Abstract

Background Carotid atheromatosis is an early manifestation of subclinical atherosclerosis that can be determined in a rapid, economic, repeatable and non-invasive fashion. The anatomic correlation and its association with risk factors and different manifestations of advanced atherosclerosis have been clearly demonstrated. The determination of the intima-media thickness and the presence and type of plaques in the carotid bulb are used to assess carotid atheromatosis in patients with risk factors and to evaluate response to treatment, as this method has an independent predictive value for ischemic coronary and cerebrovascular ischemic events. Objectives To determine whether the presence and type of carotid plaques (CPs) add any information to predict future cardiovascular events in high-risk patients. Material and Methods A total of 502 high-risk patients (with multiple risk factors or history of vascular event) underwent ultrasound evaluation of maximum intima-media thickness (IMTmax), presence (localized protrusion of the vessel wall) and type of (fibrocalcific plaque or fibrolipid plaque) CP, flow mediated dilation of the brachial artery (FMD, brachial artery diameter recorded at baseline and after 5 minutes of brachial ischemia). The following variables were considered abnormal: presence and type of CP, IMTmax >1.1 and FMD <5%. Endpoints included vascular events or mortality. Markers of vascular disease and traditional risk factors (RFs) (age, diabetes, hypertension, dyslipemia, smoking habits and components of the metabolic syndrome) were analyzed together using Cox proportional-hazards regression model and Kaplan-Meier curves. Results Mean age was 65.5±8.8 years and 354 were men; 43 events occurred during an average follow-up of 21 months. The presence of CP (RR 5.6; p <0.001), dyslipemia (RR 5.5; p <0.005), IMTmax (RR 3.2; p <0.005), age > 65 years (RR 2.7; p <0.003), systolic hypertension (RR 2.5; p <0.025), HDL-C <50 mg/dl (RR 2.4; p <0.01), metabolic syndrome (RR 2.2; p <0.02), and triglyceride levels >130 mg/dl (RR 2.1; p <0.02) were predictors of events. After adjusting for RFs, PC was the most powerful predictor (RR 3.13; p <0.05). The incidence of events was 2.3% in the absence of CP, 8.8% with fibrolipid plaque, and 13.4% with fibrocalcific plaque p <0.001. Conclusions The presence and type of CP and IMTmax are markers of early vascular disease providing prognostic information independent of RFs. FMD did not provide additional information in this group. This simple, non-invasive method may be clinically useful in the evaluation of the risk of vascular events.
Keywords

Endothelium - Atherosclerosis - Risk Factors - Prognosis.