

شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلو

بسم الله الرحمن الرحيم





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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكرونيله



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



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شبكة المعلومات الجامعية التوثيق الإلكترونى والميكروفيلم

جامعة عين شمس التوثيق الإلكتروني والميكروفيلم قسم

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Assessment of Carotid Atherosclerosis in Egyptian Chronic Hepatitis C Patients After Treatment by Direct Acting Antiviral Drugs.

Thesis

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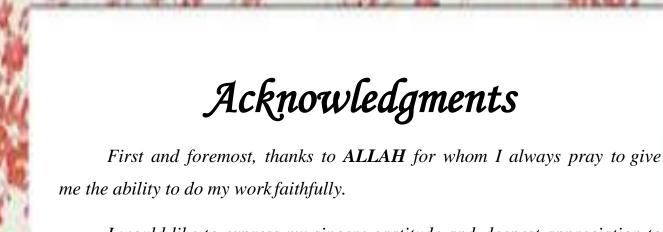
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Dedication



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List of Abbreviations

AASLD American association for study of liver diseases

AFP Alpha-Feto Protein

AHA American heart association
ALT Alanine aminotransferase
AST Aspartate aminotransferase

CAD Carotid artery disease
CAS Carotid Atherosclerosis
CBC Complete blood count

CETP Cholesteryl ester transfer protein
CIA Chemiluminescence Immunoassay

CNS Central Nervous System

CRP C reactive protien

CTA Computed Tomography angiography

CTP Child Turcotte pugh
DAA Direct Acting Antiviral

DCV Daclatasvir

EASL European association for study of the liver

EGF Epidermal growth factor
EHIS Egypt Heath Issues Survey
EHDS Egypt Heath Disability Survey

EIA Enzyme Immunoassay

ELISA Enzyme-linked immune-sorbent assay

FDA Food and Drug Administration

GFR Glomerular filtration rate

HAV Hepatitis A Virus

Hb Hemoglobin

HBV Hepatitis B Virus

HCC Hepatocellular carcinoma

HCV Hepatitis C Virus

HDL High density lipoprotein

HIV Human Immunodeficiency virus

ICA Internal carotid artery

IDSA Infectious disease society of America

IL Interleukin

IMT Intima media thickness

INR International normalized ratio

IQR Inter Quartile Range

LDL Low Density Lipoprotein

MELD Model of endstage liver disease

MMP Matrix Metallo-protinase

MOHP Ministry of Health and Population MRA Magnetic resonant angiography

NKC Natural Killer cells Peg-IFN Pegylated Interferon

PDGF Platelet derived growth factor

PI Protease inhibitor
PT Prothrombin time

PTT Partial thromboplastin time

RBV Ribavirin

RIBA Recombinant Immuno-Blot Assay

RT-PCR Reverse Transcriptase Polymerase Chain Reaction

SD Standard deviation

SDH Social determinants of health SNP Single nucleotide polymorphism

SOF Sofosbuvir

SPSS Statistical Program for Social Science

SVR Sustained Virologic Response
TIA Transient ischemic attacks

TLR Tol Like Receptor

USA United States of America

WBCs White blood cells

USA United States of America
WHO World Health Organization

Introduction

Hepatitis C virus (HCV) infection is one of the main causes of chronic liver disease as there are approximately 71 million chronically infected individuals worldwide (**Blach et al., 2017**).

HCV infection affects cholesterol homeostasis and despite of its association with a decrease in serum concentrations of total cholesterol, LDL-C and apolipoprotein B (apoB —the main protein constituent of LDL and very-low-density lipoprotein (VLDL) an it was found that chronic HCV is associated with increased risk of atherosclerosis and its clinical manifestations (**Bassendine et al., 2013; Ampuero & Romero-Gómez, 2015**).

The risk for coronary artery disease increases with HCV-infected individuals. Also, myocardial perfusion defects have been found in 87% of the patients with chronic hepatitis C, which improved with viral eradication (**Roed et al., 2006**; Maruyama et al., 2013).

The carotid arteries are among the commonest sites of atherosclerosis, manifesting as cardiovascular disease, stroke and other diseases. Of the two major stroke subtypes, ischaemic stroke is generally the more common and is mainly due to carotid atherosclerosis (**Arenillas, 2011**).

The mechanisms suggested for carotid atherosclerosis were a chronic immunological challenge and the production of pro-inflammatory cytokines. Persistent infection disturbs the balance between immunostimulation and inhibitory cytokines, which could thus maintain a significant level of inflammation. The alteration in the cytokine balance observed in patients with chronic hepatitis C could result in these cardiovascular complications (**Domont & Cacoub, 2016**).

Carotid intima-media thickness (IMT) has been used as a surrogate of subclinical atherosclerosis and studies have shown that, after adjustment for classical cardiovascular risk factors, those with chronic HCV infection have raised IMT (Mostafa et al., 2010).

The recent introduction of direct-acting antivirals (DAAs) has changed hepatitis C virus (HCV) infection treatment. These treatments result in significantly high sustained viral response (SVR) rates (85%-100%) after a short treatment course (12-24 weeks) without any severe adverse effects (**Zuccaro et al., 2020**).

The available data on role of treatment of chronic HCV infection by new DAAs and improvement of carotid atherosclerosis are scarce and contradicting as study of Petta et al. revealed that HCV eradication by DAA improves carotid atherosclerosis in patients with severe fibrosis with or without additional metabolic risk factors (**Petta et al., 2018**).