Predictors of Common Carotid Artery Intima-Media Thickness and Atherosclerosis in a Sample of Iranian General Population

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Abstract

Background: Measurement of common carotid artery intima–media thickness (IMT) is considered a safe, inexpensive, precise and reproducible measure of atherosclerosis. It is also considered an early predictor of vascular events such as cerebrovascular and cardiovascular complications.

Objectives: This study aimed to determine the predictors of common carotid Intima-Media Thickness (IMT) and cardiovascular risk factors in a sample of Iranian general population.

Patients and Methods: This cross-sectional study was performed on a randomly selected sample of Iranian general population in Shiraz, southern Iran, during a 10-month period from November 2010 to September 2011. All patients underwent anthropometric and blood pressure measurements and medical history assessment and physical examination were also performed. Laboratory measurements included Fasting Blood Glucose (FBS), lipid profile, Complete Blood Count (CBC) and thyroid hormones. Moreover, IMT was measured in the subjects with a cut-off point of 0.8 mm and its correlation with other risk factors was assessed.

Results: From a total of 777 eligible subjects included in the study, 326 cases (42%) were male and 451 (58%) were female with the mean age of 42.64 ± 13.89 (ranging from 18 to 88) years. Overall, 78 (10.1%) subjects had hypertension, 51 (6.5%) were diabetic and 158 (20.3%) had metabolic syndrome. Moreover, IMT was found to be normal in 605 (77.9%) subjects while 172 (22.1%) subjects had thick IMT. Patients with IMT thicker than 0.8 mm were significantly older (P < 0.001) and had a higher prevalence of hypertension (P < 0.001), Diabetes Mellitus (DM) (P = 0.016), smoking (P = 0.002), higher levels of Triglyceride (TG) (P = 0.022), higher Body Mass Index (BMI) (P = 0.005) and larger waist circumference (P < 0.001). Thicker IMT was associated with higher risk of metabolic syndrome (P = 0.008). Women had also a higher prevalence of thick IMT compared to men (50.6% vs. 49.4%; P = 0.027).

Conclusions: The prevalence rates of cardiovascular risk factors as well as metabolic syndrome are relatively high in our region. Intima-media thickness is affected by age, hypertension, DM, smoking, BMI, waist circumference and TG levels and is an appropriate predictor of atherosclerosis. Appropriate policies and actions should be undertaken to prevent the cardiovascular events in our regions.