

Clinical Profile of Right Ventricular Infarction in Patients with Inferior Wall MI

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Abstract

Original Research Article

Introduction: Inferior wall MI is complicated by right ventricular dysfunction in about 50% of cases and associated with 20% of mortality the hospital death rate and complications are very high and associated with major complications. **Method:** Observational cross sectional study **Result:** There is a significant association between IWMI and RVMI and RVMI is seen in about 20% of cases and most common complication encountered was hypotension followed by complete heart block. **Conclusion:** Involvement of the right ventricle in inferior wall myocardial infarction significantly affects the mortality and morbidity and complications.

Keywords: Clinical Profile, Inferior Wall MI, Ventricular Infarction, IWMI.

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INTRODUCTION

Cardiovascular diseases have become the leading cause of mortality in India. In last two decades epidemiological characteristics have transitioned from infectious diseases, undernutrition to non-communicable disease.

Inferior wall MI is associated with about 30 to 50% of right ventricular myocardial infarction. The incidence of Right Ventricular MI in patients with inferior wall myocardial infarction was 10–50%. Isolated right ventricular infarction is extremely rare.

Even though the RVMI is seen in much number of cases clinically but the incidence of RVMI is very less than seen at autopsy [1]. The main reason for the above difference is the difficulty in diagnosing RVMI in living patients.

In patients with RVMI, the hospital death is high and major complications are greater. Right ventricular infarction leads to hemodynamic instability, atrio-ventricular conduction blocks, and in-hospital mortality in patients with inferior wall myocardial infarction.

The main hemodynamic derangements associated with right ventricular infarction render the affected patient sensitive to decreased preload and loss

of atrio ventricular synchronisation. These two events can result in a severe decrease in right and, secondarily left ventricular output [2].

The demonstration of right ventricular dysfunction is important because it is often associated with a distinct clinical syndrome requiring specific management. With the present study, author assessed the incidence of IWMI, its association with right ventricular infarction and function and its clinical outcome.

METHODS

The study was a hospital based observational cross sectional study. Conducted in intensive care unit, on an in-patient basis, consist of 60 cases of inferior wall MI.

OPERATIONAL DEFINITIONS

Diagnostic Criteria of acute MI

Detection of rise or fall of serum cardiac enzymes (CK-MB or Troponin-T) with at least one of the following

Symptoms of ischemia

New or presumed new significant ST –T changes

New onset Left bundle branch block.

Development of new pathological q waves in ECG

Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality

Diagnostic criteria for inferior wall myocardial infarction

ST Segment elevation in inferior leads

Reciprocal ST Segment depression in lateral and/or high lateral leads (I avl v5 v6). Diagnostic criteria for right ventricular myocardial infarction

ST segment elevation in >1mm in atleast one of the right precordial leads

All other cases of which may cause abnormally oriented ST vector in the right precordial leads such as Acute Inferior Wall MI other than Inferior Wall MI, Acute Pericarditis, Bundle Branch Blocks, Patients with chronic lung disease with corpulmonale, History of chest pain of more than 24 h duration and Subjects who do not provide consent for the study are excluded

RESULTS

This hospital based cross sectional observational study was conducted to assess the incidence and clinical profile of right ventricular infarction in acute inferior wall myocardial infarction patients and to study the effects of right ventricular myocardial infarction (RVMI) on clinical outcome of Inferior wall myocardial infarction (IWMI). The mean age of participants was 58.33 and maximum number of patients was in the age group of 40-60(43%) and consists of 81% males and 19% females.

Among them 40% was hypertensive, 20% were diabetic, 51% smokers, 30% were alcoholics. In this study 58.33% of patients with RVMI and 2% of patients without RVMI were presented with hypotension at the time of admission.

Various complications were noted in the study, the most common being the hypotension.

- Complete heart block seen in 13.33% of IWMI patients
- Hypotension seen in 20% IWMI patients RVMI group]
- Right ventricular myocardial infarction seen in 20% of IWMI cases
- TR is seen 66% of patients of IWMI with RVMI and 4% of patients of IWMI without RVMI.

DISCUSSION

This is a hospital based observational cross sectional study conducted to assess the incidence and clinical profile of right ventricular infarction in acute inferior wall myocardial infarction.

In the present study 20% of patients present with Right ventricular myocardial infarction at the time of admission. Chockalingam A *et al.* had found 50 (37%) out of 135 cases of IWMI to be having right ventricular involvement [4]. Iqbal A *et al.* observed that out of total 50 cases with inferior wall MI [5], 16 (32%) cases had evidence of RVMI while Ravikeerthy M *et al.* observed the incidence at 30%.

The mean age of patients was 58.33 years with 4:1male preponderance which is in line with findings of previous similar studies [11, 17-19]. It was observed in the present study 51% were smokers and 30% were alcoholic, with significant difference between male and female patients. This was similar to observations made by Khan IS *et al.* and Iqbal A *et al.* [3, 5].

Complications such as hypotension, shock, arrhythmia, cardiac arrest, AV block and cardiac failure were observed to be significantly lower in patients with isolated IWMI as compared to patients associated with RVMI except pulmonary edema. This is in concordance with the observations by Khan IS *et al.* Memon *et al.* [3, 7].

But it was found not in line with findings of Iqbal A *et al.* of the total 4 deaths in the present study (6%) had associated with RVMI and 2% with isolated IWMI, the difference being statistically significant[5,6]. Ravikeerthy M *et al.* studied a total of 50 cases of acute IWMI and found mortality rate to be 15% in patients with associated RV infarction (RVMI) and 3.33% in isolated inferior wall MI (IWMI)[6]. George *et al.* found mortality rate to be 12% in patients with inferior wall myocardial infarction and significantly higher at 28% in patients having right ventricular involvement in inferior wall myocardial infarction cases [8]. Memon AG *et al.* reported more than double in-hospital mortality in RVMI Group as compared to without RVMI [7].

CONCLUSION

Thus, it can be concluded that involvement of right ventricle increases rate of complications as well as the mortality rate in patients with inferior wall myocardial infarction.

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