overexpressing endothelial nitric oxide synthase (eNOS), or treatment with estrogen, would potentiate the beneficial effects of EPCs in the context of restenosis. We found that native human early outgrowth EPCs (hEPCs) did not have any effect on human coronary artery smooth muscle cell (HCASMC) proliferation and migration In vitro, evaluated by BrdU incorporation and wound scratch assay respectively. In contrast, the NO donor SNAP significantly decreased the proliferation and migration of HCASMCs. Thereafter, hEPCs were either transfected with a human eNOS plasmid or stimulated with 17β-estradiol (E2) prior to being co-cultured with HCASMCs. Total eNOS protein and eNOS phosphorylation levels were increased by 3- to 3.5-fold in eNOS-transfected or E2-stimulated hEPCs, evaluated by western blot. This was associated with a 3-fold increase in NO production, performed by DAF-FM diacetate immunofluorescence (p<0.05). In eNOS-overexpressing hEPCs, enhanced bcl-2/bax ratio and reduced Annexin V/protopium iodide labeling indicated increased survival. Interestingly, we observed a significant (p<0.05) decrease in HCASMC migration when co-cultured with eNOS-overexpressing hEPCs, by 23%, or with E2-stimulated hEPCs, by 56%. However, HCASMC proliferation was not affected by either eNOS-overexpressing or E2-stimulated hEPCs. These results suggest that overexpressing eNOS in hEPCs increases their survival and enhances their capacity to modulate HCASMC migration through paracrine effects.

Réseau de thérapie cellulaire et tissulaire

| 035 | LIPOPROTEIN LIPASE EXPRESSION IS ASSOCIATED WITH CALCIFIC AORTIC VALVE DISEASE: INTERACTION WITH THE SIZE OF HDL |
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**BACKGROUND:** Calcific aortic valve disease (CAVD) is a chronic disorder characterized by a fibro-calcic remodelling. It is suspected that lipid retention within the aortic valve may be an important mechanism participating to aortic valve inflammation and remodelling. Lipoprotein lipase (LPL) is involved in lipid metabolism and may play a role in lipid retention within the aortic valve.

**METHODS/RESULTS:** In a group of 82 CAVD patients, tissues and blood plasma were analysed for LPL expression along with several indices of tissue remodeling and a complete blood lipid profile, including the size of LDL and HDL. In human CAVD tissues we found a high level of LPL, which was associated with the remodeling process. Furthermore, the number of LPL transcripts was inversely related to the size of HDL particles. In turn, in patients with higher content of ox-LDL within CAVD, we found a higher proportion of subjects with smaller HDL particles as well as higher expression of LPL transcripts. Immuno-

**Conclusion:** LPL expression is associated with CAVD and remodeling process. Interactions between lipid retention and HDL size may explain the relationship between LPL and CAVD.

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**038**

**DOCUMENTED CORONARY ARTERY DILATATION DURING ACUTE VIRAL MYOCARDITIS**

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**BACKGROUND:** Detecting coronary artery (CA) dilatation is essential in the diagnosis and follow-up of Kawasaki disease (KD). Myocarditis however, is almost always present in acute KD. The purpose of the study was to investigate whether myocarditis causes CA dilatation we sought to use viral myocarditis as a clinical model.

**METHODS:** A retrospective series of children with acute viral myocarditis were reviewed to confirm the diagnosis. CA diameters of the proximal right and the left CA were measured at onset and during the first two years of follow-up. CA z-score was calculated based on our published equations. CA dilatation was defined as a Z-score >2.5. Occult CA dilatation was defined as a Z-score variation of >2StDev points along the follow-up in those with z-score always <2.5. All other cases were labelled without CA involvement.

**RESULTS:** There were 11 girls and 3 boys between 2000 and 2006 who met the selection criteria. KD was not in the differential diagnosis of any case. Age was 1.67±3.22 years at diagnosis (range 0.02-9.45), with a follow-up duration of 16.2±16.4 mo. Microbial laboratory tests/cultures confirmed the diagnosis in 11 (78.5%), whereas the history of familial/personal acute infectious illness was present in the remaining. Cardiac enzymes were elevated in 9 patients, normal in 2 and not available in 3. CA involvement was detectible in 9/14 (64.3%) cases; dilatation in 3 (21%) cases and occult dilatation in 6 (42.9%). Peak CA Z-score was at onset of the disease in 7/9. Maximum CA Z-score was 1.56±0.8 vs 0.42±0.9 for cases with or without CA involvement respectively; p=0.036.

**CONCLUSION:** CA dilatation is not uncommon in acute myocarditis. Our new findings shed new lights on management and long-term CA outcome, otherwise not accounted for. Similarly, interpretation of CA dilatation in acute KD should be taken cautiously in the support of the diagnosis of KD. Our findings represent a potential challenge to the diagnostic sig-
significance of the clinical criteria of KD especially when “supported” by the finding of a dilated CA.

039 CONGENITAL HEART DISEASE CONFOUNGING THE DIAGNOSIS OF ARRYTHMOGENIC RIGHT VENTRICULAR CARDIOMYOPATHY
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BACKGROUND: Early intervention in the diagnosis of arrhythmogenic right ventricular cardiomyopathy (ARVC) can prevent irreversible changes that may result in ventricular dysfunction and lead to sudden cardiac death. The 2010 revised ARVC/D diagnostic Task Force Criteria (TFC) has increased diagnostic sensitivity for ARVC while remaining highly specific. However, certain conditions continue to mimic ARVC and therefore warrant careful attention, especially when dealing with pediatric populations. We present six cases in which clinical presentation has confounded the diagnosis of congenital heart disease (CHD) versus ARVC.

METHODS: We reviewed medical charts for clinical, electrocardiographic and imaging data. The results were anonymized, tabulated and evaluated using the revised diagnostic criteria for ARVC.

RESULTS: We identified five patients in whom the presentation of undiagnosed or seemingly unimportant CHD was initially attributed to ARVC. RV or RVOT dilation was present in all, with or without wall motion abnormalities. Filtered QRS was prolonged in four cases. Significant ventricular extrasystole was noted in two cases. Three of our cases demonstrated increased Qp:Qs. The final diagnosis was most often partial anomalous pulmonary venous connection (PAPVC). Despite an initial high index of suspicion for ARVC, in all cases we eventually attributed RV structural and functional changes, depolarization/conduction abnormalities and arrhythmias to left-to-right shunts secondary to CHD. In contrast, we identified one patient in whom mild CHD masked the likely diagnosis of ARVC. This patient presented with similar findings, including: RV dilation, prolonged filtered QRS, significant ventricular extrasystole and increased Qp:Qs. Despite closure of the ASD, RV dilation persisted and she developed episodes of loss of consciousness, increasing suspicion of underlying ARVC.

CONCLUSION: ARVC poses a diagnostic challenge, especially in pediatric populations where findings may overlap with CHD. Cases of CHD with left-to-right shunting may lead to structural and electrophysiologic findings consistent with ARVC. In some cases, the findings are quite compelling and may even meet the revised diagnostic criteria for ARVC. On the other hand, underlying ARVC may co-exist with and be masked by mild CHD. Despite a high index of suspicion for ARVC, careful echocardiography and MRI are essential to detect covert CHD in the pediatric evaluation of ARVC.

040 WITHDRAWN

041 NON-INVASIVE ASSESSMENT OF RIGHT HEART AND PULMONARY VASCULAR COUPLING IN CHILDREN WITH PULMONARY HYPERTENSIVE VASCULAR DISEASE: A SIMULTANEOUS ECHOCARDIOGRAPHIC AND CATHETERIZATION STUDY
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BACKGROUND: Cardiac catheterization is the gold standard for assessment of hemodynamics in children with pulmonary hypertensive vascular disease (PHVD). There is a need for accurate, non-invasive correlates of these hemodynamics. We aimed to identify correlations between echocardiographic and catheter parameters in children undergoing cardiac catheterization to investigate PHVD.

METHODS: Echocardiograms were performed on patients with PHVD undergoing cardiac catheterization, after induction of anesthesia. Echocardiographic parameters assessed included tricuspid valve (TV) annular tissue Doppler velocities (TDI), TV inflow Doppler, right atrial (RA) and right ventricular (RV) dimensions and function. Cardiac catheterization data included RA and RV pressures, pulmonary arterial pressure (PAP), pulmonary blood flow, pulmonary vascular resistance index (PVRI), pulmonary capacitance index (PCI) and cardiac index (CI).

RESULTS: We studied 14 consecutive patients (8 male; median age 6 years, range 1 - 15) with mean PAP 42 ± 22 mmHg and PVRI 13 ± 6 WU/m². TV peak regurgitant velocity correlated with systolic PAP (r=0.79, p<0.01) suggesting patients were studied under the same hemodynamic conditions. RA mean pressure correlated with TV E/e prime ratio (r=0.67, p=0.02). There was no correlation between echocardiographic parameters of RV function (TAPSE, MPI, TV S prime) and catheter parameters. PVRI correlated with TV TDI a prime (r=0.56, p=0.03). CI correlated with TV inflow E velocity.