Abstract

The basis of the doctoral thesis consists of three studies focused on the diagnosis of carotid stenosis. The first study examines the histological structure of carotid plaques and their relationship to clinical manifestations. The study included 269 patients with 280 analyzed plaques. Multiple logistic regression demonstrated a significant association between symptomatic stenosis and foam cells (OR=1.9, p=0.03) as well as plaque thrombosis (OR=3.5, p=0.02). A significant correlation was also found between symptomatic plaque and unstable plaque according to the comprehensive AHA plaque classification (OR=1.8, p=0.03).The second study addresses the accuracy of carotid stenosis diagnosis using digital subtraction angiography (DSA). Carotid stenosis was measured on DSA and histologically processed plaques obtained during carotid endarterectomy in 644 patients. The study did not establish a correlation between the findings on the histological plaque and DSA (correlation coefficient of 0.22 for ECST and 0.20 for NASCET). The last study focuses on the analysis of the biomarker of oxidative stress (malondialdehyde, MDA) as a predictor of unstable carotid plaques. The study involved 35 patients. Patients with asymptomatic carotid stenosis and those who experienced amaurosis fugax had significantly lower levels of MDA compared to patients after ischemic stroke (p=0.002). This study highlights the effectiveness of MDA as a biomarker for high-risk carotid plaques.

Key words: Carotid Stenosis, Carotid Artery Plauqe, Biomarkers, Digital Subtraction Angiography, Histology