CERTAIN RENAL FUNCTIONS IN SOME CASES OF CHRONIC LIVER DISEASE

A thesis submitted for the partial fulfilment of the Master Degree in Biochemistry

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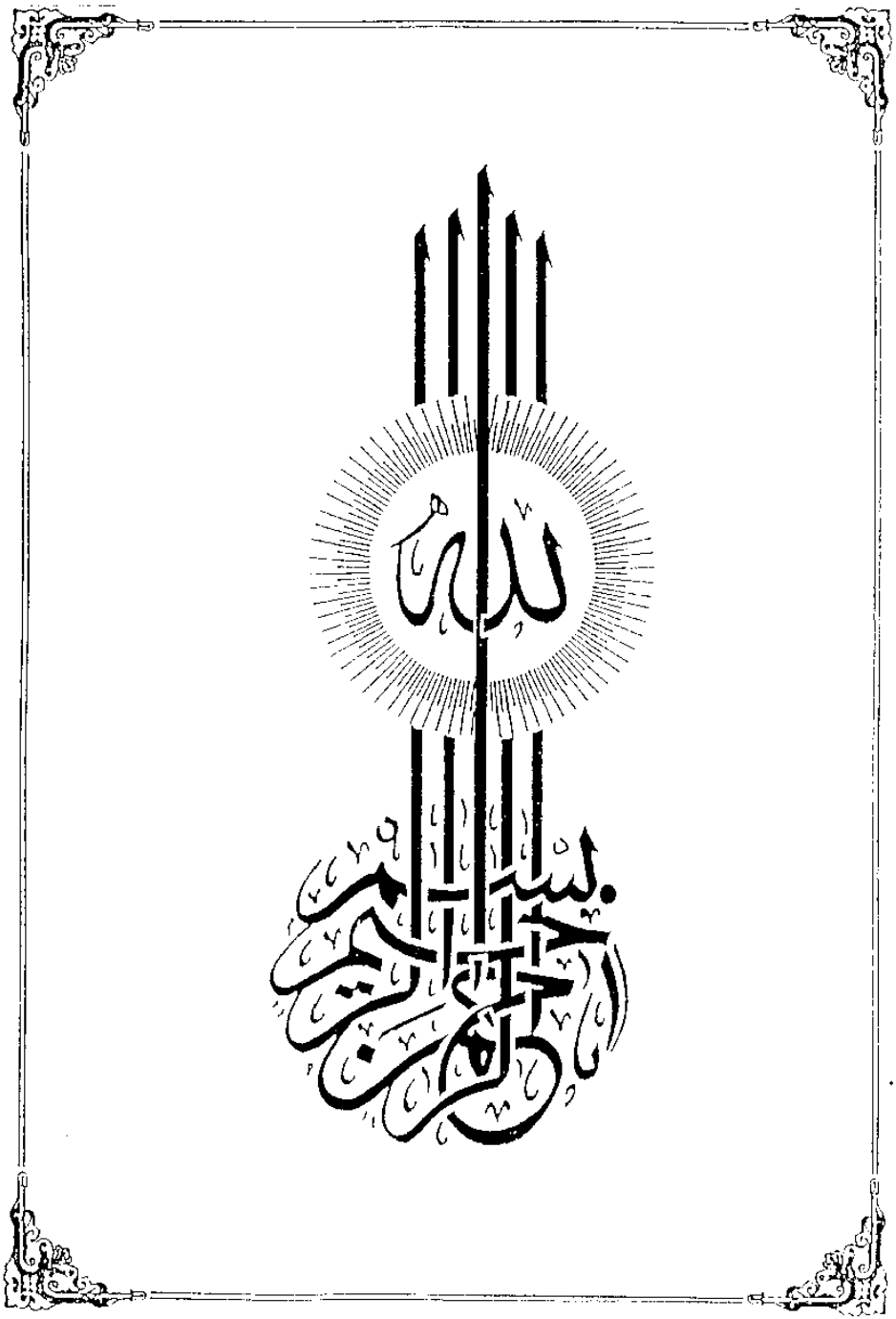
TO MY MOTHER



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AIM OF WORK

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Renal failure is a frequent complication of chronic liver disease. The increased concentration of plasma amylase during chronic renal insufficiency has long been recognized.

The aim of this work is to investigate some routine renal function tests e.g urea and creatinine in patients with chronic liver disease as proved by ALAT ASAT GGT and protein electrophoresis as well as amylase / creatinine ratio as a new index for renal affection in these patients.

INTRODUCTION

The liver :

The liver is the largest gland of the human body and is a central metabolic organ (Ganong, 1974). It contains several structural system (Bruhl, 1969) :-

- Hepatic parenchymal cells (approx. 80 % of all cells) .
- Efferent bile ducts.
- Blood & lymph vessels.
- Reticuloendothelial system and reticulohistiocytal defence and storage system.
- Connective tissue.

Many metabolic processes take place within the hepatic cells, in fact most of the chemical reactions carried out in the human body occur in these cells (Karlson, 1974) .

Damage to liver cells lead to changes in their organelles. In chronic liver disease there is often fibrosis and thus an increase in the connective tissue (POtt et al ., 1981) . The morhpological changes disturb various biochemical functions. Kuntz (1977) summerize the biochemical disorders in liver damage into the following items :

1- Increase membrane permeability.

2- Reduced synthetic capacity.

3- Impaired excretion.

4- Reduced storage capacity.

5- Impairment of detoxification function.

6- Increase of the mesenchymal reaction.

7- Abnormal immunology.

CHRONIC LIVER DISEASE :

Viral Hepatitis :

Typical humman viral hepatitis may be caused by three or perhaps more viruses (Deinhardt, 1976) . In addition, there are atypical viral hepatitides which can be produced by the pathogenic virus responsible for mononucleosis, herpes virus and other viral agents (Muting, 1976) . Medicinal agents and alcohol can also induce acute hepatitides whose symptoms carrespond to those of viral hepatitis.

Acute viral hepatitis could be caused by hepatitis A virus, hepatitis B virus and non A - non B hepatitis (Deinhardt, 1976) .

Chronic hepatitides are aetiologically classified according to whether they are of viral or auto immune origin or due to the action of medicinal agents (Storch, 1979) . Soloway (1978) calssify the chronic hepatitis into chronic persistent hepatitis and chronic active hepatitis.

Chronic persistent hepatitis is the most common of the chronic hepatitides which is induced by acute viral hepatitis (Maier, 1982) . Chronic active hepatitis which can progress to cirrhosis is a syndrome which may be induced by several factors : hepatitis B, non A, non-B hepatitis, alcohol, medicinal agents (Sherlock, 1978) .

Liver Cirrhosis :

Cirrhosis can best be defined in terms of what is pathoanatomically certain about the liver. Cirrhosis is a chronic disease of the liver in which diffuse destruction and regeneration of hepatic parenchymal cells have occurred, and in which a diffuse increase in connective tissue has resulted in disorganization of the lobular and vascular architecture (Leon and Eugene, 1982) . The functional hepatic cell mass is

reduced and the haemodynamics of the portal vein circulation are disturbed (Horak, 1978) . Thaler (1976) and Tippmann, (1976) reported that clinically, cirrhosis represents a terminal stage of the liver damage which may have many causes as alcohol abuse, hepatitis-B, medicinal agents & poisons and inborn errors of metabolism e.g. Wilson disease, haemochromatosis.

Fatty Liver :

Fatty liver is defined as an acquired disorder of intermediary metabolism which is characterized by increased deposition of fat, especially of triacylglycerols, in the hepatocytes; the fat droplets should account for more than 50 % of the parenchymal volume otherwise the condition is referred to as fatty degeneration (Wallnoffer and Schmidt, 1974). Many authors do not regard it as an independent liver disease but consider it to be a biochemical " flaw " (Riemann, 1978). This disorder can be caused by many factors including alcohol abuse, obesity, diabetes mellitus, gout, infections, poisoning and some medicinal agents (Muting et al ., 1973 and Lorenz, 1978). They reported that alcohol is the most important cause of fatty liver.