



The Egyptian Society of Chest Diseases and Tuberculosis
Egyptian Journal of Chest Diseases and Tuberculosis

www.elsevier.com/locate/ejcdt
www.sciencedirect.com



ORIGINAL ARTICLE

Assessment of left ventricular long axis contraction in patients with ischemic mitral regurgitation after acute myocardial infarction

Ayman Ahmed Abdelaziz^{*}, Eid M. Daoud¹

Cardiology Department, Mansoura Faculty of Medicine, Mansoura University, Egypt

Received 31 December 2013; accepted 21 January 2014

Available online 7 February 2014

KEYWORDS

Myocardial infarction;
Ischemic mitral regurgitation;
Mitral annular plane systolic excursion;
Longitudinal function

Abstract *Introduction:* The development of ischemic mitral regurgitation (IMR) after myocardial infarction (MI) may impose hemodynamic load during a period of active left ventricular remodeling and promote heart failure (HF). The aim of our study was to evaluate left ventricular (LV) long axis contraction assessed by both mitral annular plane systolic excursion (MAPSE) and peak systolic velocity (Sa) in patients with ischemic MR after acute MI.

Methods: Thirty-eight patients with a first attack of acute MI were classified into two groups. Group I comprised 18 patients with MI and ischemic MR, and group II comprised 20 patients with MI without IMR. Twenty age-matched subjects were considered as the control group (group III). Measurement of MAPSE from M-mode tracing of the mitral annulus in apical 4- and 2-chamber view, and pulsed wave tissue Doppler imaging (PW-TDI) of the 4 sides of the mitral annulus for assessment of the Sa velocity were done.

Results: A significant decrease of MAPSE was observed in 4 sides in patients with acute MI with IMR compared to MI without IMR and control group ($P < 0.05$). Peak systolic velocity (Sa) in septal, anterior, and inferior sides of mitral annulus was significantly decreased in MI patients compared to control group ($P < 0.05$). A significant correlation between MAPSE on anterior side of mitral annulus and LV ejection fraction ($P < 0.001$) in patients with ischemic MR after acute MI was found.

^{*} Corresponding author. Tel.: +20 02502374373, mobile: +20 0021117787833.

E-mail addresses: aaaene@yahoo.com (A.A. Abdelaziz), eid_daoud@yahoo.com (E.M. Daoud).

¹ Mobile: +20 0021226355634.

Peer review under responsibility of The Egyptian Society of Chest Diseases and Tuberculosis.



Production and hosting by Elsevier

Conclusion: Mitral annular plane systolic excursion is a useful and superior parameter over peak Sa for assessment of longitudinal LV function in patients with ischemic MR after MI.

© 2014 The Egyptian Society of Chest Diseases and Tuberculosis. Production and hosting by Elsevier
B.V. Open access under [CC BY-NC-ND license](#).

Introduction

The association between ischemic mitral regurgitation (IMR) either secondary or functional and poor prognosis in relation to morbidity and mortality after myocardial infarction (MI), chronic heart failure, percutaneous or surgical revascularization is well known [1].

Expansion of infarcted tissue begins acutely after MI. A more gradual remodeling process, however also involves the non infarcted areas [2]. Myocardial infarction causes MR by altering ventricular geometry and function [3]. Ischemic MR doubles the risk of death after MI [4].

It has been well recognized that LV systolic function is a major predictor of outcome after acute MI [5]. Assessment of LV ejection fraction (LVEF) after MI is difficult because of poor endocardial border definition and is often time consuming and poorly reproducible [6]. Wall motion score index (WMSI) is an alternative to LVEF which also reflects regional systolic function. However, the assessment of WMSI is semi-quantitative and experience dependent [7].

Mitral annular velocities can readily be recorded by pulsed wave TDI after MI. The reduced peak systolic velocity seems to be an expression of regionally reduced systolic function and correlates well with LVEF [8]. Using the ratio of early trans-mitral flow velocity to the early mitral annular velocity (E/e), a close approximation of LV filling pressure can be obtained in wide spectrum of patients [9]. The E/e is superior to other echocardiographic indices in this respect [10]. After acute MI, an elevated E/e ratio predicts higher mortality and an increased risk of adverse remodeling [11].

Mitral annular plane systolic excursion (MAPSE) has been considered a reliable method for the assessment of LV longitudinal function and correlates with global systolic function of the LV [12].

Aim of the work

The aim of our study was to evaluate left ventricular (LV) long axis contraction assessed by both MAPSE and peak Sa in patients with ischemic MR after acute MI.

Patients and methods

Study population

The study test group comprised 38 patients with a first acute MI admitted to coronary care unit in Mansoura Specialized Hospital, Mansoura University, in the period between March 2012 and February 2013.

Patients included in this study were subsequently classified into two main groups according to the presence of MR clinically and by echocardiography.

Group I: comprised 18 patients with acute MI and ischemic MR, mean age 64.2 years (11 males and 7 females).

Group II: comprised 20 patients with acute MI without ischemic MR, mean age 60.9 years (14 males and 6 females).

The diagnosis of AMI was based on the detection of a rise and/or fall of cardiac biomarker values and with at least one of the following: Symptoms of ischemia, new or presumed new significant ST-segment changes, development of pathological Q waves in the ECG, imaging evidence of new loss of viable myocardium or new regional wall motion abnormality, and identification of an intracoronary thrombus by angiography [13]. All the patients were treated by thrombolysis (streptokinase 1,500,000 unit); none received primary percutaneous coronary intervention, which was not in routine use at our hospital.

Twenty age-matched subjects with no evidence of coronary artery disease were considered as the control group (group III).

An informed consent was taken from all the patients and the protocol was approved by our institute research plan.

Exclusion criteria

Patients with previous history of MI, chronic heart failure, valvular heart disease, atrial fibrillation, conduction abnormalities, and severe (more than grade II) MR were excluded from the study.

History and clinical examination

Patients and controls were subjected to:

(a) Thorough history taking with special stress on age, sex, ischemic chest pain, dyspnea, orthopnea, and risk factors for ischemic heart disease.

(b) Clinical examination including general examination for pulse, blood pressure, edema lower limb, congested neck veins. Local cardiac and chest examination for murmur of ischemic MR, gallop and bilateral basal rales.

Laboratory investigation

Routine laboratory investigation and cardiac enzymes were done for all patients.

Electrocardiography

Standard 12-lead ECG was analyzed for site and extent of MI.

Echocardiography

Patients and controls were examined at rest in supine left lateral decubitus positions using GE (vivid 3 pro) Norway using 2.5 MHz phased array transducer following the recommendation of the American Society of Echocardiography.

M-mode and two dimensional echocardiography was done for measurements of both LV and left atrial (LA) dimensions

Download English Version:

<https://daneshyari.com/en/article/3400364>

Download Persian Version:

<https://daneshyari.com/article/3400364>

[Daneshyari.com](https://daneshyari.com)