

LATE POTENTIAL IN DILATED CARDIOMYOPATHY

THESIS

*Submitted in Partial Fulfillment For Master
Degree in Cardiology*

By

Dr. Wael Ahmed Mohamed

M.B., B.Ch.

616.12075

W. A

Under Supervision of

Prof. Dr.

Ramez Guindy

*Professor of Cardiology
Faculty of Medicine,
Ain Shams University*

Dr.

Mohamed Ayman Mostafa Saleh

*Lecturer of Cardiology
Faculty of Medicine,
Ain Shams University*

**Faculty of Medicine
Ain Shams University
1996**





ACKNOWLEDGEMENT

Thanks to God for helping me to accomplish this work.

I would like to express my deepest gratitude and appreciation to Prof. Dr. Ramez Guindy, Professor of Cardiology, Ain Shams University for his selection to the subject of this thesis & meticulous supervision. I am grateful to Dr. Mohamed Ayman Saleh, Lecturer of Cardiology, Ain Shams University for his supervision & guidance & close helping in the field of signal-averaged electrocardiography. I also thank Dr. Mohe Eddin Samy, Lecturer of Cardiology Al-Azhar University for sincere help & constant assistance through out my work.

In the end, I can not forget the help of medical staff and nurses in both AIN SHAMS University & Italian Hospital for their cooperation in the practical part of this work.

TO MY PARENTS & MY WIFE

Last but not the least my great
appreciations and thanks to my parents and
my wife for their great support, care &
invaluable help

Contents

	page
List of tables	I
List of figures	II
Introduction	1
Aim of the work	4
Review of literature :	
1-Types and frequency of arrhythmias in dilated cardiomyopathy	5
2- investigative tools other than signal-averaged electrocardiogram to-predict sustained ventricular tachycardia :	
(A) Holter monitoring	9
(B) programmed electrical stimulation	11
3- Signal averaging in dilated cardiomyopathy.....	15
4- Mechanisms of arrhythmias in dilated cardiomyopathy.....	39
Neurohormonal and metabolic changes in dilated cardiomyopathy.....	43
5- Role of antiarrhythmic drugs.....	45
Patients and Methodes	49
Results	57
Discussion	98
Conclusion and recommendation	105
Summary	107
References	109
Arabic summary.	

354

217

52

88

75

67

6

27

1

5

5

List of tables

	Page
Table (1): Lown's classification of ventricular extrasystoles.....	10 & 50
Table (2): The correlation of late potential measurement with ventricular tachycardia.....	33
Table (3): Abnormal criteria for late potentials, ventricular performance and ventricular ectopy used in multivariate studies.....	36
Table (4): Performance of late potential, ventricular performance and ventricular ectopy for identifying patients with ventricular tachycardia.....	37
Table (5): Relationship between ECG finding and ventricular tachycardia.....	59
Table (6): Relationship between NYHA functional classification and ventricular tachycardia.....	59
Table (7): Relationship between patient's characteristics and ventricular tachycardia.....	59
Table (8): Relationship between patient's characteristics and ventricular tachycardia.....	60
Table (9): a- Anthropometric measurements of the studied cases.....	65
b- Clinical features (History) of the studied cases.....	66 & 67
c- Clinical features (Examination) of the studied cases.....	68 & 69
d- Resting ECG and X-ray findings of the studied cases.....	70 & 71
Table(10): Holter findings of the studied cases	72 & 73
Table(11): Signal-averaged electrocardiogram findings of the studied cases.....	74 & 75
Table(12): Echocardiogram findings of the studied cases...	76-78
Table(13): Clinical, echo, Holter findings of the studied cases with abnormal late potentials	79
Table(14): Relations between late potentials and echo & signal-averaged electrocardiogram findings.....	80

Table(15): Relation between late potentials and Holter findings.....	81
Table(16): Relation between late potentials and NYHA functional classification.....	81
Table(17): Relations between left ventricular ejection fraction and late potentials, ventricular arrhythmias, NYHA functional classification	82
Table(18): Relation between left ventricular ejection fraction and ventricular arrhythmias.....	83

List of figures

	Page
Figure (1): Spatial averaging on an every-beat basis.....	17
Figure (2): Schematic representation of the Schmitt and Erlanger concept of reentry.....	41
Figure (3): Placing electrodes for signal-averaged electrocardiogram.....	51
Figure (4): Signal averaged electrocardiogram processing.....	54
Figure (5): The percent incidence of the number of episodes of ventricular tachycardia during the 24 hour monitoring among studied patients./.....	60
Figure (6): The prevalence of ventricular arrhythmias by Lown's classification during 24-hour monitoring among studied patients.....	61
Figure(7): Incidence of late potentials in the studied patients....	84
Figure(8): Relation between late potentials and QRS duration.	85
Figure(9): Relation between late potentials and signal-averaged electrocardiogram findings.....	86
Figure(10): Relation between late potentials and NYHA functional classification.....	87
Figure(11): Relation between NYHA functional classification and ventricular tachycardia.....	88
Figure(12): Relation between left ventricular ejection fraction and late potentials.....	89
Figure(13): Relation between left ventricular ejection fraction and NYHA functional classification.....	90
Figure(14): Sex distribution of the studied patients.....	91
Figure(15): Age distribution of the studied patients.....	92
Figure (16): Signal-averaged electrocardiogram strip from patient number (4).....	93
Figure (17): Signal-averaged electrocardiogram strip from patient number (6).....	94
Figure (18): Signal-averaged electrocardiogram strip from patient number (14).....	95
Figure(19): Signal-averaged electrocardiogram strip from patient number (22).....	96

Figure(20): 24-hour Holter monitoring strip from patient
number (5).....97

INTRODUCTION AND AIM OF THE WORK

