Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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METHODS: Progranulin was administered to male Wistar rats prior to exposure to acute myocardial ischemia-reperfusion injury. Left ventricular function and electrocardiography was monitored during the total period of ischemia and reperfusion. Rats did not receive anti-arrhythmic agents. Ventricular tachycardia was identified as the presence of four or more successive ventricular premature beats. Ventricular fibrillation was distinguished by a change in rate and shape from beat to beat without a recognizable QRS complex.

RESULTS: Progranulin significantly reduced cardiac ventricular tachycardia and ventricular fibrillation after acute myocardial ischemia-reperfusion injury as well as arrhythmia scores. Furthermore, progranulin administration reduced cardiac injury and mortality rate.

CONCLUSIONS: The study provides novel evidence of the protective effect of progranulin against acute myocardial ischemia-reperfusion-induced arrhythmias in a rat model. The ability of progranulin to protect against lethal arrhythmias may be attributed to its cardioprotective activity against ischemic insult to cardiac myocytes. A deeper look into the molecular mechanisms and clinical implications of its anti-arrhythmic properties is required.

EP264 / #890, TOPIC: ASA02 - LIPIDS AND LIPOPROTEINS / ASA02-12 ADIPOSE TISSUE BIOLOGY AND PATHOLOGY, POSTER VIEWING SESSION. COMPARISON OF ADIPOCYTE SIZE IN TWO RELATED FAT DEPOTS AND THEIR ASSOCIATION TO CARDIOVASCULAR RISK FACTORS

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BACKGROUND ANDAIMS: Metabolic syndrome is connected to adipose tissue inflammation and dysfunction. Adipocyte size is used as a surrogate marker of adipose tissue dysfunction. Data regarding adipocyte size in perivascular adipose tissue in human are scarce. We therefore analyzed human perivascular adipose tissue in living kidney donors and compared our data to perirenal visceral depot.

METHODS: Seventy-nine living kidney donors (57 women) completed a standardized questionnaire and underwent a body composition analysis to establish the presence of cardiovascular risk factors. Lipid and other biochemical parameters were measured in plasma. Samples of visceral and perivascular adipose tissue were obtained during during retroperitoneoscopic nephrectomy. Both tissues were processed for flow cytometric and histological analyses to measure proportion of macrophages and adipocyte size respectively. Spearman correlation and Student’s t-test were used for statistical analysis.

RESULTS: Adipocyte size was significantly higher in the perirenal depot (p < 0.01). Both visceral and perivascular adipocyte size correlated positively with waist circumference, BMI and HDL/TC ratio and negatively with basal metabolic rate/kg. Positive correlations with triglyceride levels in plasma and also with markers of inflammation (CRP and TNF-α levels in plasma and the proportion of CD14+CD16+CD36high macrophages in adipose tissue) were found only in perivascular adipose tissue. A strong negative correlation with HDL-C levels was also found only in this depot.

CONCLUSIONS: Adipocyte size was compared in two adipose tissue depots. Despite their proximity, marked differences were found in adipocyte size and its association with different cardiovascular risk factors. Especially perivascular adipose tissue could be prone to pro-inflammatory changes and tissue dysfunction.

EP265 / #875, TOPIC: ASA02 - LIPIDS AND LIPOPROTEINS / ASA02-12 ADIPOSE TISSUE BIOLOGY AND PATHOLOGY, POSTER VIEWING SESSION. BIOACTIVE LIPIDS AND LIPOPROTEIN LIPASE IN EPICARDIAL ADIPOSE TISSUE FROM PATIENTS WITH CORONARY ARTERY DISEASE: UNFOLDING A MISSING LINK

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BACKGROUND ANDAIMS: Epicardial adipose tissue (EAT) contributes to atherosclerotic cardiovascular disease (ASCVD). EAT presents a specific lipidomic signature, with increased proinflammatory lipids, such as ceramides (Cer). Besides the activity of lipoprotein lipase (LPL) in EAT, supplying fatty acids to the tissue, would contribute to its expansion. Our aim was to evaluate links among LPL activity and bioactive lipids in EAT from coronary disease (CAD) patients.

METHODS: We studied patients undergoing coronary by-pass graft (CAD, n=25) and patients without CAD (n=14). EAT and subcutaneous AT (SAT) were obtained, tissue LPL activity and its regulators expression (ANGPTL4, GPIHBP1 and PPARγ) were assessed. Tissue lipidomes were evaluated by UHPLC-MS, in positive and negative ionization modes. For statistics, the MetaAnalyst software was used.

RESULTS: LPL activity was higher in EAT from CAD (p<0.001), and in EAT than SAT in both groups (p<0.001). ANGPTL4 levels were lower, GPIHBP1 and PPARγ levels were higher in EAT from CAD (p<0.001). In both groups, EAT exhibited more Cer (p<0.01), directly associated to LPL activity, being the strongest association with Cer18:1/24:1 (p<0.001). EAT Cer18:1/16:0 to Cer18:1/24:0 and Cer18:1/24:1 to 18:1/24:0 indexes were higher in CAD (p<0.03; p=0.001, respectively), the latter directly associated with LPL activity (r=0.63, p<0.001) GPIHBP1 levels (r=0.68, p=0.001), and inversely to EAT ANGPTL4 expression (r=-0.49, p=0.03).

CONCLUSIONS: The association between LPL activity, total Cer and the atherogenic Cer indexes highlights the importance of the enzyme and these bioactive lipids contributing to the deleterious phenotype of EAT in ASCVD.

EP266 / #515, TOPIC: ASA02 - LIPIDS AND LIPOPROTEINS / ASA02-13 OTHER, POSTER VIEWING SESSION. APOLIPROTEINS A1 LEVEL IN THE PLASMA OF PATIENTS WITH COVID-19

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BACKGROUND ANDAIMS: The COVID-19 infection is associated with dyslipidemia and cardiovascular complications. The aim of the study was to determine the content of ApoA1, ApoB, and oxLDL in the plasma of patients with COVID-19, diabetes mellitus (DM), and cardiovascular disease (CVD).

METHODS: The research protocol was approved by the Ethics Committee of the Institute. All patients signed an informed consent for further diagnostic and scientific research. Blood plasma from 60 patients with DM (25 men, 35 women) and 21 patients with DM, CVD and COVID-19 (10 men, 11 women) was used. The blood from healthy people was used as the control. ApoA1/ApoB, and oxLDL were determined using ELISA kits (Elastscience, US).

RESULTS: It was shown that the level of ApoA1 in the blood of patients with type 2 diabetes and especially with COVID-19 was significantly lower than
in the blood of healthy people. The level of ApoB and oxLDL in the blood of patients with COVID-19 was significantly higher (2.3 and 3.8 times, respectively) than in the blood of healthy people. There were differences between patients with COVID-19 without concomitant diseases and COVID-19 with diabetes or CVD.

Conclusions: High levels of ApoA1, ApoB, and oxLDL may be promising markers of COVID-19.

**EP267 / #1139, TOPIC: ASA02 - LIPIDS AND LIPOPROTEINS / ASA02-13 OTHER, POSTER VIEWING SESSION.**

UNVEILING THE ANTIATHEROGENIC ROLE OF ADVANCED LIPOPROTEIN CHARACTERISTICS IN POSTOPERATIVE SUBJECTS WITH MORBID OBESITY

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Background and Aims: Nuclear magnetic resonance (1H-NMR) analysis have recently used to uncover hidden quantitative lipoprotein characteristics in cardiometabolic scenarios. The aim of this study was to assess whether bariatric surgery (BS) improved the quantitative characteristics of lipoproteins and their relationship with the presence of atherosclerotic plaque.

Methods: The number, size, and lipid content of different lipoprotein classes of 37 subjects with morbid obesity were analyzed by 1H-NMR at baseline and after one-year of BS, and in 111 non-obese volunteers.

Results: At baseline, TG, cholesterol content and number of VLDL were increased in the subjects with morbid obesity. Additionally, the concentrations of cholesterol, TG and number of LDL particles were significantly higher in those patients with obesity and atherosclerotic plaque. Conversely, subjects with obesity had lower number of HDL particles and had much less TG. The subjects with atherosclerotic plaque presented increased concentrations of smaller LDL and lower medium HDL particles compared with those without plaque. BS did not influence the presence of atherosclerotic plaque. However, the TG, cholesterol content and number of VLDL particles were reduced at follow-up. Moreover, the TG content, but not cholesterol, of LDL was significantly decreased, as it was the number of LDL particles, in postoperated subjects. Finally, the TG, cholesterol content and the number of HDL particles were increased after BS.

Conclusions: Excess weight loss improved the atherogenicity of the lipoprotein profile. The number of small LDL and medium HDL particles might provide an approach in subclinical atherosclerosis detection and management.

**EP268 / #1571, TOPIC: ASA02 - LIPIDS AND LIPOPROTEINS / ASA02-13 OTHER, POSTER VIEWING SESSION.**

INTERPLAY BETWEEN S1P RECEPTORS AND SR-BI IN ATHEROSCLEROSIS RELEVANT CELLS: NEW INSIGHT FROM TRANSGENIC ANIMALS

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Background and Aims: Sphingosine 1-phosphate (S1P), traveling in plasma mainly bound to high-density lipoproteins (HDL), fulfills several tasks in immune and cardiovascular systems by binding to its G protein-coupled receptors (S1P1-S5). SR-BI, an HDL receptor, is widely expressed in different cell types, including endothelial cells and macrophages, and plays key roles in cholesterol homeostasis and lipoprotein metabolism. Recent evidence showed that HDL-bound S1P stimulates the transient interaction between SR-BI and S1PRs, activating S1PR1. We generated peculiar animal models overexpressing S1PR1 in a tissue-specific manner, and tried clarifying the interplay between S1PRs and SR-BI.

Methods: S1PR overexpression in endothelium and myeloid cells was achieved through Cre-LoxP technology. Animals overexpressing S1PR1 in the endothelium (S1P1-IECKI) were sacrificed, their aortas isolated and processed for immunofluorescence imaging through confocal laser microscopy. Mice overexpressing S1PR1 in myeloid cells (S1P1-LyzMCre) were intraperitoneally injected with thioglycollate broth, sacrificed and their peritoneal macrophages (MPMs) isolated and cultivated under cholesterol normal or loading (acytetylated LDL, AcLDL) conditions. Gene and protein expression of target molecules in MPMs were evaluated by real time RT-PCR and Western blot.

Results: Confocal microscopy interestingly showed a higher expression of SR-BI in the aortic endothelium of S1P1-IECKI mice, compared to controls. In addition, in S1P1-LyzMCre macrophages, SR-BI expression increased at both mRNA and protein levels, as detected by qPCR and Western blot, respectively. Treatment with S1PR-modulators also affected SR-BI expression, regardless of AcLDL stimulation.

Conclusions: Our preliminary observations suggest that the modulation of S1PRs may affect the expression of SR-BI in atherosclerosis-relevant cells.