http://jmscr.igmpublication.org/home/
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v7i10.71

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

An Observational Study on Incidence of Ischemic Mitral Regurgitation Following First-Time Acute Coronary Syndrome

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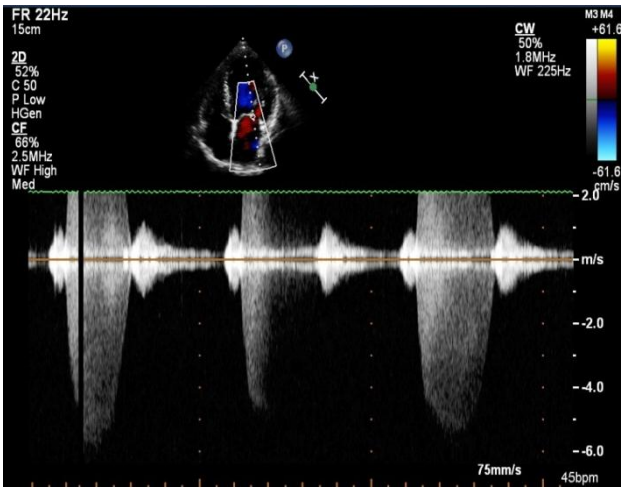
Abstract
Aims and Objectives: *To study the incidence of Ischemic MR (IMR) following first episode of Acute Coronary Syndrome (ACS) and to study the correlation between ischemic MR and infarct location.*
Methods: *Patients admitted in CCU of RMMCH during the period of January 2019 to March 2019 were screened. After satisfying the inclusion & exclusion criteria, 48 patients were enrolled in the study. The demographic details, risk factors for CAD, Clinical findings, ECG findings, course in hospital, outcomes (till 10 days form admission) were recorded in a specially designated proforma. All these patients underwent ECHO imaging and the incidence of ischemic MR was evaluated.*
Results: *Out of 48 patients enrolled in our study 25% (n=12)of patients were found to have ischemic MR. Among the patients with IMR following ACS, 75% had IWMI and 25% had AWMI.*
Conclusion: *Mild functional ischemic mitral regurgitation following acute coronary syndrome is a very common finding on echocardiographic analysis. It was found to be more likely in elderly, diabetes and dyslipidemics. Patients with IWMI with RV extension is more prone for IMR.*

Introduction

Mitral Regurgitation is a well known complication of myocardial infarction. It can occur either in patients with long standing coronary artery disease or in the setting of acute myocardial ischemia.[1-5]

Ischemic mitral regurgitation (IMR) is a frequent complication of acute myocardial infarction, with a variable presentation depending on the severity of MR and the integrity of the subvalvular apparatus. While most cases are asymptomatic or have mild dyspnea, rupture of chordae tendinea or papillary muscles are catastrophic complications that may rapidly lead to cardiogenic shock and death. Echocardiography is the definite diagnostic modality, allowing quantification of the severity of MR and the structural abnormalities within the subvalvular apparatus.

In our study we studied the profile of patients with ischemic MR following an acute coronary syndrome in whom the valve leaflets are structurally normal.



ECHO image showing IMR (continuous wave Doppler)

Aims and Objectives

(i) To study the incidence of ischemic MR following first episode of acute coronary syndrome.

(ii) To study the correlation between ischemic MR and infarct location.

Inclusion Criteria

(i) Patients admitted in CCU for the first time with a diagnosis of acute coronary syndrome.

Exclusion Criteria

(i) Previous history of ACS/Heart failure.

(ii) Organic mitral valve diseases (RHD, MVPS, Autoimmune diseases).

(iii) History of mitral valve surgery.

Methods

Patients admitted in CCU of RMMCH during the period of January 2019 to March 2019 were screened. After satisfying the inclusion & exclusion criteria, 48 patients were enrolled in the study. The demographic details, risk factors for CAD, Clinical findings, ECG findings, course in hospital, outcomes (till 10 days form admission) were recorded in a specially designated proforma. All these patients underwent echocardiographic imaging and the incidence and severity of mitral regurgitation were noted. The presence and degree of MR was evaluated using the proximal isovelocity surface area method.[6-8] The ejection fraction was measured using the simpson's method.[9,10] Statistical analysis was done using the SPSS software.

Patient Characteristics

Variables		MR		Pearson Chi-square	p value
		Present	Absent		
Age	<60 yrs	3 (12.5%)	20 (87.5%)	3.346	0.067
	>60 yrs	9 (34.6%)	16 (65.4%)		
Dyslipidemia	Present	12 (25%)	34 (75%)	0.658	0.417
	Absent	0 (0%)	2 (100%)		
Diabetes Mellitus	Present	10 (38.5%)	15(61.5%)	6.211	0.013*
	Absent	2 (8.3%)	21 (91.7%)		
Systemic Hypertension	Present	3 (18.8%)	12 (81.3%)	0.356	0.551
	Absent	9 (26.5%)	24 (73.5%)		
BMI	Under weight	2 (25%)	5 (75%)	4.726	0.094
	Normal Weight	3 (12%)	21 (88%)		
	Over weight	7 (41.2%)	10 (58.8%)		
Smoking	Present	3 (30%)	7 (70%)	0.247	0.616
	Absent	9 (22.5%)	29 (77.5%)		
Type of MI	IWMI	3 (25%)	9 (75%)	1.133	0.287
	IWMI with RV extension	6(33.33%)	12(66.67%)		
	AWMI	3 (15.8%)	15 (84.2%)		
Level of cardiac enzymes	Normal	3 (30%)	6 (70%)	0.247	0.613
	Increase	9 (22.5%)	30 (77.5%)		
Killip class	1	1 (9.1%)	9 (90.9%)	3.656	0.299
	2	6 (40%)	8 (60%)		
	3	3 (23.1%)	10 (76.9%)		
	4	2 (18.2%)	9 (81.8%)		

*Statistically Significant ($p<0.05$).

Results and Analysis

Incidence of IMR in patients with first episode ACS in our hospital is 25%.

All patients with MR (n=12) had dyslipidemia.

Incidence of ischemic MR in patients with diabetes mellitus is 38.5% (n=10) which is statistically significant than the incidence of ischemic MR in non-diabetic patients (8.3%, n=12, p value 0.013).

Among patients with ACS, 75% had IWMI and 25% had AWMI.

Systemic hypertension, BMI, Smoking, Level of cardiac enzymes had less effect on incidence of ischemic MR.

Discussion

IMR was found in 25% of ACS patients in our study population which is in accordance with older studies.

It was found to be higher in older age group, diabetics, dyslipidemics and IWMI with RV extension patients which was consistent with previous studies.

Conclusion

Mild functional ischemic mitral regurgitation following acute coronary syndrome is a very common finding on echocardiographic analysis. It was found to be more likely in elderly, diabetes and dyslipidemics.

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