Hepatic dysfunction in critically ill patients

Thesis

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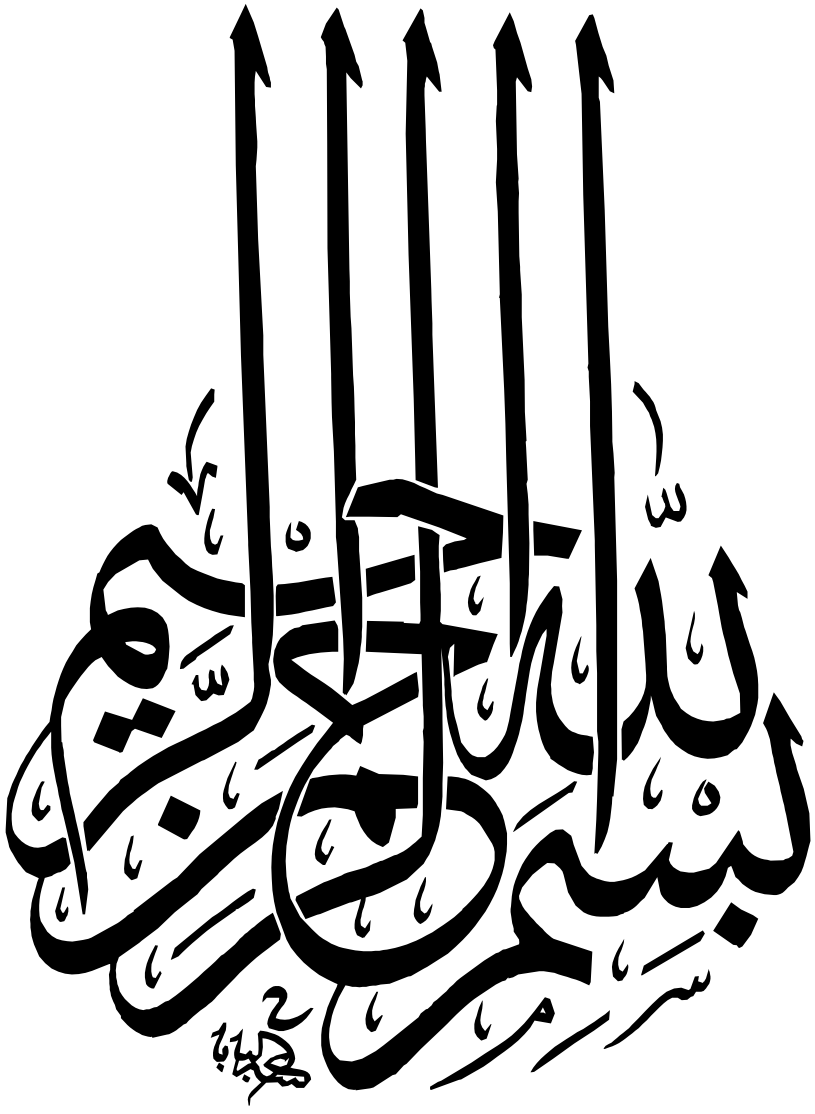
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Abstract

Hepatic dysfunction not only appears with chronic liver disease but in critically ill patients. It appears with some conditions like ischemic hepatitis, congestive hepatopathy, total parental nutrition, sepsis and drug hepatotoxicity. Liver function abnormalities present either as derangement of liver chemistry or overt clinical manifestations of liver disease. This problem (hepatic dysfunction) may be overlooked in the intensive care patient so; here we concentrate about the cause and predisposing factors of hepatic dysfunction in critically ill patient.

Key words:

Hepatic dysfunction in critically ill patients

Contents

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List of Abbreviations

- ACCP American College of Chest Physicians
- ALP alkaline phosphatase
- ALT Alanine aminotransferase
- APPs acute phase proteins
- ARDS acute respiratory distress syndrome
- AST aspartate aminotransferase
- ATS American Thoracic Society
- BMI body mass index
- BSEP bile salt export pump
- CCU cardiac care unit
- D diaphragm,
- DILI drug induced liver injury
- EEG electroencephalographic
- ESICM European Society of Intensive Care Medicine
- FFAs free fatty acids
- FL falciform ligament
- FLV fissure for ligamentum venosum,
- GB gall bladder,
- G-CSF granulocyte colony stimulating factor
- GGT gamma glutamyl transpeptidase
- GMCSF granulocyte macrophage colony-stimulating factor
- Hb heamoglobin
- HLI Hypoxic liver injury
- ICAM-1 intercellular adhesion molecule-1
- IL interleukin
- INR international normalized ratio
- IV intravenous
- IVC inferior vena cava,
- Kcal kilocalories
- LDH lactate dehydrogenase
- LL left lobe
- LPS Lipopoly saccaride

- MCP-1 monocyte chemoattractant protein
- MDR multi-drug resistance
- Ml milliliter
- mRNA messenger ribonucleic acid
- MRP2 multi-drug resistance protein 2
- NAC N-acetyl-l-cysteine
- NF-κB nuclear factor kappa B
- NOS2 nitric oxide synthase
- NTCP Na^+ taurocholate co-transporting protein
- OATPs organic anion transporting polypeptides
- OATs organic anion transporter
- OCTs organic cation transporters
- Pc prothrombin concentration
- PCWP pulmonary capillary wedge pressure
- Plt platelets
- PNALD parentral nutition associated liver disease
- Pt prothrombin time
- RAR retinoic acid receptor
- RL right lobe
- RL round ligament
- RNA ribonucleic acid
- SCCM Society of Critical Care Medicine
- SIRS systemic inflammatory response syndrome
- SIS Surgical Infection Society
- Tlc total leucocytic count
- TNF-α tumor necrosis factor-α
- TPN total parentral nutition
- ULN upper limit nomal
- US ultrasound
- VLDL very low density lipoproteins
- WBC white blood cells

List of figures

List of tables

INTRODUCTION & AIM OF THE WORK

INTRODUCTION:

Hepatic dysfunction not only appears with chronic liver disease but in critically ill patients. It appears with some conditions like ischemic hepatitis(**Fuchs et al 1998**), congestive hepatopathy, total parental nutrition (**Buchman , 2001**), sepsis (**Szabo , 2002**) and drug hepatotoxicity(**Lewis, 2000**). Liver function abnormalities present either as derangement of liver chemistry or overt clinical manifestations of liver disease(**Strassburg ,2003**). This problem (hepatic dysfunction) may be overlooked in the intensive care patient so, here we concentrate about the cause and predisposing factors of hepatic dysfunction in critically ill patient.

Aim of the work:

To evaluate abnormalities of liver functions in patient admitted in ICU and correlation these functions with clinical situations predisposing the patient for hepatic dysfunction.

REVIW OF LITERATURE

Chapter 1

The liver

Gross anatomy

The liver is a vital organ present in vertebrates and some other animals.The liver is necessary for survival; a human can only last up to 24 hours without liver function. **(Zakim D. et al, 2003)**

It is situated in the upper and right parts of the abdominal cavity, occupying almost the whole of the right hypochondrium, the greater part of the epigastrium, and not uncommonly extending into the left hypochondrium as far as the mammillary line. In the male it weighs from 1.4 to 1.6 kilogram, in the female from 1.2 to 1.4 kilogram. **(gray; 2000)**

The relatively larger weight in infancy is mainly due to an enlargement of the left lobe. The weight of the liver relative to body weight decrease from 3% to 2% with age. With regard to size, the liver is on average 25 - 30 cm in width, 12 - 20 cm in length and 6 to10 cm in thickness. The surface is smooth and shiny. The colour of the liver is brownish red. The lobular structure can be seen distinctly upon close inspection. The position is intraperitoneal (with the exception of the area nuda and the gall-bladder bed). **(Irwin et al; 2005)**

Surfaces : The liver possesses three surfaces, **superior, inferior** and **posterior.** A sharp, well-defined margin divides the inferior from the superior in front; the other margins are rounded. The superior surface is attached to the diaphragm and anterior abdominal wall by a triangular or falciform fold of peritoneum, the falciform ligament, in the free margin of which is a rounded cord, the ligamentum teres (*obliterated umbilical vein*). The line of attachment of the falciform ligament divides the liver into two parts, termed the right and left lobes, the right being much the larger. The inferior and posterior surfaces are divided into four lobes by five fossæ, which are arranged in the form of the letter H. The left limb