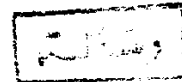


**PREDICTIVE VALUE OF STRESS
ECHOCARDIOGRAPHY IN PROGNOSIS
OF ACUTE MYOCARDIAL INFARCTION**



Thesis

Submitted for Partial Fulfilment of Master Degree
of Cardiology

27/3

By

Nermine Abdallah Mohamed

M.B., B.CH.

53790

Supervised by

***Prof. Dr. Amal Ayoub*, MD**

616.12075 Professor of Cardiology, Faculty of Medicine
Ain Shams University

N . A

***Dr. Ihab Attia*, MD**

Ass. Prof. Of Cardiology
Faculty of Medicine
Ain Shams University

***Dr. Sameh Emil*, MD**

Lecturer of Cardiology
Military Medical Academy

Ain Shams University

1996





To my family

ACKNOWLEDGEMENT

With my great pleasure I wish to acknowledge my indebtedness to **Prof. Dr. Amal Ayoub**, she had spared a lot of her valuable time to help and direct me by useful instructions and who had so kindly and so carefully assisted and collaborated with me. I have been fortunate to be under her supervision. Thank you Prof. For all you have done to me.

I wish to express my sincere gratitude to **Prof. Dr. Ihab Attcia** for his supervision and cooperation throughout this work.

I owe a great debt to **Dr. Sameh Emil**, for his close supervision and for his intelligent instructions which he was given me kindly and friendly. To him I am so grateful.

I owe a great debt to **Prof. Dr. Sayed Abd El Hafiz**, Head manager of Kobri El Kobba Military Hospital, who really taught and still teaching me a lot in Cardiology.

I wish to express my sincere gratitude to all members, doctors and nurses in Kobri El Kobba Military Hospital, without their help this work could hardly be accomplished.

ABSTRACT

Value of Stress Echocardiography in Prognosis of acute myocardial infarction

Prognosis of acute myocardial infarction was evaluated by exercise echocardiography. Patients with acute infarction were studied at time of admission clinically by means of Killip classification and electrocardiographically. Segmental wall motion analysis of the left ventricle was done at the day 21 after admission and just before and after submaximal exercise test, two dimensional ecocardiographically was performed using the nine segment approach. Correlation between the wall motion score index and ejection fraction, site of infarction, risk factors for coronary artery disease, Killip classification and modified exercise test revealed that the outcome of patients with acute MI after a follow up period of six months after admission can be predicted by the site of MI as anterior MI had a worse prognosis. Killip classification, risk factors and ejection fraction were also a good predictors to the subsequent cardiac events. Moreover, modified exercise test and wall motion score index obtained by the nine segment approach could not predict the outcome of the patients.

Key Words:

1. Acute myocardial infarction.
2. Killip classification.
3. Exercise stress test.
4. Stress echocardiography.
5. Wall motion score index.
6. Nine segment approach.
7. Ejection fraction.

CONTENTS

	Page
* Acknowledgement	
* ABSTRACT	
* INTRODUCTION AND AIM OF WORK.....	1
* REVIEW OF LITERATURE	
 CHAPTER I -	
PROGNOSIS OF ACUTE MYOCARDIAL INFARCTION.....	2
 CHAPTER II	
EARLY STRESS TESTING IN POST MYOCARDIAL	
INFARCTION PATIENTS.	18
 CHAPTER III	
VALUE OF ECHOCARDIOGRAPHY IM PATIENTS	
WITH ISCHAEMIC HEART DISEASE.	37
* Diagnostic role of echocardiography.....	37
* Prognostic role of echocardiography.....	41
* Methods of quantitation of ischaemic muscle	47
* Wall thickening abnormalities.....	64
* Relationship of wall motion and wall thickening abnormalities to coronary artery perfusion.....	65
* Advantages of regional analysis.....	68
* Limitations to using wall motion as the sole criterion for diagnosis of ischaemic muscle.....	70
* Assessment of the global performance of the ischemic left ventricle.....	73
* Detection of reversible ischemia (stress echocardiography) ..	74
* Exercise stress echocardiography.....	74
* Pharmacologic stress echocardiography	75
* Comparison of stress echocardiography with other functional tests for the diagnosis of coronary artery disease.....	82
* Role of echocardiography in predicting prognosis following myocardial infarction	86

	Page
MATERIALS AND METHODS	89
RESULTS	94
DISCUSSION	115
SUMMARY AND CONCLUSION	127
RECOMMENDATIONS	128
REFERENCES	171
ARABIC SUMMARY	

LIST OF TABLES AND FIGURES

Fig. 1	Diagram illustrates how the left ventricle can be divided into segments using two dimensional echocardiography (Hegar et al., 1979).	49
Fig. 2	Diagrammatic method for displaying motion within individual segments of the ventricle (Hegar et al., 1979).	49
Fig. 3	Diagram illustrating the American Society of Echocardiography's recommended Scheme for dividing the left ventricle into its various regions (Report of the American Society of Echocardiography, 1982).	50
Fig. 4	Diagram proposed 16 segment models for wall motion analysis (Schiller et al, 1989).	52
Fig. 5	Format for segmental wall motion analysis of two dimensional echocardiograms using 5 segment approach. (Weiss et al, 1981)	53
Fig. 6	Diagram proposed 7 segments model for wall motion analysis (Abrams et al, 1983).	54
Fig. 7	Schematic diagram showing the method used to identify 11 myocardial segments from long and short axis parasternal echocardiographic views (Gibson et al, 1982).	55
Fig. 8	Diagram of the three apical long axis views used for calculation of the left ventricular wall motion score. Total of 13 segments. (Kan et al, 1986).	56
Fig. 9	Diagram illustrating a method for determining the endocardial surface area of the left ventricle (Weyman, 1982).	61
Fig. 10	Diagram illustrating a method for calculation the infarct size (FIS). (Weyman, 1982).	62
Fig. 11	Diagram illustrating the relationship of 2D echocardiographic view and coronary artery perfusion. (Feigenbaum, 1986).	67

Fig. 12, 13, 14	Two dimensional echocardiographic planes of (Fig. 12) parasternal short axis (Fig. 13), apical four chamber (Fig. 14), apical two chamber views. (Report of the American Society of Echocardiography, 1982).	69
Fig. 15	Risk Factors in symptomatic and asymptomatic patients.	107
Fig. 16	Ejection Fraction in Symptomatic and asymptomatic groups.	108
Fig. 17	Exercise stress test of patient No. (3) showing S-T depression at stage II	109
Fig. 18	Exercise stress test of patient No. (16) showing S-T depression at stage I	110
Fig. 19	Apical four chamber view of patient No. (5), Systolic format.	111
Fig. 20	Apical four chamber view of patient No. (5), diastolic format.	112
Fig. 21	Apical four chamber view of patient No. (13), Systolic format.	113
Fig. 22	Apical four chamber view of patient No. (13), diastolic format.	114
Table I:	Master table of all myocardial infarcted patients included in this work.	98
Table II:	Criteria of symptomatic patients in the first six months post acute myocardial infarction.	101
Table III:	Criteria of asymptomatic patients in the first six months post acute myocardial infarction.	103
Table IV :	Statistical analysis of variables included in this work.	105
Table V :	Statistical analysis of variables included in this work.	106

***INTRODUCTION
AND
AIM OF THE WORK***

