

COMPLICATIONS WITH ACUTE INFERIOR WALL MYOCARDIAL INFARCTION

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ABSTRACT

Objective: To study the clinical complications in patients with acute inferior myocardial infarction.

Material and Methods: A retrospective observational study in coronary care unit of Khyber Teaching Hospital Peshawar. Patients of all age groups and both sexes were included. The diagnosis was based on inferior wall myocardial manifested in II, III, AVF with raised cardiac enzymes clinched the diagnosis. The patients were examined clinically, alongwith the ECG on daily and if needed basis.

Results: Over a period of three (3) months i.e August – October 2002, a total of 27 patients with acute inferior myocardial infarction were studied for complications. Bradyarrhythmias, Hypotension were found in quite a few. Sinus Bradycardia in eight (29.6%) with complete AV block in two (7.4%) and one 2:1 (3.7%) AV Block in a single patient was observed, one (3.7%) patient arrived in cardiogenic shock and did not survive. Two patients (7.4%) presented with left ventricular failure and six (22.2 %) had Hypotension. Two patients had re-infarction and one (3.7 %) each had Ventricular fibrillation, Ventricular tachycardia, Right Ventricular infarction and Ventricular Septal Defect.

Conclusion: The results highlight the importance of the regional blood supply and the peculiar arrhythmias and haemodynamic changes with inferior Infarction. Thrombolytic Therapy, age and the presence of risk factors for coronary artery disease signify the final outcome.

Key words: Complications, Myocardial infarction, Inferior wall.

INTRODUCTION

Inferior wall myocardial infarction is a subset of AMI. The manifestations on II, III,

AVF with ST elevations and the raised cardiac enzymes alongwith the history of chest pain gives the clinical diagnosis. It can then be followed up by physical examination regularly with ECG monitoring and enzyme

assay for complications. It is a cause of missed diagnosis in our set up.

MATERIAL AND METHODS

A total of twenty seven (27) patients of both sexes (16 male and 11 female) and all age groups (23 greater than 60 years and 4 less than 60 years) were studied clinically after diagnosis. The study was conducted in the Coronary Care Unit Khyber Teaching Hospital Peshawar for a period of three (3) months from August – October 2002. The criteria for diagnosis were:

- 1- Chest Pain \geq 30 minutes.
- 2- \geq 1 mm ST segment elevation in at least 2 of 3 inferior leads II, III, AVF.
- 3- Elevation of creatine kinase enzyme and its MB fraction to greater than twice the normal value.

Patients with previous Myocardial infarction, Coronary Artery Bypass Grafting (CABG), and Percutaneous Transluminal Coronary Angioplasty (PTCA) were not included. All the patients were examined twice daily with ECG in the morning and then any time if needed. Cardiac monitoring was done for a period of at least initial 24 hours and until the patient had no serious rhythm disturbance.

Eight patients (29.6%) developed sinus bradycardia with heart rate less than 60 per minute on counting the radial pulse.

A 2:1 AV Block was observed in one (3.7%), complete heart block in two (7.4%) were found and confirmed on the ECG and the Cardiac monitor.

One patient presented with cardiogenic shock and unrecordable Blood Pressure. Six patients (22.2%) presented with Hypotension measured as blood pressure less than 100 Hg (mm) Systolic on mercury manometer. Two patients (7.4%) had features of left ventricular failure and one had pericarditis

with pericardial rub and manifesting as P-R depression with ST concave elevation on ECG. Two patients had re-infarction and one had ventricular fibrillation (VF), VSD and features of Right Ventricular Infarction. A re-infarction male patient had ventricular fibrillation (V.F), 2:1 AV block and recovered. There were more complications with increasing age and number of risk factors and those who did not receive streptokinase.

RESULTS

Over a period of three (3) months i.e August – October 2002, a total of 27 patients with acute inferior myocardial infarction were studied for complications. Sinus Bradycardia in eight (29.6%) with complete AV block in two (7.4%) and one 2:1 (3.7%) AV Block in a single patient was observed. One (3.7%) patient arrived in cardiogenic shock and did not survive. Two patients (7.4%) presented with left ventricular failure and six (22.2%) had hypotension. Two patients had re-infarction and one (3.7%) each had Ventricular fibrillation, Ventricular tachycardia, Right Ventricular infarction and Ventricular Septal Defect.

DISCUSSION

The inferior myocardium is supplied by the right coronary artery in majority, by left circumflex in some and by the left anterior descending rarely.¹

The criteria for right coronary artery occlusion are:

- 1- ST Elevation in lead III $>$ II and ST depression in lead AVL $>$ I.
- 2- S/R wave ratio lead AVL $>$ 1/3rd with ST depression in lead AVL $>$ 1mm and
- 3- ST II/III $<$ 1.

The criteria for the left circum flex artery are:

- 1- ST Depression in V1 or V2.
- 2- ST Elevation ≥ 1 and AVL, V5, V6 with isoelectric or elevated ST in 1.
- 3- ST II / III > 1 .
- 4- ST Elevation in V5, V6.²

Inferior wall infarction has less chances of shock than anterior and unless extensive or right ventricle is also involved^{2,7} and correlated with the study. Bradyarrhythmias are far more common in inferior myocardial infarction and commoner still with larger infarct size.³ Hypotension as cold extremities and rapid pulse with blood pressure less than 100 mm Hg systolic was found in the study and correlated with others.² Right ventricular infarction with raised JVP, Hypotension and clear lungs is a close association of inferior and found in a single patient, though it has been observed in one third of all inferior infarcts.^{4,6}

Cardiogenic shock is fatal if intervention is not done immediately as was observed in the study. There is a possibility of myocardial bridging of left anterior descending artery in inferior myocardial infarction with shock.^{5,6,9}

Mitral-regurgitation occurs because of eccentric mitral-regurgitant jets with posterior leaflet restriction and complete anterior leaflet flail.⁶

Bundle branch blocks were not found in any of the patients but if occur is due to left anterior descending artery occlusion.⁸

Complete heart block occur in 5% of inferior myocardial infarction⁹ and 2 out of 27 had it in this study.

One patient an elderly lady had a holosystolic murmur at the cardiac base indicative of Ventricular Septal Defect more common with anterior lesion.¹

Two patients had infarction in the same region, one male more than 60 years

of age and a female of less than 60 years, and both having received streptokinase twice.

The male patient showed features of shock, ventricular fibrillation, ventricular tachycardia, bradycardia and 2:1 AV Block. Both the patients had one major risk factor in their history.¹⁰

The re-infarctions occurred in the early morning.¹

CONCLUSIONS

The number of complications with acute inferior myocardial infarction could be reduced by early referral from the general practitioners and thrombolytic therapy. Quite a few had been treated for gastric problem before arrival to the Cardiac Care Unit (CCU). Lack of general public awareness about chest pain and quality of CCU care at the district headquarter hospital level has added to the morbidity.

Though the study included only 27 patients and hardly half arrived in the window period for streptokinase.

The electrical complications were temporary and mechanical were serious. Right ventricular infarction must be kept in mind for every patient with inferior infarction and all patients with changes in II, III, AVF must have right side leads placed.

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