The Role of Soluble Cluster of Differentiation 163 in Portal Hypertension

Thesis

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Mazen Moussa AbdelHamid

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List of Abbreviations

ADC	:	Antibody drug conjugate
ADH	:	Anti diuretic hormone
ALP	:	Alkaline phosphatase
ALT	:	Alanine aminotransferase
ASFV	:	African swine fever virus
AST	:	Aspartate aminotransferase
BUN	:	Blood urea nitrogen
CBC	:	Complete blood count
CI	:	Cardiac index
CSPH	:	Clinically significant portal hypertension
CT	:	Computed tomography
CD	:	Cluster of Differentiaiton
D.Bil	:	Direct bilirubin
DM	:	Diabetes mellitus
EDHF	:	Endothelium-derived hyperpolarizing factor
ELISA	:	Enzyme linked immunosorbent assay
eNOS	:	Enzyme endothelial NO synthase
ET-1	:	Endothelin-1
EVL	:	Endoscopic variceal band ligation
FHVP	:	Free hepatic vein pressure
GAVE	:	Gastropathy and gastric antral vascular ectasia
GGT	:	Gamma glutamyl transpeptidase
Hb	:	Hemoglobin
HBsAg	:	Hepatitis B surface antigen
HCAb	:	Hepatitis C serum antibody using ELISA
HE	:	Management of hepatic encephalopathy
HO-1	:	Heme oxygenase -1
Hp-Hb	:	Haptoglobin-hemoglobin
HRP	:	Horseradish peroxidase
HRS	:	Hepatorenal syndrome
HSCs	:	Hepatic cells, such as hepatic stellate cells

HVPG : Hepatic vein pressure gradient

List of Abbreviations (Cont.)

HVPG	:	Hepatic venous pressure gradient
INR	:	International normalization Ratio
LLD	:	Limit of detection
LVP	:	Large volume paracentesis
MAP	:	Mean arterial pressure
MRE	:	Magnetic resonance elastography
MRI	:	Magnetic resonance imaging
NO	:	Nitric oxide
NSBB	:	Non selective beta blockers
PHG	:	Portal hypertensive gastropathy
PHT	:	Portal hypertension
PlGF	:	Placental growth factor
PRRSV	:	Porcine reproductive and respiratory syndrome virus
PT	:	Prothombin time
RAAS	:	Renin angiotensin aldosterone system
SRCR	:	Scavenger receptor cysteine-rich
SST	:	Serum separator tube
TE	:	Transient elastography
TIPS	:	Transjugular intrahepatic portosystemic shunt
VEGF	:	Vascular endothelial growth factor
WHVP	:	Wedged hepatic venous pressure

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Introduction

Portal hypertension (PHT) is a serious consequence of cirrhosis that may result in life-threatening complications with increased morbidity and mortality **(Bosch and Garcia-Pagan, 2000).** In cirrhotic livers, increased resistance to portal blood flow is the primary factor in the pathophysiology of portal hypertension (PHT) and is caused by structural abnormalities in the hepatic vascular architecture and an increased hepatic vascular tone (**Gracia-Sancho et al., 2008).**

Activation of Kupffer cells may be involved in the pathogenesis of portal hypertension by release of vasoconstrictive substances and fibrosis due to co-activation of hepatic stellate cells **(Grønbaek H et al., 2012).**

The current gold standard for measuring PHT and its severity is measurement of the hepatic venous pressure gradient (HVPG)**.** HVPG is also emerging as a reliable endpoint to assess disease progression and therapeutic response in chronic liver disease. (**Groszmann et al., 2005).**

Aim of the Work

To study soluble plasma SCD163, a specific marker of kupffer cells activation, as a biomarker for portal hypertension in patients with liver cirrhosis.

Portal Hypertension

Introduction

The term 'portal venous system' is applied to a system that begins and terminates in capillaries. In the abdomen, this system springs up as the capillaries of the intestine, and ends in the hepatic sinusoids. A schematic representation of the main splanchnic venous channels is shown in Fig. 1.

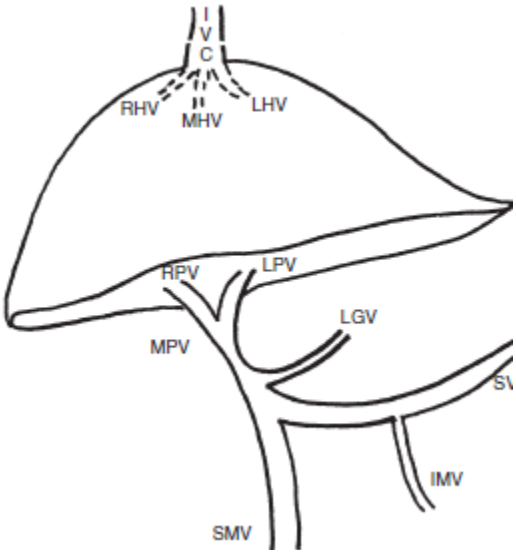

Fig. (1) Schematic representation of the portal and hepatic venous system. SMV, superior mesenteric vein; IMV, inferior mesenteric vein; SV, splenic vein; MPV, RPV, LPV, main, right and left portal vein; LGV, left gastric vein; IVC, inferior vena cava; RHV, MHV, LHC, right, middle and left hepatic vein ***(Kapoor and Sarin, 2002).***

Portal pressure (P) like pressure in any vascular bed is determined by the product of portal venous inflow (Q) and the vascular resistance (R) to this flow, that is $P = Q \times R$ ***(Groszmann et al., 2005).***