

127, 17 27, 17 (20) 77, 17 (20









جامعة عين شمس

التوثيق الالكتروني والميكروفيلم



نقسم بللله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأفلام قد اعدت دون آية تغيرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15-20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of 15 – 25c and relative humidity 20-40 %



ثبكة المعلومات الجامعية





Information Netw. " Shams Children Sha شبكة المعلومات الجامعية @ ASUNET بالرسالة صفحات لم ترد بالأص

BIOCHEMICAL STUDY OF MENTAL RETARDATION IN LIBYAN CHILDREN

Thesis

Submitted to the Medical Research Institute,
University of Alexandria
In partial fulfilment of the
Requirements of the degree of

Ph.D.

Applied Medical Chemistry

By

Nura Naseb Mohamed

M.Sc. in Lab. Medicine Medical Faculty Benghazi-Libya

Applied Medical Chemistry Department

Medical Research Institute

Alexandria University

Bq.VE

2001

SUDERVISORS

Drof. Dr. Zienat Abdel Fatah El-Kholy.

Professor of Applied Medical Chemistry,
Medical Research Institute
Alexandria University

Prof. Dr. Safinaz Mahmpud.El-Zoghby,

Professor of Applied Medical Chemistry,
Medical Research Institute
Alexandria University

Drof. Dr. Nuri Mohammed Shembesh.

Professor of Pediatrics, Neurologest,
Medical University
Benghazi-Libya

Co-Supervisors

Dr. Ashraf Ali Hassan Moustafa.

Ass. Prof. of Applied Medical Chemistry Department.

Medical Research Institute

Alexandria University

ACMOMENT

Thanksto Allah for accomplishment of this work

I like to express my deepest thanks and appreciation to **Professor Dr. Zienat El-Kholy**, Prof. of Applied Medical Chemistry for her kind, patient supervision, continuous guidance, and encouragement in all stages of this work.

This humble work was privileged and honoured by the supervision of **Professor Dr. Safinaz El-Zoghby,** Prof. Of Applied Medical Chemistry. I am indebted to her valuable guidance and her kind willing help during this work.

I would like to present plentiful thanks to **Professor Dr. Nuri Shembesh**, Prof. of Pediatrics, Medical Faculty, Benghazi-Libya, for his great help and his sincere cooperation.

I wish to present my thanks to Dr. Ashraf Alii. Ass. Prof. of Applied Medical Chemistry, for his cooperation.

I wish to present a lot of special thanks and appreciation to **Dr.**Mohamed El-Nagh, Regional Adiviser, Quality and Health Care

Technology. World Health organization. Eastern Mediterranean

Region for his energetic help and useful advices.

My appreciation is expressed to Professor Dr. Naser El-Boni, Prof. of paracytology, Medical Faculty, Benghazi-Libya for his generous help.

My sincere appreciation to all the staff members of Applied Medical Chemistry Department for their kind emotional support.

List of Abbreviations

MR

: Mental retardation

JQ

: Intelligence quotient

CN5

: Central nervous system

DS

: Down's syndrome

CP

: Cerebral palsy

VLDL

: Very low density lipoprotein

LDL

: Low density lipoprotein

HDL

: High density lipoprotein

CSF

: Cerebrospinal fluid

O.D

: Optical density

TLC

: Thin layer chromatography

Pku

: Phenylketonuria

A.A

: Amino acids

GÅBA

: Gamma aminobutyric acid

Asp.

: Aspartic acid

Thr.

: Threonine

Asn

: Asparagine

Ser

: Scrine

Glu

: Glutamic acid

Gln

: Glutamine

Pro.

Proline

Gly.

: Glycine

Δla.

: Alanine

Cit

: Citrulline

Val.

: Valine

Met.

: Methionine

Ile.

: Isoleucine *

Leu.

Leucine

Tyr.

Tyrosine

The.

: Phenylalanine

Orn.

: Ornithine

Lys.

: Lysine

His.

: Histidine

Try.

: Tryptophan

Arg.

: Arginine

Cys.

: Cysteine

WHO

: World health organization

ПІРП

: High Institute of Public Health.

CONTENTS

	Contents	Page
Chapter I	: Introduction	, <u>1</u>
¥	1. Mental Retardation	1
	2. Overview of Nervous System	11
	3. Some Biomedical Diseases Associated with Mental Retardation	22
	4. Biochemistry and Mental Retardation	27
	5. Prevention and Preventive Services of Mental Retardation	49
Chapter II	: Aim of the work	53
Chapter III	: Patients and Methods	54
- ·	• Patients	54
	♦ Methods	56
	A. Estimation of lipid profile	58
•	1. Determination of T cholesterol	
	2. Determination of triglycerides	59
	3. Serum HDL-determination	
	4. Calculation of serum lipoprotein fractions	
	5. Serum lipoprotein separation by electrophoresis	
	B. Estimation of sialic acid	66
	C. Serum and urine Amino Acid chromatography	69
	D. Quantitative serum Amino Acid	73
	E. Statistical Analysis	73

Chapter IV	: Results	
Chapter V	: Discussion	125
Chapter VI	: Summary and conclusion	1.50
Chapter VII	: Recommendation	. 154
Chapter VIII	: References	. 156
Chapter IX	: Appendix	196
	Arabic summary	•

INTRODUCTION

1- Mental Retardation

Mental retardation (MR) is a universal problem and it is one of the most important causes of human handicap⁽¹⁾. At one time the mentally retarded child was hidden by his family away from the public gaze and even from the medical profession, but at present he receives more care and attention.⁽²⁾

It has been estimated that there are around 500 million moderate to severely disabled persons throughout the world. Two thirds of them are living in developed countries and one-third in the developing countries. They cause serious social, economic, physical and psychological problems not only for the disabled and handicapped and their families, but also for their communities^(3,4).

Mental retardation is the most frequently occurring handicap in children. Mental retardation is not a disease but a group of conditions that all have one common feature, which is significantly sub-average intellectual function. It is like convulsion, it is not a diagnosis, but a symptom and can have many different causes. (5,6)

The term mental deficiency, mental defects, mental subnormality and mental retardation is a general term for below normal mental ability, it usually becomes evident in early childhood and interferes with learning and