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Echocardiographic assessment of ischemic mitral regurgitation, mechanism, severity, impact on treatment strategy and long term outcome

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Introduction: Due to the large number of patients with acute MI, the incidence of ischemic MR is also high. Ischemic mitral regurgitation is a complex multifactorial disease that involves left ventricular geometry, the mitral annulus and the valvular/subvalvular apparatus. Ischemic mitral regurgitation is an important consequence of LV remodeling after myocardial infarction. Echocardiographic diagnosis and assessment of ischemic mitral regurgitation are critical to gauge its adverse effects on prognosis and to attempt to tailor rational treatment strategy.

Aim: The objective of this study is to determine the role of echocardiography in detecting and assessment of mitral regurgitation mechanism, severity, impact on treatment strategy and long term outcome in patients with myocardial infarction during the follow up period of five years.

Methods: The study covered 138 adult patients. All patients were subjected to echocardiography evaluation after acute myocardial infarction during the period of follow up for five years. We evaluated mechanisms and severity of mitral regurgitation which includes the regurgitant volume (RV), effective regurgitant orifice area (EROA), the regurgitant fraction (RF), Jet/LA area, also we measured vena contracta width (VC width cm) for assessment of IMR severity, papillary muscles anatomy and displacement, LV systolic function±dilation, LV regional wall motion abnormality WMA, LV WMI, left ventricle LV remodeling, impact on treatment strategy and long term mortality.

Results: We analyzed and follow up 138 patients with previous (>16 days) Q-wave myocardial infarction by ECG who underwent TTE and TEE echocardiography for detection and assessment of ischemic mitral regurgitation (IMR) with baseline age (62±9), ejection fraction (EF 41±12%), the regurgitant volume (RV) were 42±21 mL/beat, and effective regurgitant orifice area (EROA) 20±16 mm^2, the regurgitant fraction (RF) were 48±10%, Jet/LA area 47±12%. We measured vena contracta width (VC width cm) 0.4±0.6 for assessment of IMR severity. During five years follow up, total mortality for patients with moderate/severe IMR-grade II-IV (54.2±1.8%) were higher than for those with mild IMR-grade I (30.4±2.9%) (P<0.05), the total mortality for patients with EROA≥20 mm^2 (54±1.9%) were higher than for those with EROA <20 mm^2 (27.2±2.7%) (P<0.05), and the total mortality for patients with RVol ≥30 mL (56.8±1.7%) were higher than for those with RVol<30ml (29.4±2.9%) (P<0.05).

Conclusion: The ischaemic mitral regurgitation has many specific features which differentiates it from organic regurgitations. The presence of ischemic MR is associated with increased morbidity and mortality disease. It is important that echocardiographers understand the complex nature of the condition. Despite remarkable progress in reparative surgery, further investigation is still necessary to find the best approach to treat ischemic mitral regurgitation.

Biography

Nabil Naser has completed his graduation at University of Sarajevo. He completed his PhD and Doctoral thesis entitled "The role and importance of dobutamine stress echocardiography in the detection and evaluation of coronary artery disease in comparison with coronary angiography". He is a member of Association of Cardiologists BiH, member of European Society of Cardiology and European Cardiologist- EBSCO. He is a Fellow of European Society of Cardiology. He is an Associate Professor at Medical School of University of Sarajevo and responsible Teacher for elective course Emergencies in Cardiology. As an Author and Co-author, he published over 50 scientific papers. He is a Journal Reviewer for *Medical Archives and Bosnian Journal of Basic Medical Siences (BJBJS)*.

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