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Carotid Intima-Media Thickness and Ankle-Brachial Index as Predictors of the Severity of Coronary Artery Disease

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Abstract : Introduction: Atherosclerosis is one of the leading causes of death all over the world. Recently, there is an increasing interest in Carotid Intima-Medial Thickness (CIMT) and Ankle Brachial Index (ABI) as non-invasive tools for identifying subclinical atherosclerosis. We aim to examine the role of CIMT and ABI as predictors of the severity of angiographically documented coronary artery disease (CAD). Methods: A cross-sectional study conducted on 60 patients who were investigated by coronary angiography at Sohag University Hospital, Egypt. CIMT: After the carotid arteries were located by transverse scans, the probe was rotated 90 ° to obtain and record longitudinal images of bilateral carotid arteries ABI: Each patient was evaluated in the supine position after resting for 5 min. ABI was measured in each leg using a Doppler Ultrasound while the patient remained in the same position. The lowest ABI obtained for either leg was taken as the ABI measurement for the patient. Results: Patients with carotid mean IMT ≥ 0.9 mm had significantly more severe coronary artery disease than patients without thickening (mean IMT > 0.9 mm). Similarly, patients with low ABI (< 0.9) had significantly more severe coronary artery disease than patients with ABI ≥ 0.9. When the patients were divided into 4 groups (group A, n = 15, mean IMT < 0.9 mm, ABI ≥ 0.9; group B, n = 25, mean IMT < 0.9 mm, low ABI; group C, n = 5, mean IMT ≥ 0.9 mm, ABI ≥ 0.9; group D, n = 19, mean IMT ≤ 0.9 mm, low ABI), the presence of significant coronary stenosis (> 50%) of the groups were significantly different (group A, n = 5: (33.3%); group B, n = 11: (52.4%); group C, n = 4: (60%); group D, n=15, (78.9%), P = 0.001). Conclusion: CIMT and ABI provide useful information on the severity of CAD. Early and aggressive intervention should be considered in patients with CAD and abnormalities in one or both of these non-invasive modalities.

Keywords : ankle brachial index, carotid intima media thickness, coronary artery disease, predictors of severity
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