



## Correlation of ECG and 2d-EHO to Estimate the Site and Extent of Myocardial Infarction

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### ABSTRACT

*Cardiovascular disease accounts for approximately 12 million deaths annually and is the commonest cause of death globally. Estimating the site and extent of MI by ECG can serve as a useful supplement for prognostification of MI patients.*

**Keywords:** AMI, STEMI, ECG, 2D-ECHO.

### INTRODUCTION

Cardiovascular disease accounts for approximately 12 million deaths annually and is the commonest cause of death globally. Asian Indians, whether living in their own country or elsewhere, have a much higher incidence of CAD as compared to all other ethnic groups<sup>(1)</sup>

This study was undertaken to correlate the site and extent of infarction as inferred by ECG and 2D Echo, for prognostification of patients.

### METHODOLOGY

This study included 100 patients admitted to R.M.M.C.H, Chidambaram, who were diagnosed as acute myocardial infarction.

Patients above the age of 70 yrs and those with previous history of MI, subendocardial infarction, posterior wall infarction, right ventricular infarction, LVH, CHD, valvular heart disease, cardiomyopathy, pericardial disease were excluded from the study.

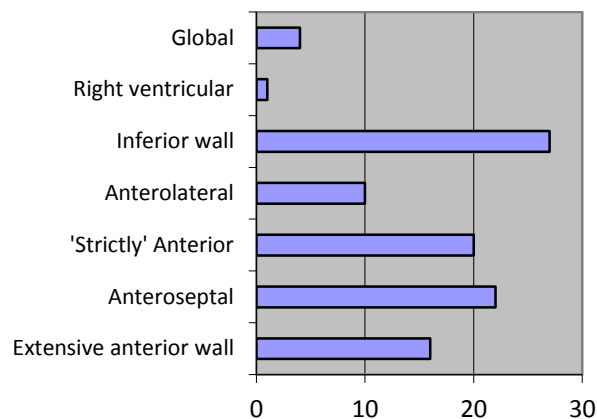
ECG was recorded on a standard paper at a speed of 25mm/sec taken at the time of admission for the diagnosis of myocardial infarction. 2D-ECHO was performed at the earliest to study RWMA's and to calculate LVEF. Subsequently, the site and extent of MI from ECG and 2D-ECHO were compared.

### OBSERVATIONS

#### Electrocardiography

Site of infarction in the ECG (n = 100)

Site of Infarction	No. of cases	Percent %
Extensive Anterior wall	16	16%
Anteroseptal	22	22%
'Strictly' Anterior wall	20	20%
Anterolateral	10	10%
Inferior (and) Inferior with RV	28	28%
Global	04	4%
TOTAL	100	100%



Site of infarction in the ECG (n = 100)

### ECHOCARDIOGRAPHY

Below we compare the site & extent of changes noted on 2D-ECHO in patients diagnosed with myocardial infarction on ECG.

16 patients out of 100 had extensive anterior wall myocardial infarction on ECG. Echocardiography in these patients further elaborated that 10 patients (62.5%) had extensive anterior wall, 2 (12.5%) has anteroseptal and apical wall, 1 (6.25%) had anterior and septal hypokinesia and 1 (6.25%) showed no regional wall motion abnormality.

22 patients out of 100 patients had anteroseptal wall myocardial infarction on ECG. On echocardiography in these patients, 13 patients (59.1%) had anteroseptal myocardial, 7 patients (31.9%) had anteroseptal & apical, 4 patients (12.5%) had anteroseptal and interventricular septum hypokinesia.

20 patients out of 100 patients had anterior wall myocardial infarction on ECG. On echocardiography in these patients, 12 patients (60%) had anterior wall myocardial, 4 patients (20%) had anterior wall and apical, 3 patients (15%) had anterior wall and interventricular septum hypokinesia & 1 patient (5%) showed no regional wall motion abnormality.

10 patients, out of 100 had anterolateral myocardial infarction on ECG. Echocardiography in these patients further elaborated that 6 patients had anterolateral involvement, 2 patients had

anterior and anterolateral involvement, 1 patient had anterior, anteroseptal & anterolateral hypokinesia, 1 patient had no RWMA.

28 patients out of 100 patients had inferior wall MI & inferior wall with RVMI on ECG. When Echo was done in these patients, 15 patients (51.85%) had inferior wall myocardial, 9 patients (33.33%) had inferior wall and right ventricle, 3 patients (11.11%) had inferior wall and anterior septal hypokinesia & 1 patient (3.70%) showed no RWMA.

In 4 patients of global infarction out of 100 patients on ECG, echo also showed global hypokinesia.

### DISCUSSION

In our correlative study of EF with ECG & echocardiography we found that the location of MI seen on ECG correlated broadly with those seen on echocardiography. Echo was able to elaborate regional wall motion abnormalities in detail than ECG. Other studies performed to evaluate similar correlations also had the same results<sup>(2)(3)</sup>

### CONCLUSION

We conclude that ECG can be used as a supplement to estimate the site and extent of myocardial infarction, especially in rural setups where access to echocardiography is not always readily available.

### REFERENCES

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