

Comparison between Level of Serum Pentraxin3 in Non-Alcoholic Fatty Liver Patients with or without Hepatitis C Virus

Thesis

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وَأَنْزَلَ اللَّهُ عَلَيْكَ
الْكِتَابَ وَالْحِكْمَةَ
وَعَلَّمَكَ مَا لَمْ تَكُنْ
تَعْلَمُ وَكَانَ فَضْلُ اللَّهِ
عَلَيْكَ عَظِيمًا

صدق الله العظيم

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List of Abbreviations

Abbrev.	Full term
AKT2	: Protein kinase B2
ALT	: Alanine aminotransaminase
ANA	: Antinuclear antibodies
Anti CD20	: Anti cluster differentiation20
AP-1	: Activator protein 1
APOB	: Apolipoprotein B
ARFI	: Acoustic radiation force impulse imaging
AST	: Aspartate aminotransaminase
ATGL	: Adipose triacylglycerol lipase
AUC	: Area under the receiver operating characteristic curve
BCG	: Bacille Calmette-Guerin
BMI	: Body mass index
C°	: Celsius
CAP	: Controlled attenuation parameter
CCL2	: Chemokine (C-C motif) ligand 2
CHF	: Chronic heart failure
CKD	: Chronic kidney disease
cm	: Centimeter
CNS	: Central nervous system
CoA	: Co-enzyme A
CRP	: C-reactive protein
CT	: Computed tomography
CVD	: Cardiovascular diseases
DAAs	: Direct acting agents

List of Abbreviations *(Cont.)*

Abbrev.	Full term
DCs	: Dendritic cells
DGAT	: Diacylglycerol o-acyltransferase
dl	: Decileter
DNA	: Deoxy ribonucleic acid
DVR	: Delayed virological response
ED	: Endothelial dysfunction
EDTA	: Ethylenediamine Tetra-Acetic Acid
EGFR	: Epidermal growth factor receptor
ELF	: Enhanced Liver Fibrosis
ELISA	: Enzyme linked immunosorbant assay
ERK	: Extracellular regulated kinase
EVR	: Early virological response
FFAs	: Free fatty acids
g	: Gram
GCKR	: Glucokinase regulator
GGT	: Gamma glutamyl transferase
GK	: Glucokinase
GN	: Glomerulonephritis
GWAS	: Genome-wide association studies
HAART	: Highly active antiretroviral drugs
HBsAg	: Hepatitis B surface antigen
HBV	: Hepatitis B virus
HCC	: Hepatocellular carcinoma
HCV	: Hepatitis C virus
HCV-LP	: Hepatitis C virus- leukotriene

List of Abbreviations *(Cont.)*

Abbrev.	Full term
HCVpp	: Hepatitis C virus protein particle
HDL	: High density lipoprotein
HIV	: Human immunodeficiency virus
HL-60	: Human promyelocytic leukemia cells
HOMA IR	: Homeostasis Model Assessment of insulin Resistance
HSC	: Hepatic stellate cell
IFN	: Interferon
IL-1	: Interleukin-1
IL-6	: Interleukin-6
IRAK	: IL-1 receptor-associated kinase
IRF-3	: Interferon regulatory factor 3
IRS-1	: Insulin receptors substrate-1
IU	: International unit
JNK1	: C-Jun N-terminal kinase-1
Kg	: Kilogram
KPa	: Kilo Dalton
L	: Liter
LDL	: Low density lipoprotein
LDs	: Lipid droplets
LSM	: Liver stiffness measurement
LT	: Leukotriene
m²	: Square meter
MC	: Mixed cryoglobulinemia
MCP-1	: Monocyte chemotactic protein-1

List of Abbreviations *(Cont.)*

Abbrev.	Full term
MFs	: Myofibroblasts
mg	: Milligram
MI	: Myocardial infarction
mL	: Milliliter
μL	: Microliter
mm Hg	: Millimeter mercury
MoDC	: Monocyte-derived DC
MRE	: Magnetic resonance elastography
MRI	: Magnetic resonance imaging
mRNA	: Messenger ribonucleic acid
mTORC1	: Mammalian target of rapamycin1
MyDC	: Myeloid DC
NAFLD	: Non-alcoholic fatty liver disease
NANB	: Non-A, non-B
NAS	: NAFLD Activity Score
NASH	: Non-alcoholic steatohepatitis
NCEP ATP	: National cholesterol education program, adult treatment program
NF-κβ	: Nuclear factor-kappa β
ng	: Nanogram
NHL	: Non-Hodgkin lymphoma
NK	: Natural kill
nm	: Nanometer
NPV	: Negative predictive value
NS3	: Nonstructure viral protein 3

List of Abbreviations *(Cont.)*

Abbrev.	Full term
NS5	: Nonstructure viral protein 5
PCR	: Polymerse chain reaction
pDC	: Plasmacytoid DC
PDGF	: Platelet-derived growth factor
PET	: Positron emission tomography
PI3K-Akt-mTOR	: PI3K-protein kinase B-mammalian target of rapamycin
PLT	: Platelets
PNPLA3	: Patatinlike phospholipase family 3
PPAR	: Peroxisome proliferator receptors
PPV	: Positive predictive value
PRR	: Pattern recognition receptors
PTX3	: Pentraxin3
RIG-I	: Retinoic acid-inducible gene-I
RNA	: Ribonucleic acid
ROC	: Receiver operating characteristic
ROS	: reactive oxygen species
RVR	: Rapid virological response
SAP	: Serum amyloid P component
SD	: Standard of deviation
SLE	: Systemic lupus erythromatosis
SNP	: Single nucleotide polymorphism
Sp1	: Specificity protein 1
SPSS	: Statistical Package for the Social Science
SREBP-1	: Sterol regulatory element-binding protein-1

List of Abbreviations *(Cont.)*

Abbrev.	Full term
STAT1	: Signal transducer and activator of transcription
Std	: Standard of deviation
SVR	: Sustained virological response
TGF-β	: Transforming growth factor β
THP1	: Tamm-Horsfall protein 1
TLR2	: Toll-like receptor 2
TLR3	: Toll-like receptor 3
TNF	: Tumor necrosis factor
TRAIL	: TNF-related apoptosis-inducing ligand
TSG	: TNF-stimulated genes
U-937	: Macrophage-like human monocytoid
Ub	: Ubiquitin
US	: Ultrasonography
USA	: United State of America
VCAM-1	: Vascular cellular adhesion molecule-1
VLDL	: Very low density lipoprotein
WBC	: White blood cell

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Introduction

Fatty liver is a common condition increasingly detected by routine abdominal ultrasound. Non-alcoholic steato-hepatitis (NASH) is not rare and it is predicted to become one of the most common liver diseases (*Matteoni et al., 1999*). Liver biopsy represents the best diagnostic test for staging liver steatosis, inflammation and fibrosis, but medical and ethical considerations limit its use in subjects with non progressive fatty liver conditions (*Angelico et al., 2003*).

Egypt has the highest countrywide prevalence of hepatitis C virus (HCV) in the world with an estimated 8 - 10 million patients the majority develop chronic hepatitis that may lead to complications such as fibrosis, cirrhosis or hepatocellular carcinoma (HCC) (*Thomas et al., 2000*).

Serum pentraxin3 (PTX3) is acute phase proteins made in the liver in response to inflammatory processes. Measuring PTX3 may serve as predictors of progressive liver pathology in non-alcoholic fatty liver disease (NAFLD) (*Yoneda et al., 2008*).

Aim of the Work

The aim of this work is to study the value of pentraxin3 (PTX3) as a noninvasive marker for diagnosis of non-alcoholic fatty liver disease (NAFLD) with or without chronic HCV infection.