EVALUATION OF ULTRASONIC TRANSIENT ELASTOGRAPHY (FIBROSCAN) IN EGYPTIAN CHRONIC HCV PATIENTS

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ABSTRACT

Diagnosis of the stage of liver fibrosis is essential for making a prognosis and deciding an antiviral therapy. Liver biopsy is the gold standard for fibrosis staging, but due to its limitations, alternative tests for liver fibrosis evaluation have been developed. Among them, serum markers and transient elastography have been compared against histology.

Aim of work: Evaluate the efficacy of transient elastography in the diagnosis of hepatic fibrosis among Egyptian chronic HCV patients.

Patients and methods: Our study included 197 chronic HCV patients and for them routine investigations, ultrasound guided liver biopsy and liver stiffness measurement using fibroscan were done. All biopsy specimens were analyzed by two experienced pathologists blinded to the results of each other and were classified according to the specimen length into ideal biopsy, subideal biopsy and not accepted.

Results: 1- inter-observer variability between pathologists is less evident in fibrosis staging and is not related to the liver biopsy specimen length.

2- Fibroscan is a sensitive tool in detection of significant fibrosis F≥2 as assessed by the METAVIR score at a cut off level of 6.35 kpa and in detection of cirrhosis F≥4 at a cut off level of 10.75 kpa.

3- Schistososmal infection decrease the sensitivity of the new fibroscan score cut off level to detect significant fibrosis (F2-F3) as assessed by the METAVIR scoring system.

Key words: liver fibrosis, transient elastography (fibroscan), liver biopsy

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- **ACE:** angiotensinogen converting enzyme
- **APASL:** Asian pacific assoaiation for study of liver disease
- **APRI:** AST-to-Platelet ratio Index
- **AT:** angiotensin
- **AUROC**: Area under ROC curve
- **BMI :** body mass index
- **CCl4 :** carbon tetrachloride
- **CCN:** Cysteine rich neuroblastoma overexpressed
- **CTGF:** connective tissue growth factor
- **EBPβ:** enhancer binding protein –β
- **ECM :** extracellular matrix proteins
- **ELF :** Enhanced Liver Fibrosis Test
- **EMT:** epithelial–mesenchymal transition
- **ET-1:** Endothelin-1
- **FGF:** fibroblast growth factor
- **FXR:** farnesyl X receptor
- **HGF:** Hepatocyte growth factor
- **HMG CoA:** 3-hydroxy-3-methyl-glutaryl coenzyme A
- **HSC**: hepatic stellate cell
- **HVPG :** hepatic-vein portal gradient
- **ICAM :** intacellualr adhesion molecule
- **ICC :** intraclass correlation coefficients
- **IL-3:** Interleukin 3
- **IQR :** The interquartile range
- **LPS:** lipopolysaccharide
- **M-CSF:** macrophage colony-stimulating factor
- **MCP:** monocyte chemotactic peptide
- **MMPs :**matrix metalloproteinase
- **NCAM:** neural cell adhesion molecule

- **NF Kappa B:** nuclear factor-Kappa B
- **NGF:** nerve growth factor
- **NO:** nitric oxide
- **NOTES:** natural orifice transluminal endoscopic surgery
- **NPV**: Negative predictive value
- **PDGF :** platelet derived growth factors
- **PDTC:** pyrrolidine dithiocarbamate
- **PPAR:** peroxisome proliferators activated receptor
- **PPV**: Positive predictive value
- **ROC curve**: Receiver operator characteristic curve
- **ROS:** reactive oxidative stress
- **SAFE biopsy :** Sequential algorithms for fibrosis evaluation
- **Smad 7:** mothers against DPP homolog 7
- **SOD :** superoxide dismutase-system
- **SOS :** sinusoidal obstruction syndrome
- **(TE):** transient elastography
- **TGF-b:** Transforming growth factor-b
- **TIMPs:** the tissue inhibitors of metalloproteinases
- **TLRs:** toll-like receptors
- **TNF-a:**Tumor necrosis factor a
- **TRAIL:** TNF-related apoptosis-inducing ligand
- **VCAM:** vascular cell adhesion molecule
- **VEGF:** Vascular endothelial growth factor

INTRODUCTION

Chronic hepatitis C virus (HCV) infection is responsible for liver fibrosis and may lead to potential long-term complications such as liver cirrhosis and hepatocellular carcinoma. ***(Franck et al, 2000).***

In Egypt about 13.3 % of population are chronically infected with HCV and are at risk of liver complications .Individuals living in rural areas had significantly more anti-HCV seropositivity (36.1%) than those living in urban areas (24.7%) ***(Mohamed, 2004)***

This high prevalence has been attributed to transmission through insufficiently sterilised needles during mass anti-bilharzial treatment campaigns in the 1960s and 1970s. Epidemiological studies have shown that genotype 4 (HCV-G4) was the most frequent (91%) genotype isolated in Egypt ***(Ray et al, 2000)***.

Diagnosis of the stage of liver fibrosis is essential for making a prognosis and deciding an antiviral therapy. Liver biopsy is the gold standard for fibrosis staging, although it is limited by its invasive nature, poor acceptance, availability, cost, intra- and interobserver variability, and sampling errors ***(Cadranel et al, 2000).***

To avoid biopsy, alternative tests for liver fibrosis evaluation have been developed. Among them, serum markers and elastometry are the two main techniques which have been compared against histology. Serum markers have been the first to appear, and typically combine several indicators, among which $\alpha 2$ macroglobuline, haptoglobin, apolipoprotein A1, bilirubin,