

# A study of various complications of right ventricular infarction at tertiary health care centre

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## Abstract

**Background:** Myocardial infarction was previously thought to be a disease of mainly the left ventricle. Right ventricular infarction was just a pathological entity. **Aims and Objectives:** To Study various complications of right ventricular infarction at tertiary health care centre. **Methodology:** This cross-sectional study was carried out at public charitable trust attached to medical college between January 1994 to December 1994 in the 55 patients of acute inferior wall myocardial infarction admitted to hospital. Here various complications occurred in every patient was noted. **Result:** In our study the majority of the patients were in the age group of 40-50 were 30.91% followed by 50-60 were 23.64%, >60 were 21.82%, 30-40 were 16.36%, 20-30 were 7.27%. The majority of the patients were Male i.e. 58.18% followed by Female were 41.82%. The most common complications were LVF in 49.09%, followed by Hypotension in 23.64%, A.V. Block in 20.00%, Bundle Branch B. -16.36%, VPB (Ventricular Premature Beat) in 10.91%, Ventricular Tachycardia in 3.64%, V. fibrillation in 3.64%, A.V. Dissociation and Atrial arrhythmia in 1.82%, Death occurred in 1.82%. **Conclusion:** It can be concluded from our study that the most common age was 40-50 the most common complications were LVF, Hypotension, A.V. block etc.

**Key Words:** Right ventricular infarction, RVF (right ventricular failure), LVF (left ventricular failure), Bundle Branch Block (BBB), VPB (Ventricular Premature Beat)

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## INTRODUCTION

Myocardial infarction was previously thought to be a disease of mainly the left ventricle. Right ventricular infarction was just a pathological entity. Several authors had recognized the existence of the right ventricular dysfunction in context of acute myocardial infarction but

little attention was paid to its clinical aspects. In 1974, Cohn<sup>1</sup> for the first time described potentially serious and unique haemodynamic consequences of right ventricular infarction. The advent of more sophisticated diagnostic techniques and more precise haemodynamic measurement has demonstrated that right ventricular infarction is well defined clinical entity and value of recognizing patients with predominant right ventricular dysfunction is related not only to instituting appropriate therapy for severe pump failure but also to avoid inappropriate therapy. Although isolated right ventricular infarction had been described in autopsy reports as less than 3% of all acute myocardial infarction,<sup>2</sup> the incidence of right ventricular infarction associated with inferior wall myocardial infarction has been shown to be as high as 30%–50%.<sup>3</sup> It has also been shown that right ventricular infarction occurs exclusively in association with inferior myocardial infarction or inferoposterior myocardial infarction.<sup>4</sup>

Prompt fluid therapy may abort the vicious cycle set to motion by right ventricular infarction, which if treated in conventional way or neglected tends to lead to true cardiogenic shock.<sup>5</sup>

### MATERIAL AND METHODS

This cross-sectional study was carried out at public charitable trust attached to medical college between January 1994 to December 1994 in the 55 patients of acute inferior wall myocardial infarction admitted to hospital. The patients with history of Chest pain >24hrs., patients whose initial ECG's showed an anteroseptal or anterolateral wall MI, patients with chronic lung disease, corpulmonale, patients with previous history of MI. All the necessary investigations were done, the diagnosis of acute inferior wall MI was made as typical history of chest pain, ST segment elevation in leads II, III and avF and by development of pathological q waves in above mentioned leads. Similar changes in lead V<sub>5</sub> and V<sub>6</sub> (Lateral extension) and lead V<sub>2</sub> diagnosis true posterior wall infarction. Tall R waves in V<sub>1</sub> and V<sub>2</sub> and increased serum enzymes (SGOT). The diagnosis of right ventricular infarction was made by the criteria of Croft *et al* ST segment elevation at 0.1 mv or more in one or more of the right precordial leads ( V<sub>3R</sub>, V<sub>4R</sub>,V<sub>5R</sub> and V<sub>6R</sub>) in those patients who satisfied the criteria for an inferior wall MI. Here various complications occurred in every patients was noted.

### RESULT

**Table 1:** Distribution of the patients as per the age

Age(Yrs.)	No.	Percentage (%)
20-30	4	7.27
30-40	9	16.36
40-50	17	30.91
50-60	13	23.64
>60	12	21.82
<b>Total</b>	<b>55</b>	<b>100.00</b>

The majority of the patients were in the age group of 40-50 were 30.91% followed by 50-60 were 23.64%, >60 were 21.82%, 30-40 were 16.36%, 20-30 were 7.27%.

**Table 2:** Distribution of the patients as per the sex

Sex	No.	Percentage (%)
Male	32	58.18
Female	23	41.82
<b>Total</b>	<b>55</b>	<b>100.00</b>

The majority of the patients were Male i.e. 58.18% followed by Female were 41.82%.

**Table 3:** Distribution of the patients as per the complications

Complications	No.	Percentage (%)
LVF	27	49.09
Hypotension	13	23.64
A.V. Block	11	20.00
Bundle Branch B.	9	16.36
VPB(Ventricular Premature Beat)	6	10.91
Ventricular Tachycardia	2	3.64
V. fibrillation	2	3.64
A.V. Dissociation	1	1.82
Atrial arrhythmia	1	1.82
Death	1	1.82

The most common complications were LVF in 49.09%, followed by Hypotension in 23.64%, A.V. Block in 20.00%, Bundle Branch B. -16.36%, VPB(Ventricular Premature Beat) in 10.91% Ventricular Tachycardia in 3.64%, V. fibrillation in 3.64%, A.V. Dissociation and Atrial arrhythmia in 1.82%, Death occurred in 1.82%.

### DISCUSSION

Although right ventricular infarction occurs in more than 30% of patients with inferior posterior left ventricular myocardial infarction, hemodynamically significant right ventricular infarction occurs in less than 10% of these patients.<sup>6,7</sup> A right ventricular infarct should be considered in all patients who present with an acute inferior wall myocardial infarction, especially in the setting of a low cardiac output. Patients may describe symptoms consistent with hypotension. A subtle clue to the presence of hemodynamically significant right ventricular infarction is a marked sensitivity to preload-reducing agents such as nitrates, morphine, or diuretics.<sup>8</sup> Other presentations include high-grade atrioventricular block, tricuspid regurgitation,<sup>9</sup> cardiogenic shock, right ventricular free wall rupture, and cardiac tamponade. Should a patient with right ventricular infarction experience unexplained hypoxia despite administration of 100% oxygen, right-to-left shunting at the atrial level—through a patent foramen ovale or an atrial septal defect—in the presence of right ventricular failure and increased right atrial pressure must be considered.<sup>10,11</sup> Patients with extensive right ventricular necrosis are at risk for right ventricular catheter-related perforation, and passage of a catheter or pacemaker in the chamber must always be performed with great care.<sup>12</sup> In our study the majority of the patients were in the age group of 40-50 were 30.91% followed by 50-60 were 23.64%, >60 were 21.82%, 30-40 were 16.36%, 20-30 were 7.27%. The majority of the patients were Male i.e. 58.18% followed by Female were 41.82%. The most common complications were LVF in 49.09%, followed by Hypotension in 23.64%, A.V. Block in 20.00%, Bundle Branch B. -16.36%, VPB(Ventricular Premature Beat) in 10.91%, Ventricular Tachycardia in 3.64%, V.

fibrillation in 3.64%, A.V. Dissociation and Atrial arrhythmia in 1.82%, Death occurred in 1.82%. Similar to Daanish Aijaz Chhapra<sup>13</sup>, they found Of the total studied 50 patients, 16 patients had right ventricular infarction in association with inferior wall infarction of left ventricle and also Complications and in-hospital mortality rates were more common in patients with right ventricular infarction than in patients without it.

## CONCLUSION

It can be concluded from our study that the most common age was 40-50 the most common complications were LVF, Hypotension, A.V. block etc.

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