

P2.2.181.**PLASMA CLEARANCE OF CHYLOMICRON REMNANTS IS DELAYED IN AGED SUBJECTS: A STUDY WITH ARTIFICIAL EMULSIONS**

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Aim: Dietary fats absorbed in the intestine are transported in the circulation as chylomicrons and remnants that have atherogenic potential. Although postprandial lipidemia is increased in older subjects, the specific chylomicron metabolism has not been explored in older subjects nor compared to young subjects, which is the focus of this study.

Methods: After a 12 h fast, artificially-made emulsions similar to lymph chylomicrons and doubly labeled with radioactive cholesteryl esters and triglycerides were intravenously injected in 23 older (66±4 years) and 20 young (24±3 years) subjects. Sequential blood samples were collected to determine fractional clearance rates (FCR, in min⁻¹) by compartmental analysis.

Results: Older subjects had higher LDL-cholesterol ($p < 0.001$) and triglycerides ($p < 0.0001$) than young subjects; HDL-cholesterol presented no difference. The emulsion cholesteryl-ester FCR was lower in older subjects compared to the young ($p = 0.0001$). The emulsion triglyceride FCR did not differ in the two groups. Tested in vitro, however, the lipolysis of the emulsion triglycerides was less intense in the older than in the young subjects.

Conclusions: As delayed removal of remnants, indicated by the pronouncedly smaller cholesteryl ester FCR, is related to the presence of cardiovascular diseases, this can be a risk factor which could accelerate atherogenic complications occurring in aged subjects.

P2.2.182.**CHYLOMICRON METABOLISM IS IMPAIRED IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA: EFFECTS OF TREATMENT WITH CONTINUOUS POSITIVE AIRWAY PRESSURE**

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Aim: Investigate chylomicron metabolism, represented by lipolysis of these triglyceride-rich lipoproteins and removal from the plasma of resulting chylomicron remnants, in patients with Obstructive Sleep Apnea (OSA), an established risk factor for cardiovascular diseases. Evaluate the effects of OSA treatment with continuous positive airway pressure (CPAP).

Methods: We studied 15 male apparently healthy patients with severe OSA (apnea-hypopnea index (AHI) greater than or equal to 30 events/hour) and 12 volunteers without OSA determined by polysomnography, matched for age, BMI and waist circumference. After 12h fasting, a chylomicron-like emulsion, labeled with [¹⁴C]-cholesterol ester and [³H]-triglycerides was injected intravenously. Blood samples were collected during 60 minutes after injection for determination of plasma fractional clearance rate (FCR) of radiolabeled lipids by compartmental analysis. Carotid intima-media thickness (CIMT) was measured. Seven OSA patients repeated measurements after three months CPAP treatment.

Results: Compared to healthy controls, OSA patients showed delay in both cholesterol ester-FCR (0.013±0.001 vs. 0.0028±0.002 min⁻¹; $p = 0.032$) and triglycerides-FCR (0.035±0.012 vs. 0.0050±0.002 min⁻¹; $p = 0.003$). CIMT was higher in OSA (620±17 vs. 725±29 μm; $p = 0.004$). Cholesterol esters-

FCR were inversely related to total sleep time (<90% ($r = -0.42$; $p = 0.029$) and CIMT ($r = -0.44$; $p = 0.022$). Triglyceride-FCR was inversely correlated with AHI ($r = -0.39$; $p = 0.04$). In patients treated with CPAP, triglyceride-FCR increased five-fold (from 0.0065±0.0088 to 0.0302±0.0245 min⁻¹; $p = 0.025$), but the cholesterol ester-FCR was unchanged.

Conclusions: In severe OSA patients, both plasma removal of chylomicron remnants, estimated by cholesterol ester-FCR and the lipolysis process (triglyceride-FCR) were impaired. CPAP treatment promoted increased triglyceride clearance. These findings may contribute to explain mechanisms by which OSA promotes atherosclerosis.

P2.2.183.**GENERALIZED LIPODYSTROPHY WITH SEVERE HYPERTRIGLYCERIDEMIA**

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Aim: Generalized lipodystrophy (GLD) is an extremely rare disorder characterized by loss of adipose tissue and associated with metabolic complications: diabetes, dyslipidemia and steatohepatitis. Here we report a case of GLD leading to drug resistant hypertriglyceridemia (HTG).

Methods: Case report. A 22-year-old female presented with a history of GLD, severe HTG, diabetes mellitus (DM) and recurrent pancreatitis.

Results: At the age of 14 syndrome of polycystic ovarian, dysmenorrhea and the insulin resistance were revealed. After treatment with the estrogen-antiandrogen combination the patient developed acute pancreatitis and hypertriglyceridemia. DM was diagnosed at the age of 21 and treated by insulin and metformin. Physical examination discovered the loss of subcutaneous fat on the trunk and limbs, acanthosis nigra and fat accumulation in the face and neck. Suspected severe dyslipidemia was confirmed by laboratory tests: total cholesterol level was 20.68 mmol/l, triglycerides (TG) – 142,63 mmol/l, LDL – 0,99 mmol/l HDL – 0,55 mmol/l. Despite the treatment with rosuvastatin (20 mg/day), fenofibrate (145 mg/day) and omega-3 fatty acids (2 g/day) TG level remains extremely high while total cholesterol was decreased. Selective plasmapheresis was introduced into the treatment with moderate effect. Genetic analysis revealed no evidence of gene mutations responsible for the development of GLD and primary HTG. The patient has no family history of GLD and severe dyslipidemia.

Conclusions: Acquired GLD was diagnosed on the basis of clinical phenotype, medical history, laboratory findings and negative results of genetic testing. However the possibility of congenital nature of the disease caused by de novo mutation could not be excluded.

P2.2.184.**SEQUENCE VARIANTS IN THE GPIHBP1 GENE IN PATIENTS WITH SEVERE HYPERTRIGLYCERIDEMIA**

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Aim: Severe hypertriglyceridemia (SHTG) occurs when fasting plasma triglyceride levels rise over 1.000 mg/DL. SHTG is influenced by genetics and environmental factors. Mutations in the GPIHBP1 gene have been shown to be responsible for different cases of Type I hyperlipoproteinemia but little is known about the presence of sequence variants in this gene in more common types of SHTG. The aim of this study