

## Original article

# Study of correlation of mortality rate and types of arrhythmias in Myocardial Infarction in Indian Population

Dr Sridevi , Dr. Vivek Vilas Manade , Dr Ravindra Jain

Department of Medicine and Department of cardiology,  
Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pune, Maharashtra, India  
Corresponding author : Dr Sridevi

---

### Abstract:

**Introduction:** Current demographic trends suggest, however that the scourge of cardiovascular disease, rather than waning may indeed be increasing in the years to come. The aging of the population will increase the overall burden of cardiovascular disease in society, even as adjusted rates of cardiovascular mortality plateau or decline. With this background present work was planned to study correlation of types of arrhythmias and mortality rate in Myocardial Infarction in Indian Population.

38 patients meeting inclusion criteria were enrolled in the study. IEC approval was obtained. The sample size was approved by expert from statistician.

**Material and methods:** Clinical profile of patients with respect to age, sex, signs and symptoms of ischaemic heart disease, contributing past and family history, risk factors for ischaemic heart disease; general and systemic examination findings were recorded as per the proforma.

**Results:** The presence of ventricular tachycardia in three (7.89%) of the patients, was found to be statistically significant ( $P < 0.05$ ). Two patients had sustained (33%), which is comparable to the reported in-hospital mortality rate by GUSTO• I (34.5%), but slightly less than that by Mont (43%).<sup>47</sup>53 One of them had NSVT (17%), which is comparable to that reported by Cheema et. al (10%).<sup>50</sup> Two patients had complete heart block, one of whom had associated atrial fibrillation.

**Conclusion:** Though the above association was not found to be statistically significant, several studies have noted an association between left ventricular dysfunction and sinus tachycardia, atrial fibrillation, ventricular tachycardia and ventricular fibrillation

---

### Introduction:

Current demographic trends suggest, however that the scourge of cardiovascular disease, rather than waning may indeed be increasing in the years to come. The aging of the population will increase the overall burden of cardiovascular disease in society, even as adjusted rates of cardiovascular mortality plateau or decline.<sup>1</sup> There is also a need to confront a renewed upswing of cardiovascular risk linked to worldwide epidemic of obesity, insulin• resistance, diabetes rooted in over-nutrition and physical inactivity? With this background present work was planned to study correlation of types of arrhythmias and mortality rate in Myocardial Infarction in Indian Population.

### Material and methods:

Study Design: A cross-sectional study.

Sample size: 38 patients meeting inclusion criteria were enrolled in the study. IEC approval was obtained. The sample size was approved by expert from statistician.

Clinical profile of patients with respect to age, sex, signs and symptoms of ischaemic heart disease, contributing past and family history, risk factors for ischaemic heart disease; general and systemic examination findings were recorded as per the proforma.

Reports of cardiac biomarkers, routine blood investigations, blood sugar, lipid profile and serum electrolytes were recorded. Mortality rate and types of arrhythmias were recorded.

**Results:**

Table 1: Types of arrhythmias.

Type of arrhythmia	No. of cases	Percentage (n=38)
VPCs	17	44.74
ST	9	23.68
1st AVB	6	15.79
VT	5	13.16
SB	4	10.53
CHB	3	7.89
AF	2	5.26
RBBB	2	5.26
SVT	2	5.26
AIVR	1	2.63
VF	1	2.63
2nd AVB Mobitz II	1	2.63

**Table 2: Correlation of type of arrhythmia with mortality**

Type of arrhythmia			
	Yes (n=6)	No (n=32)	P Value
1st AVB	0	6	<0.05
AF	1	1	>0.05
CHB	2	1	>0.05
AIVR	0	1	>0.05
RBBB	0	2	>0.05
SB	0	4	<0.05
ST	3	6	>0.05
SVT	0	2	>0.05
VF	1	0	>0.05
VPC	0	17	<0.05
VT	3	2	<0.05
2nd AVB Mobitz II	0	1	>0.05

**Discussion:**

Correlation of type of arrhythmia with left ventricular ejection fraction (LVEF) on 2-D Echocardiography:

- Left ventricular dysfunction with LVEF < 45% was seen in 28 patients.
- VPCs (40%) were most commonly noted in the present study. The other arrhythmias seen in the present study were all associated with LVEF < 45% except for AIVR and VF
- Though the above association was not found to be statistically significant, several studies have noted an association between left ventricular dysfunction and sinus tachycardia, atrial fibrillation, ventricular tachycardia and ventricular fibrillation.<sup>2,3</sup>

Correlation of type of arrhythmia with mortality in the study group:

- Six (16%) patients succumbed to STEMI within the first 48 hours.
- The presence of ventricular tachycardia in three (7.89%) of the patients, was found to be statistically significant (P<0.05). Two patients had sustained (33%), which is comparable to

the reported in-hospital mortality rate by GUSTO• I (34.5%), but slightly less than that by Mont (43%).<sup>4,5</sup> One of them had NSVT (17%), which is comparable to that reported by Cheema et. al (10%).<sup>5</sup> Two patients had complete heart block, one of whom had associated atrial fibrillation. One patient had ventricular fibrillation. These findings were statistically insignificant.<sup>4,5</sup>

Six patients succumbed to STEMI within the first 48 hours. Amongst these patients, two patients had sinus tachycardia with ventricular tachycardia (AWMI, ASMI), rest of the four patients had ventricular tachycardia (ALMI), complete heart block (IWMI), sinus tachycardia with ventricular fibrillation (ALMI) and atrial fibrillation with complete heart block (IWMI). The presence of ventricular tachycardia in three patients who died, was found to be statistically significant.

#### **Conclusion:**

Though the above association was not found to be statistically significant, several studies have noted an association between left ventricular dysfunction and sinus tachycardia, atrial fibrillation, ventricular tachycardia and ventricular fibrillation

#### **References:**

1. Cheema AN, Sheu K, Parker M, Kadish AH, Goldberger JJ. Non-sustained ventricular tachycardia in the setting of acute myocardial infarction: tachycardia characteristics and their prognostic implications. *Circulation* 1998; 98: 2030-6.
2. Ghuran AV, Camm AJ. Ischaemic heart disease presenting as arrhythmias. *British medical bulletin*. 2001; 59: 193-210.
3. Libby P, Bonow RO, Mann DL, Zipes DP. Braunwald's Heart Disease. 8th ed. Philadelphia. Saunders Elsevier: 2007.
4. Pedersen OD, Bagger H, Kober L, et al. The occurrence and prognostic significance of Atrial Fibrillation/ Flutter following Acute Myocardial Infarction. TRACE study group TRAndolapril Cardiac Evaluation. *Eur Heart J* 1999; 20:
5. Ronner E, van Kesteren HA, Zijnen P, Altmann E, Molhoek PG, van der Wieken LR, Cuffie-Jackson CA, Neuhaus KL, Simoons ML: Safety and efficacy of eptifibatide vs placebo in patients receiving thrombolytic therapy with streptokinase for acute myocardial infarction; a phase II dose escalation, randomized, double-blind study. *Eur Heart J* 2000; 21: 1530-1536.