were 7 associated procedures: 4 VSD closure, 2 balloon dilation of aortic reco-
arctation and one main PA stenting. For PA band dilation, 17 high pressure bal-
loons were used and 11 low pressure balloons (mean balloon diameter: 12mm).
Median RV/Ao pressure ratio dropped from 1 (± 0.3; 0.42-2.2) to 0.6 (± 0.3; 0.3-
1.2) and median RV to PA gradient dropped from 61 mmHg (± 31; 42-160) to 19
mmHg (±26; 12-83). Post intervention, mean saturation was 99% (93-100). When
looking at outcome, 23 patients had no further interventions, 1 patient needed 2
dilatations of PA band and 4 patients had surgery (1 double switch, 1 viscous PA
band removal, 1 in a context of severe RV dysfunction with tricuspid regurgitation
and 1 for VSD closure and main PA stent removal). One patient died of RV
failure after surgery and ventricular assistance.

Conclusion: Intervention on dilatable PA band is safe and carries good results
with definitive treatment in the majority of cases.

0523
Feasibility and accuracy of left ventricular volumes and ejection frac-
tion measured by different echocardiographic methods in congenital
heart diseases involving the right ventricle

Mathilde Meot, Diala Khraiche, Magalie Ladouceur, Francesca Raimondi,
Olivier Guillard, Damien Bonnet
CHU Hôpital Necker Enfants Malades-APHP, M3C, Cardiologie pédia-
triq et congéniale, Paris, France

Background: In CHD with RV volumetric or barometric overload, LV
shape is altered. Little is known about the accuracy in this population of left
ventricular (LV) volumes and ejection fraction (EF) measurement by standard
echocardiographic methods using geometrical assumption: Teicholz, bplane
Simpson and real-time 3D echocardiography (RT-3DE). Three-dimensional
knowledge-based reconstruction (3D-KR) derived from two-dimensional
echocardiographic imaging is a novel technique that has no geometrical
assumption. The aim of our study is to assess the accuracy of several echocar-
diographic methods for measuring LV volumes and EF compared to cardiac
magnetic resonance (CMR) measurements (gold standard) in this population.

Methods: 68 patients (mean age 13±4 years) with Congenital Heart Dis-
eases (CHD) involving the RV and referred for cardiac MRI, were included.
Among them, 13 patients had barometric overload, 37 patients had volumetric
overload, and 18 patients had mixed overload. Echocardiographic images acquis-
tion was performed using a standard ultrasound scanner linked to a Ventripoint
Medical Systems unit. Analyzed parameters were end-diastolic volume (EDV),
end-systolic volume (ESV), and LVEF measured by Teicholz, Simpson’s mod-
ified formula and RT-3DE (GE Vingmed QVG Auto-4D). The method of disks
was used for CMR LV volumes. Intra-observer, inter-observer, and inter-tech-
nique variability was assessed using intraclac correlation coefficient (CC),
Pearson’s CC, coefficients of variation, and Bland-Altman analysis.

Results: Feasibility was 98% for Teicholz Method and 3D-KR, 71% for
Simpson’s modified formula, and 73% for RT-3DE. We found globally poor
correlation and agreement for volumes and EF between the different methods
and MRI. The agreement was better when RV volumes were lower than
120ml/m² (and thus, LV shape was less altered).

Conclusions: LV volumes and EFs cannot be measured accurately by
echocardiography in patients with dilated right ventricles.

0135
Increasing severity and complexity in adults with congenital heart
disease undergoing heart transplantation (ACHD): temporal trends –
a collaborative study on 97 patients

Sarah Cohen (1), Lucile Houyel (2), Romain Guillemain (1), Shaïda
Varnous (3), Laurence Iserin (1)
1 CHU Hôpital Européen Georges Pompidou (HEGP) – APHP, Cardio-
logie, Paris, France – (2) Centre Chirurgical Marie Lannelongue, Le
Plessis-Robinson, France – (3) CHU La Pitié-Salpêtrière-APHP, Institut
de cardiologie, Cardiologie, Paris, France

Background: Residual abnormalities in cardiac structure and function pre-
dispose ACHD to late-onset heart failure and its complications. Therefore,
heart transplantation (HT) in ACHD is increasingly used.

Methods: Out of a multi-institutional (3 centers) series of 2257 HT from
1988 to 2012, 100 (4.4%) were performed in 97 ACHD (65 men). They
represented 45% of ACHD recipients in France at that time. We investigated
the role of temporal trends on profile and outcomes of ACHD recipients.
Trends were compared between 2 eras: era 1 (1988-2005, n=48) and era 2

Results: Mean age at the time of HT was 29.8 years. Forty-three patients
(44%) had univentricular physiology (1V). Severity of disease was catego-
ized in terms of initial diagnosis (according to classification of 32th ACC
Bethesda Conference): 74.2% had a great complexity cardiopathy while
21.7% had a moderate severity disease and 4.1% a simple CHD. In-hospital
mortality was high (34%).

Baseline characteristics did not differ significantly between the 2 eras. Era II
recipients had less often right heart failure signs before HT. Their donors
were older. They were more likely to be hospitalized, supported by inotropes
and assist devices at the time of HT. The rate of 1V patients did not change
over time: 50% in era 1 vs 39% in era 2 (p=0.27). The distribution of severity
of disease changed significantly over time (p=0.048). The proportion of adult
recipients with CHD of great complexity was higher in era 2 than era 1
(respectively 81.6% and 66.7%). In fact, transposition of the great arteries
became the major provider of HT in adult in the recent era (30.6% in era 2 vs
8.3%, p=0.006), representing the only primary diagnosis whose proportion
increased significantly. Multivariable factors associated with increased in-hos-
pital mortality did not include transplant era.

Conclusion: Despite a worse baseline risk profile, and increasing com-
plexity of ACHD recipients in recent years, mortality after HT has not
increased.

0344
Why levosimendan should be considered for the treatment of viral
myocarditis in children

Pierre-Emmanuel Séguela, Nadir Tafer, Jean-Baptiste Mouton, Xavier
Iriart, Philippe Mauriat, Jean-Benoit Thambo
CHU Bordeaux, Hôpital Haut-Lévêque, Cardiologie pédiatrique et congé-
nitale, Pessac, France

Background: Animal studies showed that levosimendan protects cardio-
myocytes against apoptotic cell death in acute viral myocarditis. In addition to
its inotropic properties, levosimendan seems to prevent the detrimental effects
of oxidative stress and to limit cardiomyocyte loss.

Aim: To analyze the outcome of children who received levosimendan for
acute or fulminant viral myocarditis.

Patients and methods: Retrospective single center study covering the
period 2007- 2013. All children <18 years with viral myocarditis were treated,
in association with epinephrine and/or milrinone, with a 24-hours infu-
sion of levosimendan. Clinical, biological and echocardiographic evolu-
tions were analyzed.

Results: Between 2007 and 2013, 18 successive children were treated,
9 for acute myocarditis and 9 for fulminant myocarditis (according to the
international clinicopathological classification). Median age was 4 years (1.1-
11) and median weight was 15kg (10-40). BNP level significantly decreased
48 hours after the beginning of the infusion (4599±9266 ng/L [2698-9266] vs
1928±4457, p=0.05). No dialysis was necessary. Among the fulmi-
nant myocarditis group, 1 patient (11%) required early mechanical circulatory
support with a limitation of care due to severe neurologic complications.
13 patients (72%) recovered a LVEF >55% (100% for the acute myocarditis
group). 1 patient had heart transplantation 18 months later.

Conclusion: In our experience, levosimendan was efficient for the inotropic
support of acute and fulminant viral myocarditis. We believe that its cardio-
protective effect enabled us to limit the use of mechanical assistance (only
11% of the fulminant forms) and allowed a recovering of the cardiac function
for the majority of the patients. Although further clinical studies are needed to
confirm these data, levosimendan should be systematically considered for the
 treatment of these critical patients.