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**EVALUATION OF POSSIBLE PROTECTIVE EFFECT OF  
CARVEDILOL AGAINST CARDIOVASCULAR  
COMPLICATIONS INDUCED BY DIABETES IN RATS**

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2007

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

*To my Mother,  
beloved Wife and  
lovely son, Eyad....*

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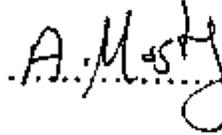
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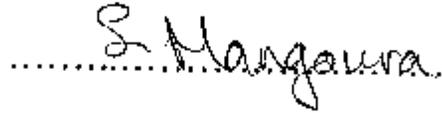
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## TABLE OF CONTENTS

<i>TABLE OF CONTENTS</i>	<i>i</i>
<i>LIST OF ABBREVIATIONS</i>	<i>iv</i>
<i>LIST OF TABLES</i>	<i>viii</i>
<i>LIST OF FIGURES</i>	<i>ix</i>
<b>I. INTRODUCTION</b>	<b>1</b>
<b>II. AIM OF THE WORK</b>	<b>4</b>
<b>III. REVIEW OF LITERATURE</b>	<b>5</b>
1. DIABETES MELLITU	5
1.1. <i>Historical Background</i>	5
1.2. <i>Definition and Classification</i>	5
1.3. <i>Epidemiology of Diabetes Mellitus</i>	7
1.3.1. <i>Worldwide Prevalence of Diabetes</i>	7
1.3.2. <i>Diabetes Mellitus In Egypt</i>	7
1.4. <i>Etiology of Diabetes Mellitus</i>	9
1.4.1. <i>Type 1 Diabetes Mellitus</i>	8
1.4.2. <i>Type 2 Diabetes Mellitus</i>	8
1.5. <i>Complications of Diabetes Mellitus:</i>	9
1.5.1. <i>Acute Complications</i>	9
1.5.2. <i>Chronic Complications</i>	9
2. CARDIOVASCULAR COMPLICATIONS OF DIABETES MELLITUS	10
2.1. Microvascular Complications (Microangiopathies)	10
2.1.1. <i>Diabetic Retinopathy</i>	11
2.1.2. <i>Diabetic Nephropathy</i>	11
2.1.3. <i>Diabetic Neuropathy</i>	12
2.2. Macrovascular Complications (Macroangiopathies)	12
2.2.1. <i>Coronary Heart Diseases (CHD)</i>	14
2.2.2. <i>Hypertension</i>	15
2.2.3. <i>Stroke</i>	15
2.3. Diabetic Cardiomyopathy	16
2.4. Mechanisms of Diabetic Cardiovascular Complications	18
2.4.1. <i>Systemic Factors Influencing Diabetic Complications</i>	19
2.4.1.1. <i>Hypertension</i>	19
2.4.1.2. <i>Sympathetic Nervous System</i>	19
2.4.1.3. <i>Advanced Glycation End Products</i>	20
2.4.2. <i>Intracellular Consequences of Diabetic Metabolic Derangements</i>	22
2.4.2.1. <i>Increased Intracellular Glucose Concentration</i>	22
2.4.2.2. <i>Intracellular Redox imbalance and Oxidative Stress:</i>	23
2.4.2.2.1. <i>Activation of the Polyol pathway</i>	24
2.4.2.2.2. <i>Pentose Phosphate Pathway</i>	25

2.4.2.2.3.	<i>Mitochondrial Superoxide Production</i>	25
2.4.2.2.4.	<i>Activity of Vascular NAD(P)H Oxidase</i>	25
2.4.2.2.5.	<i>Endothelial Nitric Oxide Synthase (eNOS) Activity</i>	26
2.4.2.2.6.	<i>Tyrosine Nitration</i>	27
2.4.2.2.7.	<i>Other Sources of Oxidative Stress</i>	27
2.4.2.2.8.	<i>Endogenous Antioxidant Defense</i>	28
2.4.2.3.	<i>Increased Flux Through Hexosamine Pathway</i>	28
2.4.2.4.	<i>Altered intracellular signal transduction:</i>	29
2.4.2.4.1.	<i>Activated protein kinase C</i>	29
2.4.2.4.2.	<i>Vascular Insulin Resistance</i>	31
2.4.2.4.3.	<i>Mitogen Activated Protein Kinases</i>	32
2.4.2.5.	<i>Altered Regulation of Extracellular Signaling Molecules</i>	32
2.4.2.5.1.	<i>Growth Factors and other Regulators of Cell Growth</i>	32
2.4.2.5.2.	<i>Activation of the Renin-Angiotensin System</i>	33
2.4.2.5.3.	<i>Endothelial-Derived Vasoactive Factors</i>	33
2.4.2.5.4.	<i>Nitric Oxide</i>	34
2.4.2.5.5.	<i>Prostacyclin</i>	34
2.4.2.5.6.	<i>Endothelin-1</i>	35
3.	<b>OBESITY</b>	35
3.1.	<i>Definition, Importance and Prevalence:</i>	35
3.2.	<i>Measures of Obesity:</i>	36
3.3.	<i>Pathophysiology of Obesity</i>	37
3.3.1.	<i>Genetics versus Environmental Factors</i>	37
3.3.2.	<i>Metabolic Predictors of Weight Gain And Obesity</i>	37
3.4.	<i>Patterns Of Body Fat Distribution And Risk Of Diseases</i>	38
3.5.	<i>Obesity as an Inflammatory State</i>	38
3.5.1.	<i>Adipose Tissue As A Mediator of Inflammation And Immunity</i>	38
3.6.	<i>Disorders Associated With Obesity</i>	38
3.6.1.	<i>Obesity And Insulin Resistance:</i>	39
3.6.2.	<i>Obesity And Type 2 Diabetes:</i>	40
3.6.3.	<i>Obesity And Cardiovascular Disease:</i>	42
3.6.4.	<i>Obesity And Dyslipidemia:</i>	43
3.6.5.	<i>Other Consequences Of Obesity:</i>	43
4.	<b>BETA-ADRENERGIC BLOCKERS</b>	44
4.1.	<i>Introduction:</i>	44
4.2.	<i>Pharmacology of <math>\beta</math>-blockers:</i>	45
4.2.1.	<i>Classification of <math>\beta</math>-blockers:</i>	45
4.2.2.	<i>Pharmacokinetics of <math>\beta</math>-blockers:</i>	45
4.2.3.	<i>Mechanisms of action of <math>\beta</math>-blockers:</i>	46

4.2.4.	<i>Adverse effects of <math>\beta</math>-blockers:</i>	47
4.2.4.1.	<i>Cardiovascular:</i>	48
4.2.4.2.	<i>Pulmonary:</i>	48
4.2.4.3.	<i>Metabolic:</i>	48
4.2.4.4.	<i>Central effects:</i>	49
5.	<b>CARVEDILOL</b>	50
5.1.	<i>Discovery and Chemistry</i>	50
5.2.	<i>Chemical Structure</i>	50
5.3.	<i>Pharmacokinetics of Carvedilol</i>	50
5.4.	<i>Pharmacodynamics of Carvedilol</i>	51
5.5.	<i>Clinical Effectiveness of Carvedilol:</i>	52
5.6.	<i>Side Effects:</i>	53
<b>IV.</b>	<b>MATERIALS AND METHODS</b>	<b>54</b>
1-	<i>Chemicals</i>	54
2-	<i>Animals</i>	55
3-	<i>Experimental design</i>	55
4-	<i>Blood Sampling and Euthanasia</i>	56
5-	<i>Tissue Isolation and Preparation</i>	57
6-	<i>Determination of Serum Glucose Level</i>	57
7-	<i>Oral Glucose Tolerance Test (OGTT)</i>	59
8-	<i>Determination of Serum Insulin Concentration</i>	59
9-	<i>Determination of Insulin Resistance, Insulin Sensitivity, And <math>\beta</math>-Cell Function</i>	60
11-	<i>Determination of Serum HDL-C Level</i>	62
12-	<i>Determination of Serum Triglycerides (TGs) Level</i>	63
13-	<i>Estimation of Serum LDL-C Values</i>	65
14-	<i>Determination of Lipid Peroxidation in Serum and Myocardial Tissue</i>	65
15-	<i>Determination of Myocardial Superoxide Dismutase (SOD) Activity</i>	66
16-	<i>Determination of Myocardial Catalase (CAT) Activity:</i>	68
17-	<i>Determination of Serum Advanced Glycosylation End Products:</i>	69
18-	<i>Determination of Myocardial Tissue total of nitrate/nitrite (Total <math>\text{NO}_x</math>) Concentration</i>	70
19-	<i>Determination of Total Tissue Protein:</i>	73
20-	<i>Statistical Analysis:</i>	74
<b>V.</b>	<b>RESULTS</b>	<b>75</b>
1.	<i>Effect of High fat diet feeding for 3 month on different parameters in rats</i>	75
2.	<i>Effect of HFD-feeding for 3 months on body composition index and its alteration by various treatments:</i>	85
3.	<i>Effect of HFD-feeding for 3 months on heart weight index (HWI) and its alteration by various treatments:</i>	85
4.	<i>Effect of HFD-feeding for 3 months on fasting serum glucose level (FSG) and its alteration by various treatments:</i>	88
5.	<i>Effect of HFD-feeding for 3 months on oral glucose tolerance test (OGTT) and its alteration by various treatments:</i>	90

6.	<i>Effect of HFD-feeding for 3 months on fasting serum insulin (FSI) and its alteration by various treatments:</i>	90
7.	<i>Effect of HFD-feeding for 3 months on <math>\beta</math>-cell function (HOMA2-B%) and its alteration by various treatments:</i>	95
8.	<i>Effect of HFD-feeding for 3 months on homeostasis model assessment insulin sensitivity parameter (HOMA2-S %) and its alteration by various treatments:</i>	98
9.	<i>Effect of HFD-feeding for 3 months on homeostasis model assessment insulin resistance (HOMA2-IR) and its alteration by various treatments:</i>	100
10.	<i>Effect of HFD-feeding for 3 months on serum total cholesterol (TC) levels and its alteration by various treatments:</i>	102
11.	<i>Effect of HFD-feeding for 3 months on serum high density lipoprotein cholesterol (HDL-C) and its alteration by various treatments:</i>	104
12.	<i>Effect of HFD-feeding for 3 months on serum triglycerides (TGs) and its alteration by various treatments:</i>	106
13.	<i>Effect of HFD-feeding for 3 months on serum low density lipoprotein (LDL) cholesterol levels and its alteration by various treatments:</i>	108
14.	<i>Effect of HFD-feeding for 3 months on serum level of thiobarbituric acid reactive substances (TBARS) and its alteration by various treatments:</i>	110
15.	<i>Effect of HFD-feeding for 3 months on myocardial oxidative stress level measured as TBARS and its alteration by various treatments:</i>	110
16.	<i>Effect of HFD-feeding for 3 months on myocardial superoxide dismutase (SOD) activity and its alteration by various treatments:</i>	113
17.	<i>Effect of HFD-feeding for 3 months on myocardial catalase (CAT) activity and its alteration by various treatments:</i>	115
18.	<i>Effect of HFD-feeding for 3 months on serum level of AGEs and its alteration by various treatments:</i>	117
19.	<i>Effect of HFD-feeding for 3 months on myocardial NO level measured as total NO<sub>x</sub> (NO<sub>2</sub>/NO<sub>3</sub>) and its alteration by various treatments:</i>	119
	<b>VI. DISCUSSION</b>	121
	<b>VII. SUMMARY AND CONCLUSION</b>	147
	<b>VIII. REFERENCES</b>	154

## LIST OF ABBREVIATIONS

<b>ACE</b>	Angiotensin Converting Enzyme
<b>ADA</b>	American Diabetes Association
<b>AG</b>	Aminoguanidine
<b>AGEs</b>	Advanced Glycation End Products
<b>A-II</b>	Angiotensin II
<b>AUC</b>	Area Under the Curve
<b>BMI</b>	Body Mass Index
<b>CAT</b>	Catalase
<b>CGRP</b>	Calcitonin Gene-Related Peptide
<b>CHD</b>	Coronary Heart Disease
<b>CML</b>	Carboxymethyl-Lysine
<b>CNS</b>	Central Nervous System
<b>CRP</b>	C-Reactive Protein
<b>CSSN</b>	Capsaicin-Sensitive Sensory Neurons
<b>CVD</b>	Cardiovascular Diseases
<b>DAG</b>	Diacylglycerol
<b>DCM</b>	Diabetic Cardiomyopathy
<b>DKA</b>	Diabetic Ketoacidosis
<b>DM</b>	Diabetes Mellitus
<b>ED</b>	Endothelial Dysfunction
<b>EDNO</b>	Endothelial Derived NO
<b>EDRF</b>	Endothelial Derived Relaxing Factor
<b>ELISA</b>	Enzyme-Linked Immunosorbent Assay
<b>eNOS</b>	Endothelial Nitric Oxide Synthase
<b>EP</b>	Epinephrine
<b>ERKs</b>	Extracellular Signal-Related Kinases
<b>ESRD</b>	End-Stage Renal Disease
<b>ET-1</b>	Endothelin-1
<b>FADH<sub>2</sub></b>	Reduced Flavin Adenine Dinucleotide
<b>FBG</b>	Fasting Blood Glucose
<b>FFAs</b>	Free Fatty Acids
<b>FSG</b>	Fasting Serum Glucose
<b>FSI</b>	Fasting Serum Insulin
<b>G-6-PDH</b>	Glucose-6-Phosphate Dehydrogenase
<b>GAPDH</b>	Glyceraldehyde-3-Phosphate Dehydrogenase
<b>GFAT</b>	Glutamine: Fructose-6-Phosphate Amido-Transferase
<b>GLUT1</b>	Glucose Transporter 1
<b>GLUTs</b>	Glucose Transporters
<b>GSH</b>	Reduced Glutathione

<b>GSSG</b>	Oxidized Glutathione
<b>HbA1c</b>	Glycosylated Haemoglobin A1c
<b>HDL</b>	High Density Lipoprotein
<b>HFD</b>	High Fat Diet
<b>HHS</b>	Hyperglycemic Hyperosmolar State
<b>HOMA2-B%</b>	Homeostasis Model Assessment-2 Beta Cell Function
<b>HOMA2-IR</b>	Homeostasis Model Assessment-2 Insulin Resistance
<b>HOMA2-S%</b>	Homeostasis Model Assessment-2 Insulin Sensitivity
<b>HWI</b>	Heart Weight Index
<b>IGF-1</b>	Insulin-Like Growth Factor-1
<b>IKK-<math>\beta</math></b>	Inhibitor $\kappa$ -B (I $\kappa$ B) Kinase
<b>IL-6</b>	Interleukin-6
<b>iNOS</b>	Inducible Nitric Oxide Synthase
<b>IRS-1</b>	Insulin Receptor Substrate-1
<b>ISA</b>	Intrinsic Sympathomimetic Activity
<b>I<math>\kappa</math>B</b>	Inhibitor $\kappa$ -B
<b>JNKs</b>	NH <sub>2</sub> -Terminal Jun Kinases
<b>LDC</b>	Large Dose Carvedilol
<b>LDL</b>	Low Density Lipoprotein
<b>MAPK</b>	Mitogen Activated Protein Kinase
<b>MDA</b>	Malondialdehyde
<b>MMPs</b>	Matrix Metalloproteinases
<b>MSA</b>	Membrane Stabilizing Activity
<b>NADH</b>	Reduced Nicotinamide Adenine Dinucleotide
<b>NE</b>	Norepinephrine
<b>NF<math>\kappa</math>B</b>	Nuclear Factor Kappa B
<b>nNOS</b>	Neuronal Nitric Oxide Synthase
<b>NO</b>	Nitric Oxide
<b>NOS</b>	Nitric Oxide Synthase
<b>OGTT</b>	Oral Glucose Tolerance Test
<b>p.o.</b>	Per Os; orally
<b>p38 MAPK</b>	P38 Mitogen Activated Protein Kinases
<b>PAI-1</b>	Plasminogen Activator Inhibitor-1
<b>PBS</b>	Phosphate Buffered Saline
<b>PGI<sub>2</sub></b>	Prostaglandin I <sub>2</sub> (Prostacyclin)
<b>PKC</b>	Protein Kinase C
<b>PLC</b>	Phospholipase C
<b>RAGE</b>	Receptors For Advanced Glycation End Products
<b>RAS</b>	Rennin-Angiotensin System
<b>RNS</b>	Reactive Nitrogen Species

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<b>ROS</b>	Reactive Oxygen Species
<b>SAPKs</b>	Stress-Activated Protein Kinases
<b>SDC</b>	Small Dose Carvedilol
<b>SERCA</b>	Sarco (endo)plasmic Reticulum Ca <sup>2+</sup> -Atpase
<b>SOD</b>	Superoxide Dismutase
<b>STZ</b>	Streptozotocin
<b>T1DM</b>	Type 1 Diabetes Mellitus
<b>T2DM</b>	Type 2 Diabetes Mellitus
<b>TBA</b>	Thiobarbituric Acid
<b>TBARS</b>	Thiobarbituric Acid Reactive Substances
<b>TCA</b>	Trichloroacetic Acid
<b>TGs</b>	Triglycerides
<b>TNF-<math>\alpha</math></b>	Tumor Necrosis Factor-Alpha
<b>UKPDS</b>	United Kingdom Prospective Diabetes Study
<b>VLDL</b>	Very Low Density Lipoprotein
<b>WHO</b>	World Health Organization
<b>WHR</b>	Waist To Hip Ratio
<b>XOR</b>	Xanthine Oxidoreductase

## LIST OF TABLES

<i>Table (1): Different Forms of Diabetes Mellitus.....</i>	6
<i>Table (2): Effect of feeding the rats a HFD for three months on different parameters.....</i>	76
<i>Table (3): Effect of HFD on body composition index and its alteration by various treatments:.....</i>	86
<i>Table (4): Effect of HFD on heart weight index (HWT) and its alteration by various treatments:.....</i>	87
<i>Table (5): Effect of HFD on fasting serum glucose (FSG) and its alteration by various treatments:.....</i>	89
<i>Table (6): Effect of HFD on Serum Glucose levels at zero time and at 30, 60, 90, 120, and 180 after glucose loading during OGTT and its alteration by various treatments. ....</i>	91
<i>Table (7): Effect of HFD on area under the curve (AUC) of oral glucose tolerance test (OGTT) and its alteration by various treatments:.....</i>	94
<i>Table (8): Effect of HFD fasting serum insulin (FSI) and its alteration by various treatments:.....</i>	96
<i>Table (9): Effect of HFD on <math>\beta</math>-cell function (HOMA2-B %) and its alteration by various treatments:.....</i>	97
<i>Table (10): Effect of HFD on insulin sensitivity parameter (HOMA2-S %) and its alteration by various treatments:.....</i>	99
<i>Table (11): Effect of HFD on Insulin resistance (HOMA2-IR) and its alteration by various treatments:.....</i>	101
<i>Table (12): Effect of HFD on serum total cholesterol levels (TC) and its alteration by various treatments:.....</i>	103
<i>Table (13): Effect of HFD on serum high density lipoprotein (HDL) cholesterol levels and its alteration by various treatments:.....</i>	105
<i>Table (14): Effect of HFD on serum triglycerides (TGs) levels and its alteration by various treatments. ....</i>	107
<i>Table (15): Effect of HFD on serum low density lipoprotein (LDL) cholesterol levels and its alteration by various treatments:.....</i>	109
<i>Table (16): Effect of HFD on serum level of thiobarbituric acid reactive substances (TBARS) and its alteration by various treatments:.....</i>	111
<i>Table (17): Effect of HFD on myocardial oxidative stress levels measured as TBARS and its alteration by various treatments:.....</i>	112
<i>Table (18): Effect of HFD on myocardial superoxide dismutase (SOD) activity and its alteration by various treatments. ....</i>	114
<i>Table (19): Effect of HFD on myocardial catalase (CAT) activity and its alteration by various treatments. ....</i>	116
<i>Table (20): Effect of HFD on serum level of advanced glycosylation end products (AGEs) and its alteration by various treatments:.....</i>	118
<i>Table (21): Effect of HFD on myocardial NO level measured as total NO<sub>x</sub><sup>-</sup> (NO<sub>2</sub><sup>-</sup>/NO<sub>3</sub><sup>-</sup>) and its alteration by various treatments:.....</i>	120