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Clinical Study of Complications of Acute Myocardial Infarction with in First Seven Days

Supriya Patil [1], Sunil Chavan [2], Lalit Patil [3]

[1] Asso Prof, Dept of Medicine, Shri Bhausaheb Hire Govt Medical College Dhule, Maharashtra, India.

[2] Asst Prof, Dept of Pathology, Shri Bhausaheb Hire Govt Medical College Dhule, Maharashtra, India.

[3] Director, Sudha Multispecialty Hospital and Critical Care Centre Dhule, Maharashtra, India

Abstract
The study revealed male preponderance for AMI. Maximum number of patients was from age group 60 to 69yrs. Chest pain, perspiration and vomiting were major presenting symptoms. 58 patients had anterior wall myocardial infarction, 45 patients had inferior wall infarction. Only 2 patients had RV infarct. The most common complication was left ventricular failure. LVF was more common in elderly hypertensive patients who had some contraindication to thrombolytic therapy. Among mechanical complications 3 patients had MR due to papillary muscle dysfunction. One patient had free wall rupture of left ventricle. It was diagnosed on autopsy. The patient died within half hour of admission with diagnosis of anterior wall myocardial infarction. We reported ventricular fibrillation in 6 patients with 66.66% mortality. Those patients who received thrombolytic therapy had better outcome as compared to those who didn't receive thrombolytic therapy due to some contraindication. Bleeding and hypotension were the most common complications of thrombolytic therapy. Intracranial bleeding was associated with high mortality.

Keywords: AMI- Acute myocardial infarction, AWMI- Anterior wall myocardial infarction, IWMI- Inferior wall myocardial infarcton, LVF-Left ventricular failure. WHO - World Health Organization.

Introduction
Acute myocardial infarction (AMI) is one of the most common diagnosis in hospitalized patients. ST elevation myocardial infarction generally occurs when coronary flow decreases abruptly after a thrombotic occlusion of coronary artery previously affected by atherosclerosis. Almost 50% of deaths associated with MI occur within one hour of the event and are attributable to arrhythmia, most often ventricular fibrillation. Management of coronary artery disease (CAD) has evolved through several phases. The modern Reperfusion era of coronary care introduced intracoronary thrombolysis, increased use of aspirin, and development of primary percutaneous coronary angioplasty.
Although much of the current enthusiasm is in the management of acute myocardial infarction is related to revascularization strategies, mechanical and electrical complications continue to poses a major threat to recovery in some patients. Early, aggressive and judicious treatment of these complications may substantially decrease the morbidity and mortality with AMI.

Material and methods
In this prospective study 100 cases of AMI admitted in Sudha Multispecialty Hospital and critical care centre, and Civil Hospital, Dhule over period of Jan 2012 to Dec 2013. Patients diagnosed with acute myocardial infarction on the basis of WHO criteria were included. They were provided with facilities like continuous cardiac monitoring, defibrillation, temporary cardiac pacing. Patients with past history of AMI with or without complications excluded from the study. On the day of admission patient was subjected to detail history, clinical examination and ECG for 7 days. These patients were observed for complications of AMI and thrombolytic therapy for 7 days. Routine investigations of patient i.e hemogram, urine analysis, blood sugar level, serum electrolyte, serum creatinine, lipid profile and x ray chest were done. Echocardiography was done in all patients.

Results and Discussion
In this study100 patients were included as per inclusion criteria. The age distribution was in the range of 30 to 80 yrs. Male patients were 63 and female patients were 47. Male to female ratio was 1.34:1. Many explanations have been forwarded to the relative immunity of female sex to coronary artery disease. The important ones are- anatomical predisposition of the male sex due to thicker coronary intima, increased stress and strain in males and estrogenic protection in females. It is found that the incidence in females rises sharply after menopause. Two years after menopause the incidence of coronary atherosclerosis is equivalent to that of the male sex.
In this study 47% of the patients were found to be hypertensive. Study done by Grant *et al.* found the incidence of hypertension to be 28%. Diabetes mellitus was present in 27% of patients in this study. Sepha *et al.* reported the incidence of 13%. The proneness of diabetes to acute myocardial infarction is well known. The important factors, which link these two diseases together, are obesity, vascular, degeneration with atherosclerosis and hypertension.
The incidence of AV block, excluding bundle branch block inn patients with AMI is estimated to be from 12to 25%. [1] In present study 3 patients had complete heart block. Out of 3 patients 2 had inferior wall infarction and one patient had anterior wall infarction. All 3 patients were paced with

temporary pacemaker. The incidence of CHB varies from 1 to 5%. Rotman *et al*. [2] reported it to be 4%.

Present study reported 5% incidence of atrioventricular blocks of which 3 patients had anterior wall infarction and 2 patients had inferior wall infarction. In premonitor era the incidence of AV blocks as reported by Smith *et al*., Master *et al.* and Rosenbaum *et al*. varies from 1to 4.7 %. In the monitor era, Courter *et al*. [3] reported it to be 9.6% whereas Goble *et al.* [4] reported it to be17.3%. The incidence of intraventricular conduction defects was 7%. Also the incidence of PSVT (paroxysmal supraventricular tachycardia) was 2%.These tachy arrhythmias are common in anterior wall infarcts and they appear early. Not a single case of atrial flutter reported in this study. De Sanctis *et al.* [5] in their review stated that this arrhythmia is difficult to recognize on standard ECG. Transcardiac electrodes are sometimes required to diagnose it. Probably that may be the reason for such a low incidence. Mortality associated with AF in AMI in different studies varies from 30% to 40%. Present study has incidence of 33% for AF. All three patents died, thus mortality rate of 100%. It is stated that atrial fibrillation in AMI is a pump failure rhythm and grave mortality associated with it is due to other complication rather than arrhythmia per se.

Ventricular ectopics was the most common complication in this study found in 75% of patients. Lie *et al*. [6] found 84% incidence with continuous tape monitoring. Present study reported 9% incidence of ventricular tachycardia. Out of 9 patients of ventricular tachycardia 4 patients developed ventricular fibrillation and 6 patients died. These were in Killpis class IV. Thus mortality associated with ventricular tachycardia in this study is 66.66% (p=0.001). Out of 100 patients 6 patients had ventricular fibrillation with mortality of 100%. The MILIS study shows that primary VF does not have any adverse effect on the mortality, while GISSI trial shows that there is an increased mortality in primary VF during the hospital phase of myocardial infarction. [7] Thus VF is associated with grave prognosis.

In this study 84 patients received thrombolytic therapy with streptokinase. Only 5 patients had AIVR as reperfusion arrhythmia. All 100 patients in this study were subjected to echocardiography. 3 patients had hemodynamically significant mitral regurgitation due to papillary muscle dysfunction. Of these 3 patients 2 had inferior infarcts and one had anterior infarct. Nishimura *et al*. [8] conducted study of 17 patients with diagnosis of papillary muscle dysfunction secondary to AMI. 8 patients underwent surgery while 9 had the diagnosis confirmed at autopsy without prior surgical procedure. If the rupture is untreated, the prognosis is poor; and 80% mortality rate in the first week has been reported. The optimal timing of surgical intervention remains unclarified. Patients with acute MR after AMI have reported 35-50% mortality when an operation is performed within 30 days after the acute event.

Cardiac rupture a sudden and unexpected event in AMI; occurs in 1% to 3% of all patients with infarct causes about 10% of all infarct related deaths. [9] One patient of anterior wall infarct had free wall rupture of left ventricle on autopsy. The patient died within half an hour of admission in the hospital. He presented with severe chest pain and cardiogenic shock.

Cardiogenic shock is defined as profound circulatory failure primarily of cardiac origin. Only prompt, acute reperfusion seems to have potential to improve the outcome of patients with cardiogenic shock and AMI. [10, 11] in the present study the incidence of cardiogenic shock is 15%. Out of 15 patients 8 had anterior wall infarct and 7 patients had inferior wall infarct. Out of these 15 patients 6 patients recovered and 9 patients died resulting in statistically significant mortality (P=0.008). As compared with patients who have AMI without cardiogenic shock are older; more frequently have anterior wall myocardial infarction and most commonly have history of angina or congestive cardiac failure.

Incidence of sinus bradycardia ranges from 14 to 36% approximately 70%of patients with sinus bradycardia has inferoposterior wall infarction. In the present study, sinus bradycardia was found in 12% patients. 11% patients had inferior wall infarction while 1% patient had anterior wall infarction. (P< 0.0001)

Pericarditis after MI is divided into two syndromes; early (within first 72 to 96 hours) pericarditis and delayed pericarditis. The hallmark of pericarditis a friction rub is usually heard on second or third day of admission. Although pericarditis is correlated with increase in infarct size and frequency of complications including arrhythmias. It is not independently associated with an increase in hospital mortality rate. [12, 13] in present study we reported singe case of pericarditis on third day of admission.

Clinically apparent thromboembolism complicates, STEMI in 10% of cases but embolic lesions are found in 22% of patients in necropsy series suggesting that thromboembolism is often silent. We reported 3 cases of thromboembolism in our study. 2 patients had cerebrovascular accident and 1patient developed deep vein thrombosis.

Out of 86 patients thrombolysed with streptokinase 3(9.45%) patients developed intracranial bleeding. While hypotension was observed in 21 (65.6%) patients.

Conclusion

Those patients who received thrombolytic therapy had better outcome as compared to those who didn't receive thrombolytic therapy due to some contraindication. Bleeding and hypotension were the most common complications of thrombolytic therapy. Intracranial bleeding was associated with high mortality. Complications of AMI are of common occurrence within first 7 days. Some patients had more than one complication. Small sample size, complications like atrial flutter are not reported, also these complications were studied irrespective of coronary interventions are some of the limitations of the study. In the present study we reported 199 complications in 100 patients.

Referances

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