Vitamin A Status in Children with Chronic Liver Diseases

Thesis

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بسم الله الرحمن الرحيم

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا

إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ

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List of Abbreviations

Abb.	Meaning
AI	Adequate Intake
AION	Anterior ischemic optic neuropathy
ALT	Alanine transaminase
AMA	Antimitochondrial antibody
ANA	Antinuclear antibody
ASMA	Antismooth muscle antibody
AST	Aspatate transaminase
BCAA	Branched-chain amino acids
CBC	Complete blood count
CPK	Creatinine phosphokinase
CRBP1	Cellular retinol binding protein I
CTL	Cytotoxic T lymphocytes
DNA	Deoxy ribonuclic acid
DRIs	Dietary Reference Intakes
EAR	Estimated Average Requirement
EBV	Ebstien barr virus
EGD	Esophageal Gastroduodonoscopy
ERCP	Endoscopic retrograde cholangio-pancreatography
FBUT	Flurescein Break up Time
FNB	Food and Nutrition Board
FSV	Fat-soluble vitamins

Abb.	Meaning
GALT	Galactose-1-phosphate uridyl transferase
GGT	Gamma–glutamyltranspeptidase
GVHD	Graft versus host disease
HBsAg	Hepatitis B surface antigen
HCC	Hepatocellular carcinoma
HDL	High-density lipoprotein
HPS	Hepatopumonary syndrome
HSCs	Hepatic stellate cells
IOP	Intraocular pressure
IRBP	Interphotoreceptor-retinol-binding protein
JAG1	Jagged-1
KCS	Keratoconjunctivitis sicca
LC1	Liver gytosol 1 antigen
LCF	Liver Cell Failure
LDV	Laser Doppler velocimetry
LKM	Liver kidney microsomal antibodies
LPL	Lipoprotien Lipase
MCV	Mean corpuscular volume
MRCP	Magnetic resonance cholangio-pancreatography
MRI	Magnetic resonance imaging
MTCT	Mother to child transmission
NAFL	Nonalcoholic fatty liver
NASH	Non alcoholic steatohepatitis.
NPC1	Neman pick type C1

Abb.	Meaning
NPC2	Neman pick type C2
OLT	Orthotopic liver transplantation
PAS	Periodic acid schiff
PBC	Primary biliary cirrhosis
PCR	Polymerase chain reaction
POAG	Primary open angle glaucoma
PPAR	Peroxisome-proliferator-activated receptor
PSC	Posterior subcapsular cataract
PSS	Primary Sjogren syndrome
RAR	Retinoic acid receptors
RBF	Retinal blood flow
RBP	Retinol binding protiein
RDA	Recommended Dietary Allowance
REH	Retinyl ester hydrolinase
RNA	Ribonuclic acid
RXR	Retinoid "X" receptors
RXR-VDR	Vitamin D3 receptor (RXR-VDR)
Anti-SLA	Antisoluble liver antigen antibodies
STRA6	Stimulated by retinoic acid 6
TBUT	Tear breakup time test
TGF	Transforming growth factor
TIMP	Tissue inhibitors of metaloprotienase
UDP	Uridine diphosphate
UL	Upper Intake Level

Abb.	Meaning
VIT AD	Vitamin A deficiency
WHO	World Health Organization
WSR	Wall shear rate
α1-AT	Alpha1-antitrypsin

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Introduction

Chronic liver diseases is the damage that reduces functioning liver for a long time and it is one of the most common cause affecting growth development in children. It includes cholestatic liver diseases (e.g., biliary atresia, Alagille syndrome, progressive familial intrahepatic cholestasis type 1, 2 cystic fibrosis, chronic allograft rejection following orthotopic liver transplant, primary sclerosing cholangitis) and non cholestatic liver disease (e.g. autoimmume hepatitis, congenital hepatic fibrosis, Niemann Pick type C) **(Feranchak et al., 2001)**.

Vitamin A is retinol, carotene compounds (found, for example, in egg yolk, butter and cream) are gradually converted by the body to vitamin A (retinol). A form of vitamin A called retinal is responsible for transmitting light sensation in the retina of the eye. Vitamin A is a member of the fat-soluble family of vitamins and its deficiency leads to blindness **(Kallarackal et al., 2002).**

Malabsorption of dietary fat and fat-soluble vitamins including vitamin A is one of the major complications of childhood cholestatic liver disorders, vitamin A absorption depends on concentration of intraluminal bile acids adequate for micellar solubilisation. Therefore, the reduced biliary secretion of bile acids during cholestasis causes vitamin A malabsorption and potential deficiency of vitamin A **(Hammond et al., 2004).**

Vitamin A status used as a marker for severity of these liver diseases such as retinol binding protein 4 which is the carrier of retinol in the blood **(Suchy et al., 2001).**

Aim of the Work

The aim of the present study is:

To study serum Retinol in chronic liver diseases in children and correlate them to the severity of chronic liver diseases.