Evaluation of liver fibrosis by FIB-4 Index before and after Sofosbuvir in Egyptian Patients with chronic HCV

Thesis

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Contents

Title	Page

List of Tables

Title **page**

List of Figures

Title **page**

List of Abbreviations

AAR.	**AST/ALT Ratio.**
AASLD.	**A**merican **A**ssociation for the **S**tudy of **L**iver **D**iseases.
AFP.	**A**lfa **F**eto **P**rotein.
ALT.	**A**lanine **T**ransaminase.
AST.	**A**spartate **T**ransaminase.
APRI.	**A**ST/**p**latelet **R**atio **I**ndex.
AUROC.	**A**rea **U**nder Receiver Operating **C**urve.
BMI.	**B**ody **M**ass **I**ndex.
BOC.	**B**oceprevir.
CHC.	**C**hronic **H**epatitis **C.**
CI.	**Co**nfidence **i**nterval**.**
Cr.	**S**erum **C**reatinine**.**
DAAs.	**D**irect **A**cting **A**ntiviral**.**
DCA.	**D**aclatasvir**.**
E1& E2	**E**nvelope glycoprotein**.**
EASL.	**E**uropean **A**ssociation for the **S**tudy of the **L**iver.
ECM.	**E**xtracellular **M**atrix.
EMA.	**E**uropean **M**edical **A**gency.
FDA.	**F**ood &**D**rug **A**dministration.
FIB-4	**Fibrosis-4.**
GGT.	**G**amma **G**lutamyl **T**ransferase**.**
HB.	**H**eamoglobin.

HCV.	**H**epatitis **C V**irus.
HIV.	**H**uman **I**mmunodeficienc**y V**irus.
IAS-USA.	**I**nternational **A**ntiviral **S**ociety-**USA.**
IDSA.	**I**nfectious **D**iseases **S**ociety of **A**merica.
IL-28B.	**I**nter **L**eukin-28B gene**.**
IR.	**I**nsulin **R**esistance**.**
KPa.	**K**ilo **P**ascal.
LDLT	**L**iving **D**onor **l**iver **T**ransplant**.**
LSM.	**Liver Stiffness Measurment.**
MC.	**M**ixed **C**ryoglobulinemia.
MMP.	**M**atrix **M**etalloproteins.
NAFLD.	**N**on **A**lcoholic **F**atty **L**iver **D**isease.
NHL	**N**on **H**odjikin's **L**ymphoma.
NK	**N**atural **K**iller cell.
Peg-IFN α.	**P**egylated **I**nterferone **α.**
PCR.	**P**olymerase **C**hain **R**eaction.
RBV.	**R**ibavirin.
RR.	**R**elative **R**isk**.**
SLE	**S**ystemic **L**upus **E**rythematosus**.**
SOF.	**S**ofosbuvir.
SVR.	**S**ustained **V**irological **R**esponse**.**
TE.	**T**ransient **E**lastography.
TVR.	**T**elaprevir.
WHO.	**W**orld **H**ealth **O**rganization

Abstract

Introduction: Hepatitis C Virus (HCV) is a serious global health problem. HCV leads to permanent liver damage which may progress to hepatocellular carcinoma. Treatment of HCV had changed markedly in the last years. Measuring the degree of liver stiffness is a mandatory step before treatment initiation.Fibrosis-4 index (FIB-4) is a non-invasive method to measure the degree of liver fibrosis.

Aim: To evaluate the role of FIB-4 index before and after Sofosbuvir-based treatment regimens either Dual (Sofosbuvir, Ribavirin) or Triple regimen(Sofosbuvir, Ribavirin &Pegylated Interferone **α** [Peg-INF **α**]).

Method: This study enrolled 152 Egyptian patients with chronic HCV who received either dual or triple treatment regimen upon which they had been divided into triple and dual group. All patients were subjected to full clinical and laboratory examination, complete history taking, abdominal ultrasound, Fibroscan (Transient Elastography) before starting treatment and calculating FIB-4 index before and after treatment.

Results: After treatment FIB-4 decreased significantly in dual group with mean ±SD(2.24± 1.56)before treatment and (1.54 ± .84) after treatment(p=0.000),while it changed with mild significance in triple group(p=0.047). Age in the triple group with mean ±SD(47.58± 9.78) was lower than dual group with mean ±SD (55.00± 6.99) which was highly statistically significant(p=0.000).Real time-Polymerase Chain Reaction (PCR) for HCV, Platelets count, Hemoglobin level and liver function changed with highly statistically significance (p=0.000 for all) while there was no significant changes had occurred concerning Total bilirubin nor Serum Creatinine in both groups after treatment.

Conclusion: FIB-4 is a good noninvasive method to assess the degree of liver fibrosis with the aid of other radiological techniques, also there was a good response to treatment with both triple and dual regimens.

Key words: FIB-4 Index, HCV, Liver fibrosis, Sofosbuvir, Peg- INF **α**.

Introduction

The accurate evaluation of liver fibrosis in chronic hepatitis C is mandatory to appraise therapeutic indications and prognosis, because complications mainly occur in patients in advanced stages of their disease. The gold standard for assessing hepatic fibrosis is liver histology. Liver biopsy (LB) is however limited by its invasive nature.**(Cadranel et al., 2000; Castera et al., 1999; Bravo et al., 2001)**

Consequently noninvasive tests to assess hepatic fibrosis have been developed, such the AST-to-platelet ratio index (APRI**)(Wai et al., 2003)** and FibroTest.**(Imbert-Bismut et al., 2001; Myers et al., 2003; Poynard et al., 2003; Rossi et al., 2003; Thabut et al., 2003)**Moreover, transient elastography (FibroScan, Echosens, Paris, France)—a morphological method that measures liver stiffness— has been evaluated.**(Castera et al., 2005)**

All of these noninvasive tools have a good predictive positive value for diagnosis of nil or minimal fibrosis and extended fibrosis.**(Castera et al., 2005; Cales et al., 2005; Adams et al., 2005; Poynard et al., 2005)**

The FIB-4 index is a noninvasive test for the assessment of liver fibrosis. A score of <1.45 and >3.25 enable the correct identification of patients who have moderate or significant fibrosis, respectively, and could avoid LB examination. The FIB-4 index proved to be concordant with FibroTest results. Because the FIB-4 index is readily available, inexpensive, and easily reproducible, it could rapidly replace expensive and/or invasive methods to assess liver fibrosis, especially in developing countries, to detect patients who need antiviral treatment and to monitor liver fibrosis progression (or regression).**(Vallet-Pichard et al., 2007)**