

Correlation of viral load in Hepatitis B patients with stage of liver fibrosis measured by liver Fibro-scan

Thesis

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List of Abbreviations

3D	Three dimension
AASLD	American Association of Study of Liver Disease
ADV	Adefovir
AH	Acute hepatitis
AIF	Apoptosis inducing factor
ALD	Alcoholic Liver Disease
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase
Au Ag	Australia antigen
BCP	Basal core promoter
BMI	Body mass index
CAH	Chronic active hepatitis
CHB	Chronic hepatitis B
CHC	Chronic hepatitis C
CLD	Chronic liver disease
CPT	Child's Pugh Turcotte score
CREB	Cyclic adenosine monophosphate response element binding
CT	Computerized Tomography
DC	Dendritic cell
DDU	Duplex Doppler Ultrasound
DNA	Hepatitis B immunoglobulin

DR	Direct repeat
ECM	Extracellular matrix
EDHS	Egyptian Demographic Health survey
EIA	Enzyme immunoassay
ELISA	Enzyme linked immunosorbant assay
EM	Electron microscope
F	Fibrosis score (histopathologically)
GI	Gastrointestinal
GOT	Glutamic oxalo acetic acid aminotransferase
HAART	Highly Active Anti Retroviral Therapy
HBIG	Hepatitis B immunoglobulin
HBSP	Hepatitis B surface protein
HBV	Hepatitis B Virus
HBX	Hepatitis B X antigen
HCC	Hepato Cellular Carcinoma
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HVPG	Hepatic Venous Pressure Gradient
IFN	Interferon
INR	International normalized ratio
KPa	Kilo Pascal
LAM	Lamivudine
LS	Liver Stiffness

LSM	Liver Stiffness Measurement
LT	Liver transplantation
MHZ	Mega Hertz
mmHg	Millimeter mercury
MMPs	Matrix Metallo Protein eases
MRI	Magnetic Resonance Imaging
mRNA	Massanger RNA
MSD	Mercck Sharp and Dohme
MΩ	Million ohm
NAFLD	Non alcoholic Fatty Liver Disease
NASH	Non alcoholic Steatohepatitis
NGS	Next generation sequencing
NKC	Natural killer cell
NPC	Nuclear pore complex
OBI	Occult hepatitis B infection
OGD	Oesophagogastrodudenoscopy
ORF	Open reading frame
OV	Oesophageal varices
PBC	Primary Biliary Cirrhosis
PC	Prothrombin concentration
PCR	Polymerase chain reaction
PgRNA	Pregenomic RNA
PHT	Portal hypertension

PT	Prothrombin time
RC	Relaxed circular
RNA	Ribonuecliec acid
RNaseH	Ribonuclutidase hydorlytic
ROI	Region of Interest
RT	Reverse transcriptase
SAPI	Splenic Arterial Pulsatility Index
SPI	Spleeno Portal Index
SRCR	Scavenger Receptor Cystien Rich
STAT	Signal transducer and activator of transcription
SVR	Sustained virological response
TE	Transient Elastography
TGF	Tumour growth factor
TIMPS	Tissue Inhibitor of Metallo Protein eases
TNF	Tumour necrosis factor
US	Ultrasound
VEGF	Vascular Endothelial Growth Factor
WHO	World Health Organization

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Introduction

Over years or decades, chronic hepatitis B virus (HBV) infection can lead to advanced liver disease including cirrhosis and hepatocellular carcinoma (HCC). Studies have shown that sustained HBV clearance reduces the risk of disease progression, but it is unclear whether HBV DNA levels in patients with persistent viremia is associated with disease severity. This is an important consideration, because viral load could potentially be used to guide decisions about when to start treatment (**Kim et al., 2010**).

Fibro Scan has been considered as a rapid and non invasive method to assess liver fibrosis in patients with chronic hepatitis B (CHB). Results to date show that LSM can help physicians decide treatment strategies, predict prognosis, and monitor disease progression or regression in patients with chronic liver disease (**Marcellin et al., 2009**).

Transient Elastography - An alternative to a liver biopsy, transient elastography (Fibro Scan) is a non-invasive method of evaluating liver tissue. By measuring a low-frequency sound wave as it moves along the liver, this test records the speed with which the sound wave moves and correlates it with the degree of liver fibrosis (**Talwalkar et al., 2007**).

The stiffer (more fibrotic) the tissue, the faster the sound wave moves. Using ultrasound technology, this test is quick and painless. The primary drawbacks for using transient elastography are that, at this time, it cannot be used with patients who have ascites or who are obese (Croagh et al., 2009).

Aim of the work

To evaluate role of hepatitis B viral load in progression of liver fibrosis measured by liver fibro-scan in patients with chronic HBV infection.

Patients & Methods

The study will be conducted on 10 patients with hepatitis B virus infection attending and/or admitted in Ain Shams University Hospitals.

Patients will be submitted to following:

1-History taking and Clinical examination.

2-Laboratory investigations which include:

- Liver Function tests (AST, ALT, Total, Direct and Indirect bilirubin)
- Serum albumin
- Prothrombin Time and INR
- Renal Function test
- Complete Blood Count

- Hepatitis Markers:
 - ✓ HBsAg
 - ✓ HbsAB
 - ✓ HCVAB by third generation (ELISA)
 - ✓ Alpha-fetoprotein
 - ✓ ANA

3-Imaging:

Abdominal ultrasound (U/S) for detection of cirrhosis.

4-Quantitative assay for HBV DNA viral load by PCR

5-Fibroscan of the liver for assessment of stage of fibrosis.

Exclusion criteria:-

- 1- HCC patients
- 2- HCV and other viral infections
- 3- Autoimmune hepatitis patients
- 4- Alcoholic liver disease patients
- 5- NASH patients

The patients will be divided into 2 groups;

o Group A:

30 patients with chronic hepatitis B infection with low stage of fibrosis (< F2 by fibroscan).

o Group B:

30 patients with chronic hepatitis B infection with high stage of fibrosis (> F2 by fibroscan)