Effect of Stenting on the Near-Infrared Spectroscopy-Derived Lipid Core Burden Index of Carotid Artery Plaque.

MUDr. Cyril Štěchovský, 
Department of Cardiology

Abstract

AIMS: Catheter-based intravascular near-infrared spectroscopy (NIRS) detects a lipid signal from atherosclerotic plaque. The aim of this study was to describe the effect of carotid artery stenting (CAS) on the lipid signal in a carotid stenosis.

METHODS AND RESULTS: We performed NIRS combined with intravascular ultrasound (IVUS) during 120 CAS procedures. Minimal luminal area (MLA) and plaque burden (PB) at the site of MLA were measured with IVUS and lipid core burden index (LCBI), maximal LCBI in a 4-mm segment of the artery (LCBI_{max}) and LCBI in a 4-mm segment at the site of MLA (LCBImla) with NIRS-derived chemograms. NIRS-IVUS imaging was
performed at baseline, after stent implantation and after balloon postdilatation. The most common lesion type was the fibrocalcific plaque (76%). Lipid-rich plaque (LCBI_{max} \geq 400) was present in 33% of carotid stenoses and in 20% at the site of MLA. Median MLA increased significantly from baseline to stent implantation (3.63 mm\textsuperscript{2} to 5.56 mm\textsuperscript{2}, P<0.001) and to postdilatation (5.56 mm\textsuperscript{2} to 12.03 mm\textsuperscript{2}, P<0.001). Median LCBI, LCBI_{max} and LCBI_{mla} significantly decreased from baseline to stent implantation: LCBI (60 to 8, P<0.001), LCBI_{max} (294 to 60, P<0.001) and LCBI_{mla} (124 to 0, P<0.001). Postdilatation of the stent had no further significant effect on median LCBI (8 to 5, P=0.890), LCBI_{max} (60 to 50, P=0.690) and LCBI_{mla} (0 to 0, P=0.438).

CONCLUSIONS: Carotid artery stenting significantly reduced the NIRS-derived lipid core burden index at the stented segment.


Source URL (modified on 28. 1. 2019 - 9:28):