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Correlation Between Primary Open Angle Glaucoma And Cardiovascular Diseases And Its Risk Factors

Thesis

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By

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بسم الله الرحمن الرحيم

(قَالُوا سُبْحَانَكَ لا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ)

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Contents

List of Figures

List of Tables

LIST OF ABBREVIATION

11B-HSD2	11B.hydroxysteroid dehdrogenase
2D	Two dimensional
2HPP	Two hours post prandial
A2C	Apical two-chamber
A4C	Apical four-chamber
ABI	Ankle brachial index
ACS	Acute coronary syndrome
AHA/NHLBI	American heart association/national heart ,lung and blood institute
AIDS	Acquired immunodeficiency syndrome
ANG II	Angiotensin II
AOAG	Adult onset open angle glaucoma
AR	Atrial reversal
BC	Before Christ
BH4	tetrahydrobiopterin
BMI	Body mass index
Br A	Brachial artery
BSA	Body surface area
CAD	Coronary artery disease
CCA	Common carotid artery
CEP	Cholesterol education program
CRF	Chronic renal failure
CRP	C-Reactive protein
CVD	Cardiovascular disease
DD	Diastolic dysfunction

DM	Diabetes mellitus
DPP	Diastolic perfusion Pressure
DT	Deceleration time
ECA	External carotid artery
ECG	Electrocardiography
EDD	End diastolic diameter
EDV	End diastolic volume
EDV	End diastolic velocity
EF	Ejection fraction
eNOS	endothelial nitric oxide synthase
EPCs	Endothelial progenitor cells
ESD	End systolic diameter
ESRD	End stage renal disease
ESV	End systolic volume
ET-1	Endothelin -1
FBS	Fasting blood sugar
FMD	Flow mediated dilation
FS	Fractional shortening
GON	Glocomatous optic neuropathy
HDL-c	High density lipoprotein cholesterol
HIV	Human immunodeficiency virus
HTG	Hypertension glaucoma
ICA	Internal carotid artery
ICAM-1	Intercellular adhesion molecule-1
IHD	Ischemic heart disease
IMT	Intima media thickness
IOP	Intra ocular pressure
IVRT	Intraventricular relaxion time
LA	Left atrium

LALES	Los Angeles Latino Eye Study
LAP	Left atrial pressure
LDL-c	Low density lipoprotein cholesterol
LP (a)	Lipoprotein (a)
LV	Left ventricle
MI	Myocardial infarction
MRI	Magnetic resonance imaging
NADPH	Nicotinamide adenine dinucleotide phosphate
NAHNES	National health and nutrition examination survey
NO	Nitric Oxide
NTG	Normal tension glaucoma
OHT	Ocular hypertension
PAD	Peripheral arterial disease
PCWP	Pulmonary capillary wedge pressure
POAG	Primary open angle glaucoma
PP	Perfusion pressure
PSV	Peak systolic velocity
PV	Propagation velocity
PWV	Pulse wave velocity
ROS	Reactive Oxygen Spicies
TGs	Triglycerides
VCAM-1	Vascular adhesion molecule-1
VEGF	Vascular endothelial growth factor
VLDL-c	Very low density lipoprotein cholesterol
VOP	venous occlusion plethysmography
WC	Waist circumference
WHR	Waist to hip ratio

Introduction

Researchers are increasingly realizing the close relationships between systemic cardiovascular disease and a number of eye diseases. Cardiovascular disease and certain eye diseases share risk factors, and some local eye diseases can be markers for systemic disease ***(Taylor and Lightman, 2003)***.

Recent studies have found that major eye diseases, such as age-related macular degeneration, retinopathy and glaucoma, are triggered by the same systemic factors that cause cardiovascular disease (CVD). In fact, many of these ocular diseases can be red flags, signaling the need for a cardiovascular examination in a patient not yet diagnosed with CVD ***(Nader, 2006).***

Primary open-angle glaucoma (POAG) is one of the most prevalent causes of irreversible blindness and is considered as a group of ocular diseases characterized by progressive thinning of the neuroretinal rim of the optic nerve head and loss of the retinal nerve fiber layer ***(Kuvin et al., 2001).***

The cause of primary open angle glaucoma is still unclear today, Mechanical and vascular causes have been proposed, the mechanical theory suggests that elevated intraocular pressure (IOP) is the most important risk factor for developing glaucomatous optic neuropathy (GON). The vascular theory considers glaucomatous optic neuropathy (GON) a consequence of insufficient ocular blood supply due to vascular dysregulation ***(Resch et al., 2009).***