Association of Cardiac Function and Endothelial Dysfunction with Osteoprotegerin in Children and Adolescents with Type 1 Diabetes Mellitus

Thesis

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Moaaz Gamal Buckour

List of abbreviations

ACE : angiotensin converting enzyme

ACR : albumin/creatinine ratio

ADA : American Diabetes Association

AGEs : advance glycation end products

aIMT : aortic intimal medial thickness

A LV : peak mitral atrial velocity during late diastole of left ventricle

Am **:** peak late diastolic myocardial velocity of left ventricle

AMI : acute myocardial infarction

AO **:** aortic diameter

A RV **:**peak mitral tricuspid velocity during late diastole of right ventricle

At **:**peak late diastolic myocardial velocity of right ventricle

BA :brachial artery

bFGF **:**basic fibroblast growth factor

BG :blood glucose

BMI **:**Body mass index

BSA :bovine serum albumin

CAD :coronary artery disease

cIMT **:**carotid intimal medial thickness

CHD :chronic heart disease

cm/sec **:**centimeter per second

CSII :Continuous subcutaneous insulin infusion

CVD :cardiovascular disease

DBP **:**diastolic blood pressure

DCCT :the Diabetes Control and Complications Trial

DM :Diabetes Mellitus

DKA :diabetic ketoacidosis

DT LV :deceleration time of left ventricle

DT RV :deceleration time of right ventricle

ECD :Endothelial cell dysfunction

EDV :end diastolic volume

Ef :ejection fraction

ELISA :enzyme Linked immunosorbant assay

E LV :peak early mitral filling velocity of left ventricle

E RV :peak early tricuspid filling velocity of right ventricle

Em :peak early diastolic myocardial velocity of left ventricle

ESV :end systolic volume

Et :peak early diastolic myocardial velocity of right ventricle

FDCR-1 :follicular dendritic cell-associated receptor 1

FMD :flow-mediated dilation

Fs :fractional shortening

FT1DM :fulminant type 1 diabetes mellitus

HbA1c :Glycosylated hemoglobin

HC : Hip circumference

HDL :high-density lipoprotein cholesterol

HF **:**heart failure

HLA :human leucocyte antigen

HNF **:**Hepatocyte nuclear factor

HS :highly significant

ISPA :International Society for Pediatric and Adolescent Diabetes

IMT :intima-media thickness

IVRT LV **:**isovolumic relaxation time of left ventricle

IVRT RV **:**isovolumic relaxation time of right ventricle

LADA :Latent Autoimmune Diabetes of the Adult

LAD **:**left atrial diameter

LDL :low-density lipoprotein cholesterol

LVEDD :left ventricular end diastolic dimension

LVESD :left ventricular end systolic dimension

LVMI :left ventricular mass index

MODY **:** Maturity onset diabetes of the young

ms **:**milliseconds

NO :nitric oxide

NOD :non-obese diabetic

NPH :Neutral Protamine Hagedom insulin

NS :non significant

OCIF :osteoclastogenesis inhibitory factor

OPG :osteoprotegerin

PAD :Peripheral Artery Disease

PDGF :platelet-derived growth factor

PPARγ :peroxisome proliferator-activated receptor gamma

PWT :posterior wall thickness

QUICKI :Quantitative Insulin Sensitivity Index

RANKL :Receptor Activator for Nuclear Factor κ B Ligand

RVESP **:**right ventricular end systolic pressure

RVMI :right ventricular mass index

S :significant

SBP **:**systolic blood pressure

SD :standard deviation

SDS :standard deviation score

siRNA :short interfering RNA

Sm **:**peak systolic myocardial velocity of left ventricle

SMBG :self-monitoring of blood glucose

SMR :standardized mortality rate

sRANKL :soluble receptor activator of nuclear factors-κB ligand

St **:**peak systolic myocardial velocity of right ventricle

SV :Stroke volume

SWT :septal wall thickness

T1D :Type 1 diabetes mellitus

T2D :type 2 diabetes mellitus

TC :Total cholesterol

TDI :Tissue Doppler Imaging

TG :Triglycerides

TNF :tumor necrosis factor

TRAIL :TNF-related apoptosis inducing ligand

VECs :vascular endothelial cells

VSMCs :vascular smooth muscle cells

WC **:**Waist circumference

WHO :world health organization

WHR **:**waist to hip ratio

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