

**Mitral Valve Repair versus Replacement in
Patients with Ischemic Mitral Regurgitation,
a Comparative Study in a Sample of
Egyptian Patients**

Thesis

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List of Abbreviations

ACEi		Angiotensin-converting enzyme inhibitors
AMI		Anterior Myocardial Infarction
AML	.....	Anterior Mitral Leaflet
APM	.....	Antero-Lateral papillary muscle
ATA	.....	Anterior leaflet tethering angles
BSA	.....	Body Surface Area
CABG	.....	Carvedilol Post- Infarct Survival Controlled Evaluation
CIMR	.....	Chronic Ischemic mitral regurgitation
CPM	.....	Cardio-pulmonary bypass
CRT	.....	Cardiac Resynchronization Therapy
DD	.....	Diastolic dysfunction
Dp	.....	delta pressure
Dt	.....	delta time
EDD	.....	End Diastolic Dimension
EF	.....	Ejection Fraction
ERO	.....	Effective Regurgitant Orifice
ESD	.....	End Systolic Dimension
IABP	.....	Intra-aortic balloon pump
IMLC	.....	Incomplete mitral leaflet closure
IMR	.....	Ischemic mitral regurgitation
IPMD	.....	Interpapillary muscle distance
LA	.....	Left Atrial
LAD	.....	Left anterior descending
LIMA	.....	Left internal mamary artery
LV	.....	left ventricle
LVESD	.....	Left Ventricular End Systolic Dimension

LVESV	.....	Left Ventricular End Systolic Volume
MI	.....	myocardial infarction
MR	.....	Mitral regurgitation
MRI	.....	Magnetic Resonance Imaging
MV	.....	Mitral valve
MVA	.....	Mitral Valve Annuloplasty
MVR	.....	Mitral Valve Replacement
PM	.....	Papillary Muscle
PPM	.....	Posteromedial Papillary Muscle
PML	.....	Posterior mitral leaflet
PTA	.....	Posterior leaflet tethering angles
PTFE	.....	polytetrafluoroethylene.
PTMA	.....	Percutaneous transvenous mitral annuloplasty
RIME	.....	Randomized Ischemic Mitral Evaluation
RJA	.....	Regurgitant Jet Area
RV	.....	Regurgitation Volume
SAVE	.....	Survival And Ventricular Enlargement
STS	.....	Society of Thoracic Surgeons
SWMA	.....	Segmental Wall Motion abnormality
TA	.....	Tenting area
TEE	.....	Transoesophageal echocardiography
TH	.....	Tenting height
TTE	.....	Transthoracic echocardiography

Introduction

Ischemic mitral regurgitation (IMR) is a common (approximately 20%) complication after completed myocardial infarction (MI), which follows more frequently an inferior Myocardial Infarction (MI) (38%) rather than an antero-septal one (10%).¹

It has been associated with diminished survival compared with non ischemic mitral regurgitation. The increased mortality risk is independent of the severity of left ventricular (LV) dysfunction but relates to the quantified degree of MR.²

However, the prognostic implications of IMR in the chronic post MI phase are uncertain. In pioneering series that underscored the potential importance of IMR, patients were often included early after MI, and decreased survival of patients with IMR may have been due to inclusion of acute MI.

The mechanisms at the base of IMR are different: 1) annular dilatation; 2) displacement of both papillary muscles (PM) apically, posteriorly and laterally in case of global left ventricle (LV) dilatation, with consequent increase of tethering upon closing forces and incomplete

coaptation of mitral leaflets; 3) local malfunction of the LV wall adjacent to a single Papillary Muscle (PM) (more frequently the posterior one).⁴

Despite these Findings, the debate regarding surgical indications for Mitral Valve (MV) surgery is still open. For patients with ischemic mitral regurgitation (MR), it is not clear that mitral valve (MV) repair with CABG is beneficial or mitral valve replacement with CABG is more beneficial.⁵

Transthoracic echocardiography is a key examination in patient with ischemic mitral regurge. Dobutamine stress echocardiography is widely used for the assessment of myocardial viability and/or ischemia. However, it does not provide further information regarding ischemic mitral regurge. The regurgitant volume generally decreases during dobutamine infusion.⁶

Surgical treatment of functional ischemic mitral regurgitation generally combines CABG and correction of mitral regurgitation by prosthetic valve replacement or valve repair. Whatever the technique used, it should be stressed that surgery for functional ischemic mitral regurge carries a much higher risk than for non ischemic mitral regurgitation. In most recent series, operative mortality is approximately 10 %^{7,8,9,10.}

Aim of the Work

This is a retrospective study to review the surgical intervention for treatment of ischemic mitral regurgitation by CABG plus repair or replacement of mitral valve by studying 100 patients divided into two groups. This study will search the patients in two centers: cardiothoracic department of Nasser institute and cardiothoracic department of Ain Shams University in a sample of Egyptian patients.