Relation Between Hepatic Steatosis In Hepatitis C Virus Infection And Genotype (4)

Thesis

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By

Ahmed Ibrahim Abd El Rahman
M.B., B.CH

Under supervision of

Professor Amr Abd El Kader Ahmed Fateen
Professor of Internal Medicine
Faculty of Medicine
Ain Shams University

Professor Amany Talaat Kamal Hanna
Assistant Professor of Internal Medicine
Faculty of Medicine
Ain Shams University

Professor Ahmed Mohamed El Sawy
Consultant of Gastroenterology and Hepatology
In Military Hospitals

Faculty of Medicine
Ain Shams University
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تحت اشراف

الاستاذ الدكتور/عمروعبدالقادراحمد فطين

استاذ الباطنة

كليه الطب -جامعةعين شمس

الاستاذ الدكتور/امانى طلعت كمال حنا

استاذ مساعد الباطنة

كليه الطب -جامعةعين شمس

الاستاذ الدكتور/احمد محمد الصاوى

مستشارالجهازالهضمى والكبد

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Ahmed Ibrahim

LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENTS

ABSTRACT

Background:

Liver steatosis is a common finding in patients infected with hepatitis C virus (HCV).Host and viral factors have been associated with steatosis, but their relative contributions have not been clearly addressed. It has been suggested that steatosis plays a role in the progression of liver fibrosis.

Aim:

The aim of this study is to assess Steatosis in chronic hepatitis C patients in Egypt, with re-evaluation of viral genotyping as an independent risk factor.

Patients and methods:

This study was conducted on fifty cases of chronic HCV hepatitis genotype (4). They were clinically assessed and investigated (Laboratory including complete blood count, liver biochemical profile, lipid profile, fasting blood glucose. imaging by abdominal ultrasonography and histopathologically according to modified Knodell score).

Body mass index was assessed. Logistic regression and multivariate analysis were used to identify variables independently associated with steatosis.

Results:

The frequency of hepatic steatosis was 54 %. The univariate analysis revealed that steatosis was significantly associated with elevated bilirubin, high serum triglycerides, low serum albumin level, high FBS high necroinflammatory score and high fibrosis stage.

Conclusion:

Hepatic steatosis is common in patients with chronic HCV hepatitis. Prevalence of steatosis is higher with HCV genotype 4.Factors associated with hepatic steatosis are serum TGs, stage of fibrosis, necroinflammatory score. It was not related to HCV RNA level and might be due to associated non-alcoholic steatosis or steatohepatitis.

Key Words:

Liver steatosis

Hepatitis C patients

Genotype (4)

INTRODUCTION

Hepatitis C virus (HCV) is a major cause of chronic liver disease with approximately 3% of the world's population (170 million people) infected worldwide. Over 85% of the world's hepatitis C viruses (HCV)-infected subjects exist in regions of Africa, Southeast Asia and Middle Eastern countries. **(Candotti D.et al., 2003)**

HCV genotype 4 is highly prevalent in Egypt with no accurate number of prevalence of the infection. Overall prevalence of antibody to HCV in the general population is around 15-20%. Chronic HCV representing one of the top five leading causes of death. **(Kamal SM.et al., 2005)**

The spectrum of severity of the liver disease associated with HCV varies widely from nonspecific, minimal inflammatory changes to cirrhosis and hepatocellular carcinoma. The rate of progression of chronic hepatitis C is also variable, depending on many cofactors, mostly host-related, such as age, gender, alcohol consumption, overweightness and co-infections. **(Nicot F.et al., 2005)**

Liver biopsy provides the most accurate information on the stage of fibrosis and grade of necroinflammation.The value of liver biopsy in predicting treatment response is incompletely defined and the relation of pre-treatment liver biopsy findings to standard interferon (IFN) and ribavirin (RBV) treatment outcomes is heterogeneous. **(Ikeda M.et al., 2006)**

Impaired secretion of lipids from the infected hepatocyte has been the first proposed mechanism of HCV-induced Steatosis. In fact, serum levels of apolipoprotein B (ApoB) and cholesterol are reduced in chronic hepatitis C patients in whom Steatosis responds to antiviral therapy. **(Liu C J.et al., 2005)**

Liver Steatosis (LS) has been variably associated with chronic hepatitis C (CHC) but whether it affects sustained virological response to antiviral treatment and by what mechanisms is a question still under debate, at least for some genotypes. **(Marcello P.et al., 2007)**

Aim of the work

The aim of this study is to study prevalence and level of Steatosis in chronic hepatitis C within our cohort of patients, with re-evaluation of viral genotyping as an independent risk factor.

Historical review of HCV

Viral hepatitis is almost as old as human beings, at least as old as known human history, however, viruses as distinct biological entities have been known for little more than a century. Consequently, efforts to understand and control these important agents of disease are phenomena of the 20th century. Nevertheless, evidence of viral infection can be found among the earliest recordings of human activity, and methods for combating viral disease were practiced long before the first virus was recognized **(Oldstone et al., 1998 and Szabo et al., 2003).**

Reconstruction of the prehistoric past to provide a plausible account of when or how viruses established themselves in human populations is a challenging task. However, extrapolating from current knowledge, we can deduce that some modern viruses undoubtedly were associated with the earliest precursors of mammals and co-evolved with populations. Others entered human populations only recently. It is instructive to consider the last 10.000 years of human development, a time of radical change for humans and viruses; animals were domesticated, the humans' population increased dramatically, large population centers appeared and commerce drove interactions among unprecedented numbers of humans. We can infer from scattered glimpses of

ancient history that viruses have long been a part of human experience, and evidence of several viral diseases can be found in ancient records. The Greek Poet Homer characterizes Hecto, as "rabid" in the Iliad. Mesopotamian laws describing the responsibilities of the owners of rabid dogs date from before 1000 B.C. Egyptian hieroglyphs illustrating what appear to be the consequences of poliovirus infection or pustular lesions characteristic of smallpox also date from that period **(Brothwell and Sandison et al., 1967).**

In **1892** the **Russian Dimitrii Ivanowsky** gave the first report on a discovery of a pathogenic agent smaller than any known bacterium and 6 years later the Dutsch **Martinus Beijernick** did the same. In the same year **(1898)** the German Scientists **Friedrich Loeffler** and **Paul Frosch** observed that the causative agent of foot and mouth disease was also not retained by the porcelain filters used at that time to remove bacteria. However, the first identification of a human virus was done by **Reed and Carroll** in **1901** when they reported that a filterable virus is the cause of yellow fever **(Hughes et al., 1977).**

The terms hepatitis A and B were first used in 1947, however, proof that viruses are responsible for this disease was first published in ***1968*** with the description of hepatitis B virus particles in nature **(Havens et al., 1947, and Bayer et al., 1968).**