

## VASCULAR AGING IN WOMEN

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Discrimination between the terms “vascular disease” and “vascular aging” is important for active health patrolling. Our aim was to explore the effect of age increase in women on arterial diameter change and beta stiffness index (beta index) as vascular parameters for potential use in further epidemiological studies. Investigation was conducted on 104 healthy volunteers (age range 25-75 years, average age  $50,43 \pm 14,52$  years, subdivided in 10 year age groups) with some risk factors for cerebrovascular disease: age, controlled hypertension (23,08 %), elevated body-mass index (BMI) (26,92 %) and smoking (19,23 %). Evaluated parameters were: intima-media thickness (IMT), circumferential arterial stiffness (CAS) and beta index on common carotid artery (CCA). Measurements were performed with 13 MHz linear transducer on Aloka 5500-SSD Prosound ultrasound platform in B and M modes using standard protocols. Linear regression was implemented for statistical evaluation. Measured IMT on the right CCA was  $0,46 \pm 0,10$  mm and on the left CCA  $0,49 \pm 0,12$  mm. Linear relationship between age increase and IMT increase was found:  $r^2=0,98$  (right CCA) and  $r^2=0,97$  (left CCA). Linear relationship was also found in beta stiffness analysis:  $y=0,1079x+1,081$ ,  $r^2=0,94$  (right CCA) and  $y=0,0609x+2,759$ ,  $r^2=0,79$  (left CCA). Increased carotid thickening, stiffness, systolic and pulse pressure values are a part of normal aging process i.e. vascular remodelling. Some of these changes have been identified in hypertensive individuals at an earlier age selecting those with early subclinical vascular disease. Linear relationship between beta index and age was confirmed suggesting yearly increase of 10,79 % on the right CCA and 6,09 % on the left CCA. Ultrasound could be used for determination of proper vascular age of women offering time window for retardation strategies of overt clinical manifestations of cerebrovascular disease. Further studies need to be performed to confirm these findings on both men and women.