

Correlation of Serum Neopetrin as an Inflammatory Marker to Different Stages of Liver Cirrhosis

Thesis

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Abbreviations

AAT	-----	Alpha1-antitrypsin
ADH	-----	Anti diuretic hormone
AFP	-----	Alpha feto protein
ALD	-----	Alcoholic Liver Disease
ALT	-----	Alanine aminotransferase
ANA	-----	Anti nuclear antibody
Anti-LKM Ab		Anti- liver-Kidney-microsomal antibody
APC	-----	Antigen presenting cell
AST	-----	Aspartate transaminase
CHF	-----	Congestive Heart Failure
CMV	-----	Cytomegalo virus
CT	-----	Computerized tomogrph
DDR	-----	Discoidin Domain Receptors
DNA	-----	Deoxyribonucleic acid
ECM	-----	Extracellular matrix
EGF	-----	Epidermal growth factor
Fe	-----	Iron
FGF	-----	Fibroblast growth factor
GIT	-----	Gastrointestinal tract
GTP	-----	Guannine Tri-phosphate

HBsAg ----- Hepatitis B Surface Antigen
HBV ----- Hepatitis B Virus
HCC ----- Hepatocellular Carcinoma
HCV ----- Hepatitis C virus
HGF ----- Hepatocyte growth factor
HIV ----- Human immunodeficiency virus
HLA ----- Human leukocyte Antigen
HPH ----- Hepatopulmonary hypertensio
HPS ----- Hepatopulmonary syndrome
HPS ----- Hepatopulmonary syndrome
HPV ----- Human papilloma virus
HRS ----- Hepatorenal syndrome
HTN ----- Hypertension
INH ----- Isonazide
INR ----- International normalized ratio
IPVD ----- Intrapulmonary vasodilatation
LC ----- Liver Cirrhosis
LL ----- Lower Limb
MMP ----- Matrix MetalloProteinases
NASH ----- Non Alcoholic Steatohepatitis
PBC ----- Primary Biliary Cirrhosis
PDGF ----- Platelet-Derived growth factor
PHG ----- Portal hypertensive gastropathy

Sh ----- Shistosoma Hematopium
Sm ----- Shistosoma mansoni
Th1 ----- T helper 1 cell
TIMP----- Tissue Inhibitor of MetalloProteinases
TIPS----- Transjagular intrahepatic portosystemic shunt
V.C----- Vasoconstritor
V.D----- Vasodilato
VEGF ----- Vascular endothelial growth factor
WHO ----- World Health of Organization.

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Introduction

Neopterin, a pyrazino-pyrimidine compound, is synthesized by monocytes and macrophages in response to interferon-(IFN-) produced by activated T cells (*Lhee et al., 2006*).

Neopterin levels are elevated in conditions of T-cell or macrophages activation such as systemic lupus erythematosus and hepatitis C (*Lhee et al., 2006*). It enhances macrophage cytotoxicity through its interactions with reactive oxygen, nitrogen, and chloride species (*Lahdo Imad et al., 2013*).

Measurement of neopterin in body fluids can be a reliable indicator of the cellular (macrophages) immunological response in hepatitis C virus infection (*Berdowska and Żwirska-Korczala, 2001*). Moreover, enhanced concentrations of neopterin have been shown to have a prognostic significance (*Farci et al., 2005*).

Neopterin concentrations in humans reflect the degree of Th1-type immune activation. In chronic infections T cells compartmentalized in the liver contribute to hepatic damage, which is mainly Th1 mediated. It is these activated T cells in the liver that are responsible for the liver damage that results (*Antoniello et al., 1989*).

Neopterin concentrations in chronic liver disease increased irrespective of underlying cause and stage of disease. Serum neopterin levels correlated with serum AST, ALT activities, and degree of necrosis. Cirrhotic patients displayed higher levels than non-cirrhotic (*Farci et al., 2005*).

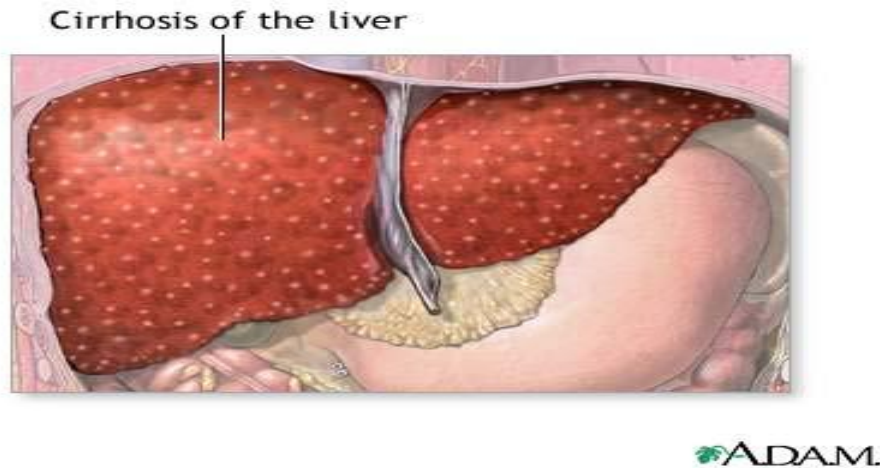
Neopterin is a more sensitive marker for severity of liver disease than established markers of inflammation (*Lahdo Imad et al., 2013*).

Aim of the Work

Correlation between serum levels of Neopetrin as a systemic inflammatory marker to different stages of liver cirrhosis.

Chapter (1)

LIVER CIRRHOSIS



Introduction:

The word cirrhosis comes from the Greek word kirrhos, which means orange Yellow (**Steingerður Anna, 2008**).

The definition of cirrhosis remains morphological, described by a working party for WHO in 1978 as: “a diffuse process characterized by fibrosis and the conversion of normal liver architectures into structurally abnormal nodules” (**Steingerður Anna, 2008**), but It is defined histologically as development of regenerative nodules surrounded by fibrous bands in response to chronic liver injury, that leads to portal hypertension and end stage liver disease (**Sherlock et al., 2002**). And also it can be known by three main characteristics: