significantly reduced in the longitudinal direction in rTOF pigs (65.37 ±6.76 cm/s vs 51.27±0.57 cm/s; P<0.05) but remained unchanged in the transverse direction compared to Sham animals (27.34±3.08 cm/s vs 30.19±1.97 cm/s). In the RV both longitudinal and transverse CVs were significantly in rTOF compared to Sham (P<0.05). An elevated collagen content was found in both the LV and RV of rTOF pigs (P<0.05). A trend for a lateralization of Connexin43 was found in the LV of rTOFs which, together with the increased fibrosis, may account for the reduced longitudinal conduction velocity in this ventricle. Altogether, these findings highlight the presence of an arrhythmic substrate in the ventricles of rTOF pigs. Interestingly, the remodeling in LV is reminiscent to that observed in LV failure, despite no functional alterations, and is likely to contribute to ventricular arrhythmias in patients with rTOF.

0335
Use of 2D strain by speckle tracking in pediatric cardiac surgery
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Introduction: Cardiopulmonary bypass can be responsible for post-operative left ventricular dysfunction. As conventional echographic parameters are not reliable in the post-operative period, we assessed left ventricular function by 2D strain. The main objective of this study was to evaluate the peri-operative feasibility and reliability of 2D strain. The second objective was to assess the impact of aortic cross-clamp duration on echographic parameters.

Methods: 33 pediatric patients (<18 years) with congenital heart disease undergoing cardiac surgery with cardiopulmonary bypass were included in this prospective single center study. Daily echocardiography was performed from the day before surgery to the sixth post-operative day. Left ventricular ejection fraction (Teichholz and Simpson) and 2D strain (longitudinal, circumferential and radial) were measured. The cohort was then divided into three groups according to aortic cross-clamp duration (<30 min for group A, 30-80 min for group 2, >80 min for group 3).

Results: Mean age and weight were 4 years [2-6] and 15kg [10-20]. Mean duration of aortic cross-clamp was respectively 22 min, 56 min and 101 min in groups 1, 2 and 3. Longitudinal, circumferential and radial strains were feasible in 91%, 95% and 95% of the cases respectively, which was similar to conventional parameters (97%). The reliability of 2D strain measurements was better than the one of conventional parameters (intra and inter-observer correlation coefficients: 0.916, p<0.001 and 0.885 p<0.001 for longitudinal strain versus 0.156, p=0.538 and 0.084, p=0.800 for Simpson). The means of longitudinal and circumferential strains over time were significantly different between the three groups (p=0.001) whereas there was no difference for Simpson measurements (p=0.617).

Conclusion: 2D strain is feasible and more reproducible than echographic parameters in the post-operative period. Post-operative evolution of 2D strain is linked to aortic cross-clamp duration.

0362
Tetralogy of Fallot complete repair: humanitarian chains versus French native children
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Background: French humanitarian chains promote surgery for children with congenital heart diseases coming from developing countries. We assessed the results following complete repair of tetralogy of Fallot (TOF) in relation to the origin of patients.

Methods: A 4-years retrospective review of 73 consecutive patients with TOF repair was performed. Children were divided into two groups: French children (group A, n=38) and children from developing countries (group B, n=35).

Results: Preoperative status differed between the two groups. Children from group B were older (0.82 vs 7.18 year-old, p<0.001), with a lower BMI (16 vs 14 kg/m², p<0.001). They were more symptomatic with lower oxygen saturation (90% vs 83%, p=0.007) combined with a higher level of plasmatic hemoglobin (13.1 vs 16.1 g/dl, p<0.001). Proportion of preoperative palliative surgery was higher although not significant in group A (18% vs 6%, p=0.156). There wasn’t any irregular form due to coronary abnormality in the two groups. Preoperative echography showed no difference concerning the rate of pulmonary annulus Z Score (< 3 vs 39% vs 43%, p=0.956). Results of surgery showed no differences in terms of aortic cross clamping time (65 vs 60 min, p=0.235) or rate of trans-annular patch insertion (37% vs 31%, p=0.810). Postoperative course didn’t significantly differ between the two groups. There was no death, two early reoperations (one for bleeding and one for residual VSD) and one late reintervention for residual supra-valvular stenosis in group A after a median follow-up time of 1.8 years. There was one early death (2.8%) and one early reoperation for bleeding in group B after a median follow-up time of 30 days. All were in sinus rhythm.

Conclusion: Elective surgery for TOF repair carries low risk of morbidity. Despite worst preoperative status, children from humanitarian chains can be treated safely by complete repair. Palliative surgery must be reserved for children presenting a marked cathetia profile.

0385
Factors determining the nature of progression of discrete fixed subaortic stenosis
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Introduction: In discrete fixed subaortic stenosis, surgery is indicated when the systolic gradient (Gmax) between the left ventricle (LV) and the aorta exceed 50 mmHg or in the presence of significant aortic regurgitation (AR). The aim of this study was to determine the factors that influence the progression of the obstruction and the appearance of AR.

Methods: retrospective serial echocardiographic review of 19 patients, mean age 16 years (2 years-38 years), with fixed discrete subaortic stenosis that don’t require surgery (initial Gmax at inclusion < 50 mmHg and without any symptom). The mean follow up was 5.42 years. The progression of gradient is defined by the formula (Gmax at follow up – initial Gmax)/(initial Gmax) vs 40 mmHg, p=0.04). The appearance or the aggravation of aortic regurgitation was determined by: the initial grade of AR (r=0.64; p=0.003), initial Gmax (r=0.65; p=0.002), progression’s velocity of G max (r=0.47; p = 0.04), and distance between the membrane and the aortic cusps (cut off = 5mm, r=0.49; p=0.03). LV hypertrophy was influenced by the velocity of progression of obstruction (>2mm Hg/year).

Conclusion: the identification of factors determining the evolution of discrete subaortic stenosis (age < 15 years, initial Gmax > 40 mmHg, distance membrane- cusps > 5mm) allows an adequate screening of patients that will require early operation.

0449
Prognostic value of right ventricle echocardiographic parameters in children with idiopathic pulmonary hypertension
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Background: Echocardiography is the most common modality used for assessment and serial follow-up of right (RV) and left ventricle (LV) function in children.