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Background: Elevated Maternal Cholesterol during Pregnancy (MCP) enhances atherogenesis in childhood, but its impact on acute myocardial infarction (AMI) in adults is unknown.

Methods: 89 AMI patients meeting narrow criteria (born after 1945, typical chest pain, transmural infarction Q-waves, elevated creatinine kinase, no cerebrovascular disease or terminal disease) were identified among patients admitted to coronary care unit in Naples, Italy. Patients were classified by MI severity (severe=-involving 3 arteries, left ventricle ejection fraction <35, CK-peak >1200 mg/dl, or CK-MB >200 mg/dl). The association of MCP with AMI severity was tested by linear and multiple regression analysis that included conventional cardiovascular risk factors, gender, age, and treatment. Associations of MCP with BMI was assessed by multiple regression analysis that included conventional cardiovascular risk factors including hypertension, DM, and dyslipidemia.

Results: MCP correlated with four measures of AMI severity: number of vessels (p=0.382, p<0.001), ejection fraction (p=0.315, p<0.003), CK (p=0.260, p=0.014) and CK-MB (p=0.334, p<0.001), as well as survival time (p=0.252, p=0.031). In multivariate analysis of patients stratified by AMI severity, MCP predicted AMI severity independently of age, gender, and CHD risk factors (OR=1.304, 95% CI 1.107-1.559; p=0.004). Screening for point mutations ruled out that this was due to certain inherited differences in lipid metabolism. Survival was affected mainly by MCP severity.

Conclusions: MCP is associated with adult BMI, atherosclerosis-related risk and severity of AMI.

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The effect of LP(a) in patients with heterozygous familial hypercholesterolemia on coronary plaque burden and calcium score determined by CT
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Rationale: People with heterozygous familial hypercholesterolemia (FH) have a genetic predisposition for developing premature cardiovascular disease (CVD). However, the clinical phenotype of FH has a high variability which is due to genetic and environmental factors. One of the metabolic factors that increase the risk for premature CVD might be Lp(a). Previous studies have identified Lp(a) as an independent risk factor for cardiovascular disease. The goal of our study was to analyze the association between calcium scores and coronary plaque burden in relation with plasma Lp(a) levels in patients with FH and to study whether this association was similar in men and women.

Methods and results: From February 2008 until June 2011 145 (93 men, 52 women) patients with a clinical diagnosis of FH visiting the outpatient clinic for lipid disorders in the Medical Centre were included. These patients underwent a CT coronary angiography to determine the coronary plaque burden and calcium score. From 131 (84 men, age 53±8) of these patients blood was collected and Lp(a) levels were measured. Lp(a) levels were subsequently related to total coronary calcium score (TCS) and coronary plaque burden. Coronary plaque burden is described as diseased coronary segment score per patient (DSS), DSS and TCS were analyzed in a group with low Lp(a) <0.300 g/L and with high Lp(a) >1.000 g/L, adjusted for sex, using the Mann-Whitney U test. In men no significant differences in DSS (p=0.960) and TCS (p=0.400) were found if Lp(a) was determined. In women significantly higher DSS (p=0.002) and TCS (p=0.004) were found in the high-Lp(a) group.

Conclusion: Our data show a higher amount of DSS and TCS in women with high Lp(a) levels in comparison with a low Lp(a). In men no difference, respectively, in DSS and TCS is found between high and low Lp(a) groups. We show that serum levels of Lp(a) is associated with disease severity in FH women and not in FH men.

Clinical relevance: High Lp(a) levels in FH women are associated with advanced subclinical atherosclerosis. Therefore, we can identify a high risk subgroup in which we should attain an even more strict cardiovascular risk reduction.

P5175 | BENCH
Albuminuria significantly predicts cardiovascular events in patients with type 2 diabetes independently from the baseline coronary artery state
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Purpose: Albuminuria is an important indicator of cardiovascular risk. We have recently shown that it is also associated with angiographically determined coronary artery disease (CAD). Whether albuminuria predicts cardiovascular events independently of the baseline coronary artery state in patients with type 2 diabetes (T2DM) has not been investigated yet.

Methods: We measured urinary albumin and creatinine concentrations in 211 consecutively recruited coronary patients with T2DM undergoing coronary angiography for the evaluation of suspected or established stable CAD. Albuminuria was defined as a urinary albumin to creatinine ratio (ACR) of 30 μg/ml or greater. Prospectively, we recorded vascular events over 3.2±1.4 years.

Results: During follow up, 24.6% of our patients suffered cardiovascular events. The cardiovascular event rate was significantly higher in patients with albuminuria (n=68) than in those with normoalbuminuria (36.3 vs. 17.5%; p=0.003). Cox regression analysis adjusting for age, gender, BMI, smoking, systolic and diastolic blood pressure, and traditional cardiovascular risk factors showed a hazard ratio of 1.75 (95% CI 1.22-2.51) for the event of cardiovascular death or non-fatal myocardial infarction, a hazard ratio of 1.86 (95% CI 1.27-2.72) for cardiovascular death or non-fatal myocardial infarction, and a hazard ratio of 1.98 (95% CI 1.40-2.79) for the event of cardiovascular death or non-fatal myocardial infarction or stroke in patients with albuminuria.

Conclusion: Albuminuria significantly predicts cardiovascular events in patients with type 2 diabetes independently from the baseline coronary artery state.