Relationship between Age and Thickness of Carotid Arteries in a Population without Risk Factors for Atherosclerosis

Abstract. The intima-media thickness (IMT) of carotid arteries is a marker of subclinical atherosclerosis associated with risk factors for atherosclerosis and a predictor of vascular disease. The aim of the research was to determine the correlation of IMT and age, and above normal IMT values in healthy adults in Slavonia (eastern Croatia). The study included 275 subjects of both sexes, aged between 20 and 79, who had no clinical manifestations of vascular disease or presence of major risk factors for atherosclerosis (hypertension, hypercholesterolemia, diabetes mellitus, cigarette smoking). Ultrasonic measurement of IMT in the B-mode was performed on far walls of the carotid arteries on both sides at three locations (common and internal carotid artery, carotid bifurcation). At all three sites of measurement a high correlation between the IMT values and age was found in both sexes, including the maximum for IMT of carotid bifurcation (men r=0.92, women 0.91). Upper normal values (75th percentile) IMT of common carotid arteries were determined for the ten-year age groups. It is the same for both men and women in age groups both 20-29 and 30-39 (0.41, 0.46 mm). On the other hand, in age groups 40-49, 50-59, 60-69 and 70-79 upper normal values for men are 0.57, 0.62, 0.77 and 0.96 mm, and for women 0.50, 0.57, 0.71 and 0.81 mm. Our study in healthy adults in Slavonia (eastern Croatia) established a clear connection between carotid IMT and age, which implies a need for taking the age as an essential factor into account when conducting researches that involve the IMT.