

شبكة المعلومات الجامعية







شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها على هذه الأفلام قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار في درجة حرارة من ١٥-٥٠ مئوية ورطوبة نسبية من ٢٠-٠٠%. To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%



بعض الوثائـــق الإصليــة تالفــة



بالرسالة صفحات لم ترد بالإصل

STUDY OF GLUCOSE-6-PHOSPHATE DEHYDROGENASE ENZYME DEFICIENCY AS A CAUSE OF NEONATAL JAUNDICE

B6996

Thesis Submitted to Faculty of Science Ain Shams University

In Partial Fulfillment of the requirements for the degree of Master of Science

By

USAMA AHMED MOHAMED EL-SAYED

(B.Sc.Biochemistry)

Supervised By

Prof. Dr. Zeinab Z. El-Dardiri

Professor of Z. El Dardine Professor of

Biochemistry

Faculty of Science

Ain Shams University

Prof. Dr. Nagwa A. Mowafy Nagwa Mowafy
Professor of

Clinical Pathology

Faculty of Medicine

Al-Azhar University

Dr.Amina Mohamed Medhat

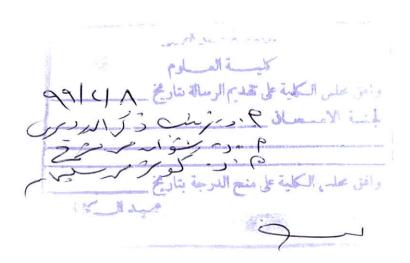
Ass.Prof. of Biochemistry Faculty of Science Ain Shams University

1999

I declare that this thesis has been composed by my self and the work of which it is a record has been done by my self. It has not been submitted for a degree at this or any other university.

Usama Ahmed Mohamed El-Sayed

Dedicated to the name of my mother





Contents

	Page
Abstract	I
Acknowledgement	Π
List of abbreviations	III
List of figures	IV
List of tables	VI
Aim of the work	VIII
I-Introduction	, 111
Red cell	
Red cell structure	1
Red cell enzymes	3
Red cell function	4
Glycolytic pathway	5
Hexosemonophosphate shunt and glutathio	ne
metabolism	10
Neonatal hyperbilirubinemia	12
Source of bilirubin	13
Hemoglobin catabolism	14
Bilirubin metabolism	16
Physiologic hyperbilirubinemia	18
Non physiologic hyperbilirubinemia	21
Glucose-6-phosphate dehydrogenase	
History	25
Mechanism of hemolysis	27
Genetics of G6PD deficiency	28
G6PD deficiency as a cause of neonatal jaundice	31

II-Subjects and methods

Subjects	34
Methods	35
Sample collections	35
Biochemical investigations	35
1- Estimation of hemoglobin	36
2- Determination of G6PD activity in	
erythrocytes	37
3- Determination of total and direct	
bilirubin	41
4- The red cell and leukocyte counts	43
5- Haematocrit (PCV)	44
6- Mean corpuscular volume (MCV)	44
7- Mean corpuscular hemoglobin (MCH)	45
8- Mean corpuscular hemoglobin	
concentration (MCHC)	45
9- Blood group	46
10-Reticulocyte count	46
Statistical analysis	47
III- Results	50
IV- Discussion	79
V – Summary	90
VI- References	
VII-Arabic summary	

Abstract

USAMA AHMED MOHAMED EL-SAYED, On study of glucose-6-phosphate dehydrogenase enzyme deficiency as a cause of neonatal jaundice. Unpublished Master Thesis. Ain Shams University, Faculty of Science, Biochemistry Department, 1999.

In this study sixty male mature neonates were classified into two groups, the first include neonates with normal bilirubin level (control group), the second group include neonates patients with hyperbilirubinemia, these were further subdivided into two subgroups, those with hyperbilirubinemia and normal glucose-6-phosphate dehydrogenase enzyme(group II a) and those with hyperbilirubinemia and glucose-6-phosphate dehydrogenase deficiency (group II b).

By analyzing in detail the results of glucose-6-phosphate dehydrogenase deficient babies and excluding known causes for neonatal jaundice, and after correcting for the incidence of neonatal jaundice from unknown causes, we estimate that 26.67% of glucose-6-phosphate dehydrogenase deficient male newborns develop neonatal jaundice resulting from their enzyme deficiency.

Key words: Glucose-6-phosphate dehydrogenase deficiency in neonates.



Acknowledgement

I would like to express my deep thanks and gratitude to **Prof.Dr.Zeinab El-Dardiri**, Professor of Biochemistry, Faculty of science, Ain Shams University, for giving me the honor of working under her supervision and for her valuable help and guidance throughout the whole work.

I also wish to convey a meaningful message of gratitude to **Prof.Dr.Nagwa Mowafy**, Professor of Clinical Pathology, Faculty of Medicine, Al-Azhar University, for her continuous, generous, overwhelming help and active supervision.

I wish also to record my deepest gratitude to

Dr.Amina M.Medhat Ezzat, Ass. Professor of

Biochemistry, Faculty of Science, Ain Shams University,
for her help, careful supervision and encouragement
throughout the course and writing of this work.

