

**SOME BIOCHEMICAL AND IMMUNOLOGICAL
PARAMETERS IN SOME CHRONIC LIVER
DISEASES IN CHILDREN**

Thesis

**Submitted for fulfillment of Ph.D. Degree In
Childhood Studies**

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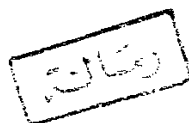
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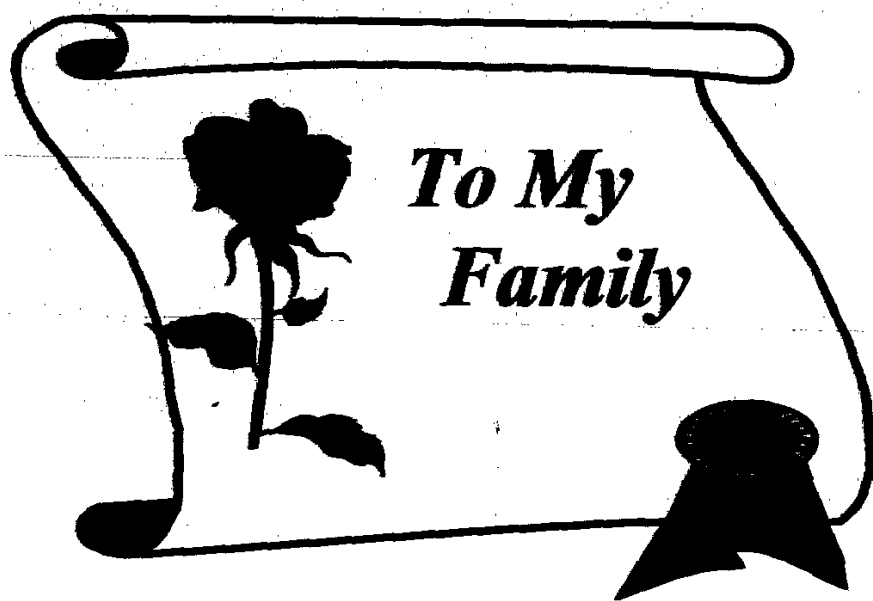
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



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Abstract

Some Biochemical and Immunological Parameters in Some Chronic Liver Diseases in Children

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This study was conducted on 78 patients confirmed by liver biopsy as cirrhosis, hepatitis and cholestasis. Their ages ranged between 2-18 year. While the 12 septicemic neonates were confirmed by blood cultures. Their ages ranged between 2-23 days. Forty apparently healthy person (15 children , 15 adolescents, and 10 neonates were served as control groups.

The aim of the study was to assess the value of serum level of ALP ,LDH, and their isoenzymes, immunoglobulins (IgA, IgM, IgG), and immune complexes in some chronic liver diseases in comparison to healthy controls.

Results revealed a significant increase in T.LDH level in all studied groups compared to their control groups. This increment was mainly due to LD5 in cirrhotic children and adolescent groups, but it was due to LD4 , LD5 in hepatitis, and cholestasis groups. This could be a useful marker for parenchymal damage.

Also there was significant increase in T.ALP in all studied children and adolescent groups , but no statistical significant difference was found in septicemic neonates compared to their control group. These increments were mainly due to increased activity in L.ALP isoenzyme. While intestinal ALP appear in some cases of both cirrhotic children and adolescent groups. γ -GT shows the same increase as ALP in all studied groups and it could be used as confirmatory test. These enzymes can be used as marker to reflect impairment of bile flow.

On the other hand, AST and ALT were significantly increased in all studied groups except in septicemia compared to their control group. They can serve as indicators to the activity of the disease and cellular damage.

Study of immunoglobulins showed non significant variation in IgA in all studied groups. While IgM showed, significant increase in both cirrhotic children and adolescent groups. Also IgG, showed significant increase in cirrhotic adolescent, in hepatitis, and in septicemia compared to their control groups. Persistence of

hypergammaglobulinaemia have suggested the presence of chronic liver diseases.

Lastly, circulating immune complexes (CICs) were very highly significantly increased in all studied groups compared to their control groups. It can give an idea about phagocytic function during infection and hepatocellular injury.

Conclusion:

The study showed that some biochemical marker of the liver (**AST, ALT, γ -GT, ALP, and LDH**) gave sensitive and clear picture of liver affection. On the other hand, **ALP, LDH isoenzymes** gave more clear picture of the involved organ than the total activity of these enzymes.

On the other hand, **immunoglobulins** can suggest the presence of chronic liver diseases. While circulating **immune complexes** can give a picture to the function of the phagocytic system and the hepatocellular damage.

Key Words:

γ -GT; Gamma-glutamyl transferase . T.ALP; Total alkaline phosphatase. T.LDH; Total lactate dehydrogenase, LD4 ,LD5 ; Lactate dehydrogenase isoenzymes. PAGE;Polyacrylamide gel electrophoresis. AST; Aspartame aminotransferase. ALT; Alanine aminotransferase. IgA; IgM; IgG; Immunoglobulins A,M, G. CICs; Circulating immune complexes.

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LIST OF ABBREVIATIONS

γ-GT,GGT	Gamma – Glutamyl Transferase
Ai CAH	Autoimmune Chronic Active Hepatitis
ALP	Alkaline Phosphatase
ALT	Alanine aminotransferase
AST	Aspartate aminotranferase
B-cell	Bursal lymphocyte
Bil	Bilirubin
C3a, C5a, C3b, C3e	Complement fragment
C ₁ q	First Complement component
CD	Cluster of differentiation
Fab	Fragment – antigen - binding
Fc	Fragment crystallizable
CAH	Chronic Active Hepatitis
Cm	Centimeter
CPH	Chronic Persistent Hepatitis
CRP	C- Reactive Protein
CSF	Colony Stimulating Factor
ECG	Electrocardiogram
ECM	Extracellular matrix
ECM	Extracellular Matrix Component
EDAT	Ethylene –Diamine Tetracetic acid
Fig	Figure
H	Heart
H.S	Highly significant
HBD	Alpha- hydroxy butyrate dehdrogenase
HbsAg	Hepatitis B surface antigen
HBV	Hepatitis B virus
HCV	Hepatitis C antigen
HLA	Histocomptibility antigen
HLAB8DR	Histocomptibility antigen B8DR
I.ALP	Intestinal Alkaline Phosphatase
I.C.U	Intensive Care Unit
IgA	Immunoglobulin A
IgD	Immunoglobulin D
IgE	Immunoglobulin E
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IL1	Interlukin 1
LD	Lactate Dehydrogenase enzyme
LDH	Lactate Dehydrogenase enzyme

L KM	Liver and Kidney Micosomal antigen
L S P	Liver Specific Protein
M	Muscle
m RNA	Messenger Ribonucleic Acid
MAC	Membrane attack complex
N	Normal
NIC	Neonatal Intensive Care
N.S	Non significant
P	Pyruvate
P.A	Postro- anterior
P.AL.P	Placental alkaline phosphatase
PBC	Primary Biliary cirrhosis
RNA	Ribonucleic acid
S	Sedimentation co- efficient
SD	Standard Deviation
SE	Standard Error
SigA	Secretory immoglobulin A
SLA	Soluble liver antigen
SLE	Systemic Lupus erythematosus
SPILBD	Syndromatic portal interlobular bile duct
T- cell	Thymus lymphocyte
TGFB1	Transforming growth factor B1
TNF α	Tumour necrosis alpha
TORCH	Tatanus, Ophthalmia neonatorum, Rubella,cytomegalovirus, Herpes virus
V.H.S	Very High Significant
VH	Variable heavy chain
VL	Variable light chain
Vs	Versus

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