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Lipoprotein-Associated Phospholipase A2 Predicts Coronary Artery Calcification Assessed by Multislice Computed Tomography

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Background: Lipoprotein-Associated Phospholipase A2 (Lp-PLA₂) has been shown to be a highly specific biomarker for artery inflammation and for cardiovascular risk assessment. Coronary artery calcification defined as coronary artery calcium score (CAC score) is a marker of increased risk of coronary artery disease (CAD).

Aim: This study evaluates the association between Lp-PLA₂ and presence of coronary artery calcification among patients with low and intermediate probability of CAD.

Methods: The analysis included 305 consecutive patients (61.3±10.59 yrs; 41.3% males) with intermediate probability of CAD. All patients were routinely assessed for traditional risk factors of CAD. Serum Lp-PLA₂ mass was measured by ELISA-based method. CAC score was obtained by multi-detector computed tomography and calculated by Agatston method. Coronary artery calcification was defined as CAC score>0.

Results: Clinical characteristic of study population is summarized in the table. Coronary artery calcification was found in 187 (61.3%) patients (63.76±9.94 yrs; 48.7% males). In univariate analysis the predictors of coronary artery calcification were age (OR 1.07, 95%CI 1.04-1.09, $p<0.0001$), male gender (OR 2.42, 95%CI 1.38-3.66, $p=0.0011$), hypertension (OR 4.76, 95%CI 1.26-18.06, $p=0.0217$), diabetes (OR 4.28, 95%CI 1.37-13.36, $p=0.0123$), Lp-PLA₂ (OR 1.008, 95%CI 1.0006-1.014, $p=0.0325$), eGFR (OR 0.97, 95%CI 0.955-0.99, $p=0.0042$), triglycerides (OR 1.55, 95%CI 1.03-2.32, $p=0.0362$). In multivariate analysis age (OR 1.08, 95%CI 1.02-1.12, $p=0.0055$) and Lp-PLA₂ (OR 1.02, 95%CI 1.004-1.03, $p=0.01$) were the only independent predictors of coronary artery calcification.

Conclusions: Plasma Lp-PLA₂ is independently related to coronary artery calcification which supports its potential clinical utility in identification of individuals at increased risk of CAD.

Hypertension, (%)	41.9
Hyperlipidemia, (%)	40.6
Diabetes (%)	7.5
Smoking history (%)	24.6
Family history of CAD (%)	23.6
CAC score (mean±SD)	193±413.2
Lp-PLA ₂ (ng/ml, mean±SD)	179.7±36.8
C-reactive protein (mg/dl, mean±SD)	0.23±0.34
eGFR (ml/min/1.73m ² , mean±SD)	75.72±13.21
HDL (mmol/l, mean±SD)	1.66±1.87
Triglycerides (mmol/l, mean±SD)	1.27±0.68
LDL (mmol/l, mean±SD)	3.00±1.67

P4.39

Determinants of Intensive Care Unit Length of Stay After Coronary Artery Bypass Surgery

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Withdrawn by the author.

P4.40

Cardiovascular Disease After Pediatric Renal Transplantation

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Background: Chronic kidney disease is associated with an increased arterial stiffness (AsT) and left ventricular (LVM) mass. Increased AsT results in an

elevated pulse wave velocity (PWV). Few data are available on the evolution of PWV and LVM following renal transplantation (RTx) in children.

Aim, subjects, Methods: Children (aged 13.4 (0.88) years /mean(SD)/) with end stage renal disease followed by successful RTx were identified. 26 patients underwent PWV measurement 2,81 (0.03) years after RTx, with repeat PWV measurement and echocardiography 3,5 (1.08) years after transplantation. The LVM index (LVMI) was calculated. PWV was measured by applanation tonometry. Age and height matched PWV normal values were used, SD score was calculated. Candidate clinical variables for an association with LVMI and PWV were assessed, including age, routine laboratory findings, medications (serum levels and cumulative doses) and co-morbidities (hypertension, diabetes, dyslipidaemia).

Results: PWV age SDS (1,18(1,22)) and PWV height SDS (1,47 (1,21)) of RTx were increased compared to healthy pediatric population. Follow up measurement of PWV revealed increased PWV age SDS (1,18 vs 0,19) 3.5 years after RTx. Follow up measurement of PWV age SDS correlated with LVMI ($r: 0,61$, $p:0,01$). There was a bimodal correlation between LVMI and cumulative calcitriol dose before RTx.

Conclusion: Controls matched both for age and height should be used to assess PWV in RTx children with growth failure. AsT determined by PWV increased after RTx, and correlated with left ventricular hypertrophy (LVMI). Cumulative dose of calcitriol is among the major determinants of left ventricular hypertrophy after Tx.

P4.41

Calcium Score Reproducibility: A Meta-Analysis from St Francis and EBEAT Trials

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Background and aim: Coronary artery calcium score (CACs) is an established quantitative tool for assessing subclinical atherosclerosis. The aim of this study was to assess in a meta-analysis model the natural history and reproducibility of CACs measurements obtained from St Francis and EBEAT trials.

Methods: We analysed data from: 443 on placebo with 2 year follow up from St Francis trial (Study A) and 209 on 10 mg atorvastatin with 1 year follow up of EBEAT trial (Study B). Total CACs and that in the left coronary artery (LCA) branches, main stem (LMS), anterior descending (LAD), circumflex (Cx) and right coronary artery (RCA) were analysed.

Results: The overall agreement between the two measurements was fairly good, showing a small but significant increase in CAC: 68% of the group as a whole presented an increase in CACs, 23 % of the cohort had negligible change in CACs of <10% irrespective of the baseline CACs; and the remaining 10% showed a fall in CACs. Both studies showed similar patterns. The analysis of individual coronary arteries showed significantly higher variability of measurements in the RCA than that of the LCA. Males had higher baseline CAC, irrespective of age, than females but the rate of progression was not different between genders.

Conclusion: The higher variability in RCA measurements could be related to the low baseline CACs or exaggerated movement of the right side atrioventricular ring, whereas those for LCA branches are influenced by the branch allocation of the CACs.

P4.42

Diffuse Coronary Calcification and Atherosclerosis in South Asian Patients with Angina Compared to Caucasians with Similar Risk Factors

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Introduction: Ethnic differences in prevalence and severity of coronary artery disease (CAD) and calcification (CAD) are widely recognized.

Aim: To investigate CAC and CAD differences as shown by CT coronary angiography (CTCA), between symptomatic South Asians (SA) and Caucasians (CA).

Methods: We identified 101 symptomatic angina patients of S.Asian origin who had underwent CTCA (1/12/2009 to 30/04/2011) with a 640 slice,