End Stage Liver Disease

An updated Review of Literature

Submitted forPartial Fulfillment of Master Degreein Tropical Medicine

By

Romany Tawfik Gawrgy Moawed
M.B.,B.Ch
Resident of Tropical Medicine, Hospital of Ministry of Health & Population

Under Supervision of

Prof. Mohamed Reda Mahmoud El Wakil

Professor of Tropical Medicine

Faculty of Medicine - Ain Shams University

Prof. Nadia Abdelaaty Abdelkader

Assistant Professor of Tropical Medicine

Faculty of Medicine - Ain Shams University

Faculty of Medicine
Ain Shams University
2015

المرحله النهائيه لمرض الكبد

رسالة

توطئه للحصول على درجة الماجستيرفى طب المناطق الحارة

مقدمة من

الطبيب/ رومانى توفيق جورجى معوض
بكالوريوس الطب والجراحه

تحت اشراف

الأستاذ الدكتور/ محمد رضا محمود الوكيل
أستاذ طب المناطق الحارة
كلية الطب- جامعة عين شمس

الاستاذة الدكتورة / نادية عبد العاطى عبد القادر
أستاذ م طب المناطق الحارة
كلية الطب – جامعة عين شمس

كلية الطب
جامعة عين شمس
٢٠١٥

Acknowledgment

Praise to be done to Allah, without his help nothing could be reached.

My deepest thanks to ***Professor Mohamed Reda Mahmoud El Wakil, Professor of Tropical Medicine, Faculty of Medicine, Ain Shams University*** *to whom I am indebted and who cared about every detail written down in this work. It was impossible for me to finish this work without his wise instructions, his guidance and his way of thinking.*

Words will never be able to express my deepest gratitude and appreciation to ***Asst. prof. Nadia Abdelaaty Abdelkader Professor of Tropical Medicine, Faculty of Medicine, Ain Shams University*** *for her strict supervision and revision of this work. She gave me much of her time, experience and support. Her valuable comments and effort were the causes to complete this work properly.*

Last but not least, allow me to send my deepest gratitude, my great appreciation and sincere thanks to My Family.

LIST OF CONTENTS

LIST OF ABBREVIATIONS

AASLD	American Association for the Study of Liver Diseases
AKI	Acute Kidney Injury
ALT	Alanine Aminotransferase
AST	Aspartate Ainotransferase
CDC	Centers for Disease Control and Prevention
CEA	Carcinoembryonic Antigen
CKD	Chronic Kidney Disease
CLD	Chronic Liver Disease
CT	Computed Tomography
CTP	Child-Turcotte-Pugh
DNA	Deoxyribonucleic Acid
DRI	Donor Risk Index
EGD	Esophago-gastro-duodenoscopy
ELISA	Enzyme Linked Immunosorbent Assay
ESLD	End- Stage Liver Disease
EVH	Esophageal variceal Hemorrhage
EVL	Endoscopic Variceal Ligation
GFR	Glomerular Filtration Rate
GGT	Gamma-Glutamyl Transferase
GOV	Gastroesophageal Varices

HBV	Hepatitis B Virus
HCC	Hepatocellular Carcinoma
HCV	Hepatitis C Virus
HE	Hepatic Encephalopathy
HESA	Hepatic Encephalopathy Scoring Algorithm
HPS	Hepatopulmonary syndrome
HRa	Hazard Ratio
HR	Heart rate
HRQoL	Health-related quality of life
HRS	Hepatorenal syndrome
HVPG	Hepatic venous pressure gradient
ICU	Intensive care unit
INR	International normalized ratio
LDH	Lactate dehydrogenase
LT	Liver transplantation
LVP	Large volume paracentesis
MAP	Mean arterial pressure
MELD	Model for End- stage liver disease
MHE	Minimal hepatic encephalopathy
MRE	Magnetic resonance elastography
MRI	Magnetic resonance imaging
NACSELD	North American Consortium for the Study of End-Stage Liver Disease

NAFLD	Nonalcoholic fatty liver disease
NIS	Nationwide inpatient sample
NSAIDs	Nonsteroidal anti- inflammatory drugs
NSBBs	nonselective beta-blockers
PBC	Primary biliary cirrhosis
PCR	Polymerase chain reaction
PICD	Paracentesis-induced circulatory dysfunction
PMN	Polymorphonuclear leukocyte count
PRCs	Plasma renin concentrations
PSC	Primary sclerosing cholangitis
SAAG	Serum ascites albumin gradient
SBP	Spontaneous bacterial peritonitis
SIP	Sickness impact profile
SIRS	Systemic inflammatory response syndrome
SOFA	Sequential organ failure assessment
TE	Transient elastography
TIPS	Transjugular intrahepatic portosystemic shunt
UTI	Urinary tract infection

LIST OF TABLES

LIST OF FIGURES

Introduction

The liver is the largest organ in the body constituting 2% and 5% of body weight in adults and children respectively. It is the vital organ responsible for the production of plasma proteins and clotting factors. It produces bile and excretes bilirubin. It has a main role for metabolism of carbohydrates, fats, hormones and various drugs with elimination of their metabolites. Being the biggest unit of the reticulo-endothelial system (RES), it has a vital immunological function. It is also a useful blood reservoir **(MacSween et al., 2002).**

End stage liver disease (ESLD) is an irreversible condition that leads to the imminent complete failure of the liver. It is often a consequence of chronic liver diseases, and is one of the most extended causes of death.

End stage liver disease may be the final stage of many liver diseases. Cirrhosis, viral hepatitis, genetic disorders, metastasic cancer in the liver, autoimmune disorders, obesity, alcohol abuse, toxins and drugs can be factors that cause end stage liver disease and liver failure.

When a chronic condition that may lead to end-stage liver disease is diagnosed, treatment is applied. Eventually, however, liver failure will happen **(Lee, 2008)**.

The diagnosis of a patient who enters the final stage of liver disease is made by observation of the status of the liver through imaging techniques such as abdominal sonography and CT

scanning. Laboratory tests are also used to detect end stage liver disease, by observing the amount of certain enzymes and toxins present in the blood**(Dufour et al., 2000).**

Complications of end stageliver disease are portal hypertension, splenomegaly, and gastroesophageal varices. In more severe cases, patients may develop excess fluid within the peritoneal cavity (ascites), spontaneous bacterial peritonitis, and/or encephalopathy. Up to 5% of these cases will develop hepatocellular carcinoma**(Roth et al., 2000).**

The prevention and treatment of complications associated with ESLD can be challenging for even experienced general practioner. In general, the management of those with ESLD should be done in consultation with a gastroenterologist or hepatologist. In one recent study, hospitalized patients with decompensated cirrhosis managed by a generalist in consultation with a gastroenterologist fared better than patients managed by generalists alone. Better outcomes included shorter length of hospitalization, lower cost of hospitalization, lower rates of hospital readmission, and improved survival**(Bini et al., 2001).**

Aim of the Work

The aim of this essay to review the recent updates in literature concerning end stage liver disease regarding its definition, causes, clinical picture ,complications & management.

Methodology

The literature was searched using the word end stage liver disease was searched using the following sites suh as PubMed, MdConsult, ScienceDirect, Medscape, MedscapeCME, eMedicine in the last 30 years.

Chapter (1)

Etiology & Natural History

Cirrhosis is a final common pathway for chronic liver diseases of different etiologies. In Egypt, cirrhoss is mostly due to bilharzial peri-portal hepatic fibrosis or repeated viral attacks leading to chronic hepatitis. The death rate due to liver cirrhosis in Egypt is not exactly known due to deficient statistical evaluation. In U.S.A, cirrhosis is the 9th leading cause of death, known as Laennec's cirrhosis due to alcohol consumption **(Merrit et al., 1998).**

Causes of Cirrhosis

Liver injury may be the result of infectious, autoimmune, vascular, hereditary, or chemical factors.

Viral hepatitis

Viral infection by hepatitis A is usually a nonfatal, self-limited disease characterized by a short period of disability followed by complete recovery. Rarely acute liver failure occur. In most cases, this illness is more a nuisance than a lethal process. When liver failure occurs in hepatitis A, it is usually submassive necrosis without cirrhosis, complete collapse of liver cells and architecture **(Wasley et al., 2006).**

Similar to hepatitis A, hepatitis E is a self-limited process usually resulting in complete resolution of disease. This virus does

not contribute to cirrhosis but may manifest as an acute lethal form in pregnant patients in their third trimester **(Purcell et al., 2008)**.

Hepatitis B is a DNA virus, unlike the other common hepatotropic viruses, which are RNA viruses. It may occur as a discrete entity or as part of a coinfection with hepatitis D, or delta infection. Although hepatitis B usually presents as a monoinfection, its presence is necessary for the delta virus to be infective. The hepatitis B virus may lead to chronic liver disease and cirrhosis. Hepatocellular carcinoma is a potential complication in these patients, even in the absence of cirrhosis. There is an increased incidence of this infection in Asia and sub-Saharan Africa**(Lok et al., 2007)**.

Hepatitis C is an RNA virus that may cause chronic infection in 80% of patients and cirrhosis in 15% of patients **(Leandro et al., 2006)**. The propensity to cirrhosis and liver cancer in patients with hepatitis C is increased in patients who are alcoholics. The advent of treatment with interferon and ribavirin has resulted in a halt in progression of disease and reversal of fibrosis and cirrhosis in some patients who respond to therapy **(Poynard et al., 2002).**

Vaccines are not available for patients with hepatitis D, C, or E; however, hepatitis A and B are vaccine-preventable infections **(Conjeevaram, 2005).**