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The Association Between Soluble Lectin-Like Oxidized Low-Density Lipoprotein Receptor-1 Levels and Coronary Slow Flow Phenomenon
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Background: Slow coronary flow (SCF) is defined as delayed opacification of coronary arteries during coronary angiography without significant stenosis and is associated with myocardial perfusion abnormalities, myocardial ischemia and myocardial infarction. Although the certain etiology and pathophysiology mechanism of SCF patients is still unknown, possible underlying mechanisms are endothelial dysfunction, chronic inflammation, microvascular dysfunction and diffuse atherosclerotic plaque development and progression. LOX-1 is released as soluble forms (sLOX-1) after proteolytic cleavage that can be measured in serum.

Objective: This study was to evaluate the sLOX-1 serum levels in patients with SCF phenomenon.

Methods: A total of 40 patients with angiographically proven coronary slow flow phenomenon (23 males and 17 females, mean age 56.33±13.04 years) and 43 patients with normal coronary arteries and normal coronary flow (16 males and 27 females, mean age 55.6±6.51 years) were included in this cross-sectional observational study. Coronary blood flow was measured according to the TIMI (Thrombolysis In Myocardial Infarction) frame count method for the all coronary arteries. sLOX-1 levels were measured in all study subjects from serum samples by sandwich enzyme-linked immunosorbent assay.

Results: Serum levels of sLOX-1 were significantly higher in the SCF group than the normal coronary artery group (1061.80 ng/ml vs. 282.97 ng/ml, p<0.001). Also correlation analysis showed a positive correlation between serum sLOX-1 levels and the mean TIMI frame count (r=0.001). 

Conclusion: The results of the present study show significantly higher sLOX-1 levels in patients with SCF compared to control subjects. The findings point out, sLOX-1 may be contributed in the pathogenesis of coronary slow flow.

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Risk Factors and Distribution of Coronary Artery Disease in Young Patients with ST-Elevation Myocardial Infarction
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Background: Coronary artery disease (CAD) is the most common cause of death in the world. An estimated 6% to 10% of myocardial infarction occurs in patients under the age of 45. Atherosclerosis is the main cause. In the present study, we investigated the age, sex and distribution of coronary artery lesions, under 45 years old, among 141 patients admitted to our hospital with ST-elevation myocardial infarction (STEMI).

Methods: We reviewed 141 patients treated with primary angioplasty for STEMI aged 45 or less. The demographic information and the risk factors for the cases were recorded, primary PCI results were analyzed. For this purpose, fasting blood glucose, lipid panel, D-dimer, hs-CRP, homocysteine, blood pressure and body mass index were measured.

Results: The average age of the patients was 38.3±4.6 years. These patients were predominantly male (87.9%). 57% anterior, 41% inferior and 2% isolated posterior myocardial infarction (MI) were recorded. Cigarette smoking was present in 82% of patients. Low HDL (female <50 mg/dl, male <40 mg/dl), hyperfibrinogenemia (>150 mg/dl), high LDL (>130 mg/dl) and family history respectively 66%, 52%, 38% and 25% were common risk factors. 43% of patients were overweight (BMI >25 kg/m²) and 30% of patients were obese (BMI >30 kg/m²) (Figure 1). Ratio of the patients with hypertension and diabetes mellitus (13% and 11%, respectively) were lower. Blood levels of hsCRP (>1 mg/L), homocysteine (>13.9 mmol/L), D-dimer (>232 ng/ml) and fibrinogen (>380 mg/dl) were elevated in 56%, 59%, 40% and 34% of the patients, respectively. 66% of patients have single vessel disease. The most common vessel was the left anterior descending artery (51%) and then circumflex artery involvement was detected (27%) among the patients (Figure 2).

Conclusions: Smoking is the most important risk factor for CAD in young patients with STEMI. In addition, atherogenic dyslipidemia and obesity are the second and third most frequent risk factors in our study. Atherogenic dyslipidemia, obesity and smoking effect synergistically on the development of coronary atherosclerosis especially in young patients with familial predisposition. All above-mentioned risk factors take a role synergistically on the development of CAD, especially in young patients with familial predisposition.