Unrecognized myocardial infarction and cardiac biochemical markers in patients with stable coronary artery disease

av

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Akademisk avhandling

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Abstract

Aim: The overarching aim of the thesis was to explore the occurrence and clinical importance of two manifestations of myocardial injury; unrecognized myocardial injury (UMI) and altered levels of cardiac biochemical markers in patients with stable coronary artery disease (CAD).

Methods: A prospective multicenter cohort study investigated the prevalence, localization, size, and prognostic implication of UMI in 235 patients with stable CAD. Late gadolinium enhancement cardiovascular magnetic resonance (LGE-CMR) imaging and coronary angiography were used. The relationship between UMI and severe CAD and cardiac biochemical markers was explored. In a substudy the short- and long-term individual variation in cardiac troponins I and T (cTnI, cTnT) and N-terminal pro-B-type natriuretic peptide (NT-proBNP) were investigated.

Results: The prevalence of UMI was 25%. Subjects with severe CAD were significantly more likely to exhibit UMI than subjects without CAD. There was a strong association between stenosis ≥70% and presence of UMI in the myocardial segments downstream. The presence of UMI was associated with a significant threefold risk of adverse events during follow up. After adjustments UMI was associated with a non-significant numerically doubled risk. The levels of cTnI, NT-proBNP, and Galectin-3 were associated with the presence of UMI in univariate analyses. The association between levels of cTnI and presence of UMI remained significant after adjustment. The individual variation in cTnI, cTnT, and NT-proBNP in subjects with stable CAD appeared similar to the biological variation in healthy individuals.

Conclusions: UMI is common and is associated with significant CAD, levels of biochemical markers, and an increased risk for adverse events. A change of >50% is required for a reliable short-term change in cardiac troponins, and a rise of >76% or a fall of >43% is required to detect a long-term reliable change in NT-proBNP.

Keywords: Unrecognized myocardial infarction, Coronary artery disease, Prevalence, Prognosis, Troponin, NT-proBNP, Galectin-3

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