117 QUANTITATIVE PROFILING OF OXYLIPINS IN PATIENTS PRESENTING WITH ST ELEVATION MYOCARDIAL INFARCTION (STEMI)

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BACKGROUND: Previous studies have shown that there is persistent oxidative stress after myocardial infarction (MI) and percutaneous coronary intervention (PCI). Oxylinps are lipid oxidation products that can be generated mainly by enzymatic oxidation through cyclooxygenase (COX), lipoxygenase (LOX) and cytochrome P450 (CYP P450) pathways. The aim of this study was to profiling oxylinps before and in various time points after PCI in STEMI patients.

METHODS AND RESULTS: Blood samples were collected from subjects with STEMI (n=17) at five time points including prior to PCI (time point 1), and 2h (time point 2), 24h (time point 3), 48h (time point 4) and 30 day (time point 5) following PCI. As controls, blood samples were also collected from subjects (n=20) with non-obstructive coronary artery disease after diagnostic angiography. Oxylinps identification and quantification were performed using high-performance electrospray mass spectrometry and dueterated internal standards. Seventy six oxylinps were identified in STEMI patients which were derived from LOX and CYP pathways and non-enzymatic oxidation. No COX derived oxylinps were identified in patients. The average levels of total oxylinps were 0.08 ± 0.04 and 0.05 ± 0.02 ng/ul of plasma of STEMI patients and controls, respectively. Oxylinps that derived from arachidonic acid (AA) were the most abundant oxylinps in STEMI patients which constituted about 60% of all identified/quantified oxylinps. Oxylinps derived from linoleic acid (LA) were the second most abundant oxylinps which accounted for 28% of all identified/quantified oxylinps in STEMI patients.
STEMI patients. 20-carboxy-arachidonic acid (20-COOH-AA), which is a metabolite of 20-hydroxyeicosatetraenoic acid (20-HETE) and derived from AA, along with 9-HODE and 12-HODE, which derived from LA, were three most abundant oxylipins in all STEMI groups. One way ANOVA analysis showed that the levels of oxylipins derived from LOX pathway decreased significantly at 24h and 48h afterPCI (Time point-3 and 4) compared with pre and post PCI (Time point-1, 2). Further analysis revealed that 5-HETE and 9-HODE, were the two LOX derived oxylipins that decreased significantly in this group of oxylipins (p < 0.05). However, other oxylipins derived from CYP pathway or non-enzematic oxidation did not differ significantly between STEMI groups. At 30 day following PCI, levels of oxylipins slightly increased, although it was not significant.

CONCLUSION: This is the first study to determine the oxylipin profile in STEMI patients. As these compounds have potent cardiovascular activities, our data may guide future therapeutics that aim to modulate oxylipins after MI.

118
SERUM SCLEROSTIN AND ADVERSE OUTCOMES IN ELDERLY PATIENTS WITH STABLE CORONARY ARTERY DISEASE UNDERGOING PERCUTANEOUS CORONARY INTERVENTION
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BACKGROUND: Recently, sclerostin, a bone-derived protein, has been shown to play a key role in the progression of atherosclerosis. However, few studies have investigated the influence of sclerostin on the prognosis of cardiovascular disease. We investigated the relationship between serum sclerostin levels and adverse outcomes in elderly patients with stable coronary artery disease (SCAD) who are undergoing percutaneous coronary intervention (PCI).

METHODS AND RESULTS: A total of 310 elderly SCAD patients who underwent PCI were enrolled in this study, with a follow-up of 3 years. According to the median serum sclerostin levels, subjects were stratified into a low sclerostin (low scl) group (n=144) and a high sclerostin (high scl) group (n=166). Time-to-event analyses were performed by the Kaplan-Meier method. The associations between sclerostin levels and main the adverse cardiovascular and cerebrovascular events (MACCEs) and mortality were evaluated by Cox multivariate regression analysis. Kaplan-Meier curves showed that the high scl group had a significantly higher MACCE-free rate (log rank p < 0.001) and better survival (log rank both p < 0.05) than the low scl group did. Serum sclerostin was an independent predictor of MACCEs and all-cause mortality. In addition, serum sclerostin levels were significantly associated with N-MID (β=-0.357, p < 0.001), β-CTX (β=0.200, p=0.012), and PINP (β=0.207, p=0.006) levels, a lower presence of multivessel disease (β=-0.223, p=0.005) and lower CCS angina class (β=-0.160, p=0.017).

CONCLUSION: Serum sclerostin is a prognostic parameter for predicting and intervening in the adverse outcomes of elderly SCAD patients undergoing PCI, which may be explained by its potential role in the bone-vascular axis.

119
CORONARY ARTERY DISEASE IN ADULTS UNDERGOING TRANSCATHETER PATENT FORAMEN OVALE CLOSURE FOLLOWING CRYPTOGENIC STROKE
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BACKGROUND: Patent foramen ovale (PFO) is identified in almost one half of patients with cryptogenic stroke. There are presently no universally-established indications for the screening of adults for coronary artery disease (CAD) at the time of transcatheter PFO closure. The presence of subclinical CAD may be of interest in adults who have suffered a cryptogenic stroke in the context of a PFO.

METHODS AND RESULTS: Consecutive patients over 40 years of age who underwent PFO transcatheter closure with routine coronary angiography at an academic quaternary center from 2009 to 2017 were retrospectively analyzed. Patients included had no prior history of CAD and were diagnosed with a PFO