OP-073
The clinical usefulness of Carotid Ultrasonography in Patients with an Inconclusive Exercise Treadmill Stress Test Result
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Background: Although an exercise electrocardiogram test is often the first-line screening procedure for subjects with an intermediate probability of coronary artery disease (CAD), one limitation of this test is the high rate of inconclusive tests that result from borderline exercise-induced ST changes. The carotid intima-media thickness (CIMT) correlates well with atherosclerosis. The purpose of this study was to evaluate the clinical usefulness of performing CIMT measurements in patients with an inconclusive stress test.

Methods: Symptomatic patients without history of vascular disease and with inconclusive exercise treadmill test result were included. Inconclusive result defined as the presence of horizontal or downsloping ST-segment depression between 0.5-0.9 mm or 1.0-1.4 mm upsloping ST-segment depression. After inconclusive EST regarding electrocardiographic changes, the measurements of the CIMT and myocardial perfusion imaging study (MPS) were performed in all patients. The intima-media thickness was measured at the posterior wall of the common carotid artery. The diagnosis of CAD was based on the presence of reversible perfusion defects on exercise MPS.

Results: A 87 patients (57 men) with a mean age of 58.9±7.2 years were enrolled. The MPS was positive in 18 patients. The intima-media thickness of the common carotid arteries in patients with MPS positive was significantly greater than in patients with MPS negative. The intima-media thickness was 0.82±0.33 mm in patients with MPS positive and 0.63±0.21 mm in patients with MPS negative (p=0.004). ROC curve analyses revealed that the greatest specificity was obtained when the cut-off value of CIMT was set at 0.66 mm (sensitivity 39%; specificity 72.5%; positive predictive value 27%; negative predictive value 82%).

Conclusion: In patients with an inconclusive electrocardiographic changes during EST, CIMT was a useful tool to prevent alternative more expensive and invasive tests. Additionally, mean CIMT is useful for screening patients with an inconclusive EST result to determine CAD.

OP-074
The Association between Coronary Atherosclerotic Burden and Asymmetric Dimethylarginine, Carotis Intima Media Thickness and Endothelial Function
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Introduction: Coronary artery disease (CAD) is one of the most common causes of death in western world. Thus, detection of extend and severity of atherosclerosis with easy, noninvasive methods are of high importance. Atherosclerotic burden could be evaluated with Gensini scoring system (GSS). Carotis intima media thickness (CIMT), plasma asymmetric dimethyl arginine (ADMA) level, and endothelial dysfunction are well known surrogate markers of atherosclerosis. Aim of this study was to evaluate the relationship between the atherosclerotic burden determined by the GSS and ADMA, CIMT and endothelial function.

Methods: Consecutive patients who had undergone coronary angiography were evaluated. 50 patients with acute coronary syndrome (ACS), 50 patients with stable coronary artery disease (SCA), and 50 patients with normal coronary arteries (NCA) included. All subjects’ GSS, ADMA, CIMT and endothelial functions were evaluated and compared.

Results: GSS was higher in ACS group than SCA group (75.4, 54.9 respectively; p<0.001) (figure 1). CIMT was higher in ACS and SCA groups in compared to NCA group (0.98, 0.96, 0.78 mm respectively; p<0.001) (figure 2). However the difference between the ACS and SCA groups was not significant (p=0.22). Endothelium derived vasodilatory response (EDVR) was decreased in ACS and SCA groups in compared to NCA group (3.5±2.1%, 3.3±1.8%, 7.2±3.5% respectively; p<0.001) (figure 3). However the difference between the ACS and SCA groups was not significant (p=0.33). Nitroglycerine derived vasodilatory response (NDVR) was also decreased in ACS and SCA groups in compared to NCA group (4.3±2.1%, 4.5±2.3%, 8.2±3.7% respectively; p<0.001). However the difference between the ACS and SCA groups was not significant (p=0.43). Plasma ADMA concentration was higher in ACS and SCA groups in compared to NCA group (0.928, 0.992, 0.475 µmol/l respectively; p<0.001) (figure 4). However there was no difference between ACS and SCA groups (p=0.31). There was a weak positive correlation between GSS and plasma ADMA levels (r=0.293; p=0.002) (figure 5a), an intermediate positive correlation between GSS and CIMT (r=0.508; p<0.001) (figure 5b), an intermediate negative correlations between GSS and EDVR (r=-0.662; p<0.001) (figure 5c) and NDVR (r=-0.546; p=0.001).

Conclusion: This study showed that; CIMT, ADMA concentration and endothelial dysfunction were significantly associated with CAD and correlated with atherosclerotic burden. However only GSS was significantly different between ACS and SCA groups. These results support the data in literature.
Influence of Regular Blood Donation Onto Flow Mediated Vasodilatation
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Background: Blood donation might improve vascular function. In this study, we aimed to search whether regular blood donation can improve flow mediated arterial vasodilatation or not in healthy adult males.

Methods: 50 consecutive adult male participants without overt cardiovascular disease, who did not donate blood within the last 6 months, were enrolled into the study. Patients with hypertension, diabetes mellitus, chronic inflammatory diseases were not included. Regular blood donation was defined as consecutive blood donation of more than two with intervals exceeding two months but less than three months. All participants accepted to donate blood to the blood bank of our hospital for at least three times with two-three months intervals. Flow mediated vasodilatation (FMD) was measured through the contralateral brachial artery before the initiation of regular blood donation, 1 month after each donation by an experienced author, blinded to study plan. Images were obtained at rest, during reactive hyperemia, induced by ischemia of forearm for 5 minutes. One year after the completion of the active phase of the study, all participants were contacted again, and were asked for continuation of blood donation habit. 21 participants stated that they stopped blood donation completely after the end of the study. These 21 participants were invited for a control visit including FMD evaluation again. All these 21 participants were still keeping similar attitudes at the time of control visit.Plus, hs-CRP was measured before, 3 days after and 1 month after the first blood donation (n=50), and also in participants who accepted the follow up visit (n=21).

Results: Mean age of the participants was 29.7±5.6 years. 49 out of 50 were current smokers. Blood donation improved FMD steadily and significantly as compared to baseline (mean:10.25% vs 10.44% vs 10.88%, p=0.039, p=0.003, p=0.001, Figure 1). Furthermore, percent improvement in FMD (with regard to donation state after the last donation and basal state) was negatively correlated with p<0.001, Figure 1). Furthermore, percent improvement in FMD (with regard to donation state after the last donation and basal state) was negatively correlated with p<0.039, p<0.003, p<0.009). In accordance with this, hs-CRP steadily decreased as compared to baseline (mean:2.41 mg/L vs 2.03 mg/L vs 1.95 mg/L, p=0.154, p=0.085, Figure 2). Furthermore, after follow up, it was found to return to baseline level again (mean:2.44 mg/L).

Conclusion: It was shown that regular blood donation improves FMD in healthy adult males. On the other hand, discontinuation of blood donation seems to unshackle progressive decline of FMD.