APOLIPOPROTEINS-CORRELATION WITH CAROTID INTIMA-MEDIA THICKNESS AND CORONARY ARTERY DISEASE

I. Vladimirova-Kito, High Medical Institute, Plovdiv, Bulgaria

Lower levels of plasma apolipoprotein A-I (Apo-A-I) and higher levels of ApoB, and the ratio of ApoB:Apo-A-I are considered to be independent risk factors for coronary heart disease. Carotid intima-media thickness (CIMT) is considered as a marker of atherosclerosis and in prediction of clinical coronary events. Aim of this study is to correlate the apoP levels with coronary artery disease (CAD) and their impact on arterial thickening utilizing the CIMT in a surrogate marker.

Methods: Traditional lipid profile, apo A-I and B and CIMT with a B-mode scan were measured in 119 patients recruited for the study (age group 38-64years), which included 63 male and 56 females. Mean of maximal CIMT exceeding 0.8 mm at the far wall of the common carotid artery, excluding plaques, was used for comparison. Several previous subjects had evidence for CAD as diagnosed by documented hospitalization/myocardial infarction, acute coronary syndrome, coronary angiography when feasible. Prevalence of subjects with increased IMT was higher among subjects with ApoB/Apo-A-I ratio exceeding one compared to those with a ratio less than one (30.6% vs 16.5%, p=0.005). Prevalence of CAD was significant high among subjects with ApoB/Apo-A-I ratio exceeding one as compared to those with a ratio less than one (53.7% vs 30.3%, p=0.002). Subjects with apoB: apo-A-I ratio exceeding one and CIMT more than 0.8 mm had 2.7-fold prevalence for CAD as against those with a ratio less than one and IMT less than 0.8 mm. We conclude that ApoB to Apo-A-I ratio shows a strong association with CIMT and CAD and may play important role in addition to traditional risk factors.

FAMILIAR AGGREGATION OF CAROTID ARTERY INTIMA-MEDIA THICKNESS: A THREE-GENERATION STUDY

E.C. Oldani, A. Ravan1, M. Amato1, E. Tremoli1,2, J.P. Werba1, D. Baldassarre1,2,3, 1Caniologico Monza Center, IRCCS, Milan, Italy; 2Dept of Pharmacological Sciences, University of Milan, Milan, Italy

Objective: to investigate whether familial aggregation of carotid IMT is influenced by the subjects' age.

Methods: Twenty-four grandchild (14 men and 10 women), one of their parents (13 men and 11 women) and one of their grandparents (6 men and 18 women) were recruited. Each of them had their CIMT measured. Bif-DIMean, ICA-IMTmean and Mean-IMT measured by B-Mode ultrasound. Simple linear regression analysis by the least squares method was used to investigate correlations between carotid IMT in the young generational pairs (grandchild vs parents) as well as in the old generational pairs (parents vs grandparents). For each generational pairs, the squared correlation coefficient (r2) was used to evaluate the extent of offspring's carotid IMT variability explained by the carotid IMT of their respective parents.

Results: The mean age (±SD) of grandparents, parents and grandchildren was 77.3±6.8, 51.5±14.7 and 23.5±6.7, respectively. The corresponding figures for Mean-IMT was 1.45±0.25 mm, 0.94±0.22 mm and 0.63±0.10 mm, respectively. Mean carotid IMT variables of progenitors correlated with carotid IMT of their offspring in the young generational pairs (r2=0.24, p<0.015 for Mean-IMT; r2=0.51, p=0.003 for bif-DIMean) but not in the old generational pairs.

Conclusions: Familial aggregation of carotid IMT is better appreciable in the young generations compared to the higher prevalence of potential confounding environmental factors in the older generational pairs.

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CAROTID ARTERY INTIMA-MEDIA THICKNESS IN 65-100 YEARS OLD

H. Nakano, K. Watahke, K. Ohu, Division of Geriatric Medicine, Brinnko-Ka, Tokyo, Japan

Objective: The aim of this study is to investigate the relationship between carotid artery intima-media thickness (IMT) and risk factors with age up to 65 years old.

Methods: We studied 791 outpatients, aged 30 to 100 years. Subjects were divided into five groups by age: 30-54 yr group (A); 55-69 yr group (B); 70-84 yr group (C); 85-94 yr group (D); 95-100 yr group (E). Multiple regression analysis was used to IMT (dependent variable) and independent variables (age, sex, patient with diabetes, total cholesterol, systolic blood pressure, administration of statin).

Results: The systolic blood pressure was significantly increased and the diastolic blood pressure, serum cholesterol, and triglyceride were significantly decreased with age. There was a significant correlation between systolic and diastolic blood pressure. A significant correlation was found between serum total cholesterol and triglyceride. The mean IMT increased in a linear manner with age (r=0.27; p=0.001). On multiple regression analysis, age, sex, cholesterol, diabetes, and systolic blood pressure were significant predictors of IMT in 30-100yr group of age. In group A, B, and E, sex and total cholesterol were significant predictors of IMT. However, in group C, sex and systolic blood pressure were significant predictors of IMT. In group D, there was no significant predictor of IMT.

Conclusions: The present study indicated that IMT was not a single entity in the elderly. Especially in 65-84yr of age, different factors were affected to IMT compared to other aged group.

THE EFFECT OF AGE AND OTHER ATHEROSCLEROTIC RISK FACTORS ON CAROTID ARTERY BLOOD VELOCITY IN SUBJECTS RANGING FROM YOUNG ADULTS TO CENTENARIANS

B. Homma, T. Shooki, A. Zarche, J.P. Strong, 1Department of Internal Medicine, Tokyo Tama-Hokuba Medical Center, Higashi-Matsuyama, Tokyo, Japan; 2Department of Pathology, Louisiana State University Health Sciences Center, New Orleans, USA

Objectives and Methods: To evaluate the effect of age and other risk factors for atherosclerosis on arterial blood velocity, carotid arteries in 179 healthy subjects ranged from 21 to 102 years old were examined by color Doppler ultrasonography.

Results: Velocity in common carotid arteries (CCA) decreased significantly with age (Peak Velocity <m/sec> = 0.006*Age + 1.302; Minimum Velocity = -0.005*Age + 0.461). In internal carotid arteries (ICA), minimum velocity also decreased significantly with age = -0.002*Age + 0.348. In CCA, mean IMT at non-plaque sites correlated inversely with velocity. Although age was the only factor associated with decreased peak velocity in CCA in adults <65 years old (p=0.0106), peak CCA velocity in the elderly (65 years old) was inversely associated with age (p=0.0002) and diastolic blood pressure (DBP) (p=0.0025), and directly associated with pulse pressure (p=0.0087). In the elderly, minimum velocity of CCA was inversely correlated with age (p=0.001) and DBP (p=0.0021). In ICA, peak velocity correlated inversely with age (p=0.0325) in adults; however, in the elderly group, peak velocity correlated only with serum HDL-C (p=0.0369). Minimum ICA velocity correlated inversely with age in all age groups; it was also inversely correlated with systolic blood pressure in adults (p=0.0179) and DBP in elderly subjects (p=0.0689).

Conclusions: Blood velocities in carotid arteries decreased continuously with age. In elderly, increased pulse pressure possibly has a protective role for blood flow maintenance against slowing blood flow by aging; however, its effect should be limited.

SMOKING HABITS AS DETERMINANT OF CAROTID ARTERY IN PATIENTS IN PRIMARY AND SECONDARY PREVENTION


Caniologico Monza Center, IRCCS, Milan, Italy

Objective: To compare the contribution of smoking habit as determinant of carotid artery intima-media thickness (IMT) in patients symptomatic for vascular disease and asymptomatic controls.

Methods: Patients in secondary prevention (SP) were matched for gender and smoking habit with patients classified in primary prevention (PP) because free of vascular events even if ten years older (n=180 per group). In both groups there were 87 never-, 68 former- and 25 current-smokers.

Results: Years of smoking, cigarettes/day (cig/day) and pack-years corre-
Tu-P9-337 RELATIONSHIP BETWEEN CARDIOVASCULAR GLOBAL RISK IN PRIMARY AND SECONDARY PREVENTION AND CAROTID ARTERY HARMONICA S. Castelnuovo1, B. Frigerio1, G. De Giosa1, M. Amato2, E. Tremoli1, C.R. Sirioni1, D. Bolleassi1, 2 Dept of Pharmaceutical Sciences, Univ. of Milan, Milan, Italy; 2Cardiologico Monza Centro IRCCS, Milan, Italy

Objective: To investigate whether the Framingham Risk Score (FRS) and the OISSI Risk Score (ORS), two algorithms useful to calculate the individual global risk in primary and secondary prevention, are associated with carotid artery intima media thickness (IMT) and IMT-progression, two parameters widely accepted as indexes of carotid and even coronary atherosclerosis.

Methods: 1259 asymptomatic and 262 symptomatic patients have been recruited to investigate the association between FRS, ORS and cross-sectional IMT. 404 patients with at least 5 years of follow-up (312 in primary and 92 in secondary prevention) were recruited to investigate the association between FRS, ORS and IMT-progression.

Results: While cross-sectional IMT significantly increases with the raising of quartiles of global risk of patients both in primary and secondary prevention (both p<0.0001; 4th vs 1st quartiles), IMT-progression is not associated with individual global risk neither in primary nor in secondary prevention.

Conclusions: FRS and ORS reflect the life-long, but not the short term, evolution of atherosclerotic disease.

Funding: This study had no specific funding source.

Tu-P9-338 FLOW-MEDIATED VASODILATATION OF THE BRACHIAL ARTERY AND INTIMA-MEDIA THICKNESS OF CAROTID ARTERY IN NEVER-TREATED SUBJECTS

C. Inacio1, M. Migale1, C. Cortese2, R. Fiorentino1, A. Gnasso1, 1Dept. of Clinical and Experimental Medicine, Magna Graecia University, Catanzaro, Italy; 2Dept. of Internal Medicine, University of Tor Vergata, Rome, Italy

Objective: Data on the association between brachial artery flow-mediated vasodilation (FMD) and common carotid intima-media thickness (IMT) are contrasting. The present study investigated the relationship between FMD and IMT and carotid atherosclerosis in never treated subjects.

Methods: Seventy-seven subjects were investigated: 46 had no coronary heart disease (CHD) risk factors, 21 had only one, and 10 had more than one risk factor. IMT was measured by ultrasonography and FMD was evaluated according to standardized methods.

Results: IMT increased with increasing number of risk factors (0.66±0.12, 0.69±0.12 and 0.80±0.17 mm, respectively. ANOVA p<0.05); FMD decreased with increasing number of risk factors (10.44 ±5.20, 6.52±2.11 and 7.35±4.24, respectively, p<0.05). Endothelium-independent vasodilatation was similar in the three groups. IMT and FMD did not correlate neither in subjects with nor in subjects without risk factors (r=0.151, p>0.05), nor in those with 1 (r=0.190, p=0.4) or with 2 or more risk factors (r=0.387, p>0.2), while in the group as a whole the correlation was borderline significant (r=0.217, p=0.058). Eleven subjects had carotid atherosclerosis and higher values of IMT, but not reduced FMD. In multiple regression analysis, diabetes and IMT, but not FMD, were associated with carotid atherosclerosis.

Conclusions: The present findings indicate that, in never treated subjects, FMD is not strictly associated with IMT or atherosclerosis of the carotid arteries.