



PHARMACOLOGICAL MANAGEMENT ISSUES IN THE POST-RECANALIZATION PERIOD OF ACUTE MYOCARDIAL INFARCTION

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Acute myocardial infarction (AMI) remains a leading global cause of morbidity and mortality, despite continuous progress in interventional and medical cardiology. Early recanalization through percutaneous coronary intervention (PCI) or thrombolysis has revolutionized survival outcomes by restoring coronary blood flow and limiting myocardial necrosis. However, the reopening of an artery does not always correspond to full myocardial recovery. The post-recanalization period is a dynamic phase characterized by oxidative stress, calcium overload, mitochondrial dysfunction, endothelial injury, and sterile inflammation. These processes initiate microvascular obstruction, trigger maladaptive left ventricular remodeling, and eventually lead to progressive heart failure. Pharmacological therapy in this stage aims to preserve viable myocardium, limit structural damage, and prevent recurrent ischemic events. Dual antiplatelet therapy - aspirin combined with a P2Y₁₂ inhibitor such as clopidogrel, ticagrelor, or prasugrel remains the cornerstone for thrombosis prevention. Beta-blockers reduce myocardial oxygen consumption and arrhythmic burden, while ACE inhibitors and angiotensin receptor blockers (ARBs) counteract ventricular dilation and neurohormonal activation. Angiotensin receptor-neprilysin inhibitors (ARNIs) further improve cardiac remodeling and clinical outcomes. Statins and PCSK9 inhibitors provide intensive lipid lowering and plaque stabilization, playing a pivotal role in secondary prevention. Inflammation control has emerged as a new therapeutic target. Low-dose colchicine and IL-1 β inhibitors have demonstrated reductions in systemic inflammation and recurrent myocardial infarction rates. Tight management of comorbidities such as diabetes, hypertension, and chronic kidney disease further enhances survival. Close follow-up with echocardiographic and biomarker assessment allows early detection of remodeling and optimization of therapy. A multidisciplinary and patient-centered approach combining timely reperfusion, evidence-based pharmacotherapy, and lifestyle modification defines the modern standard of care in post-infarction management. Understanding the biological continuum from reperfusion injury to fibrotic remodeling offers novel therapeutic opportunities to preserve myocardial integrity and improve long-term outcomes. The paradigm is shifting from merely reopening arteries to genuinely restoring myocardial health and improving overall clinical effectiveness through integrated, mechanism-driven care.

Keywords: Acute myocardial infarction, reperfusion injury, remodeling, inflammation, pharmacotherapy.