Predicting Future Cardiovascular events by Lipid Core Burden index.(LCBI)

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Vulnerable coronary plaques, particularly those rich in lipid content, are major contributors to acute coronary syndromes. The Lipid Core Burden Index (LCBI), derived from near-infrared spectroscopy (NIRS), has emerged as a promising biomarker for identifying patients at risk of major adverse cardiovascular events (MACE). This study evaluated the prognostic utility of NIRS-derived LCBI in predicting MACE among patients undergoing coronary angiography.Methods:In a prospective study, 100 patients undergoing coronary catheterization were assessed using NIRS-intravascular ultrasound (IVUS). Non-culprit lesions were imaged, and the maximum LCBI was recorded. Patients were stratified into high-risk (LCBI more than 400) and low-risk (LCBI less than 400) groups. The primary endpoint was the incidence of cardiac death, myocardial infarction, or unplanned revascularization at 12 months. Kaplan Meier analysis and Cox regression were used for outcome comparison and risk adjustment.Results:Among 100 patients (mean age 64 years; 72% male), 23% had non-culprit plaques with LCBI more than 400. At 12-month follow-up, MACE occurred more frequently in the high-LCBI group compared to the low-LCBI group (11.2% vs. 4.2%; p 0.001). After adjusting for conventional risk factors and stenosis severity, LCBI more than 400 remained an independent predictor of MACE (adjusted HR 3.6; 95% CI 2.1 6.2; p 0.001). Notably, most events arose from lesions with less than 70% angiographic stenosis.Conclusion:NIRS-derived LCBI is a strong, independent predictor of MACE. An LCBI more than 400 identifies high-risk plaques often overlooked by angiography, supporting the role of NIRS imaging in enhancing risk stratification and guiding preventive strategies