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الجامعة: جامعة عين شمس

سنة التخرج: ١٩٩٩م.

سنة المنح: ٢٠٠٩م.

موضوع الرسالة: تأثير ارتفاع نسبة الصفراء في الأطفال حديثي الولادة على
سريان الدم وعلى غشاء كريات الدم الحمراء و الدهون المكونة له

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وأشكر كل من ساهم في إخراج هذه
الرسالة على هذا النحو

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(وَعَلَّمَكَ مَا لَمْ تَكُنْ
تَعْلَمُ وَكَانَ فَضْلُ اللَّهِ
عَلَيْكَ عَظِيمًا)

صدق الله العظيم

Acknowledgment

*First of all, I wish to express my sincere thanks, great indebtedness and supreme gratitude to my great and kind **ALLAH....** without his wide mercifulness; I wouldn't be... without his kind guidance; I wouldn't do... without his generous gift; I wouldn't see or hear, know or learn.*

*I would like to express my deep gratitude and Thanks to **Prof. Dr. Nefissa H. Meky**, Professor of physiology, Zoology Dep. Faculty of science, Ain Shams University, for the great role she played in my life that helped me fulfill my dream (which was the master degree) by teaching me at college, she gaved me the first hope then by accepting me to register with her she makes my dream so close.*

*All the thanks and great gratitude to **Prof. Dr. Wael R. Hablas**, Professor of Clinical pathology Dep., Faculty of Medicine, Al- Azhar University, who by being in my practical life helps me to gain so much of knowledge. Also, by all his help and instructions I gained great experience and knew how to be a person with both knowledge and ethics together.*

*At last and not least to the one who shared by great part also for me being here now **Dr. Nazek Kamel Saafan**, Fellow in Ain Shams university hospitals, Clinical pathology Dep.,Ain shams university, because she with all love and sincierely she treated me as her daughter. I can never find any words to express my thanks to her but I hope I can one day pay it back to her.*

*Also, I would like to thank **Mrs. Magda Ades** because she was the first one who helped me during the first year of my university studies and I owe her a lot.*

Last but not least, I would like to thank my mother, my sister and brothers and my close friends for their encouragement and unlimited support.

Heba Othman

A scroll with a ribbon tied around it, featuring a decorative seal at the top right corner.

Dedication

I dedicate this thesis to my father soul which I am sure of his presence here now and I say to him it is only the beginning and there will be always more and more.

ABSTRACT

Effects of Neonatal Hyperbilirubinaemia on Blood Rheology as well as Erythrocyte Membrane and Lipid Constituents

Key words Neonates, hyperbilirubinemia, jaundice, erythrocyte morphology, osmotic fragility-membrane lipids, membrane protein, deformability, glucose-6-phosphate dehydrogenase.

The current study aimed to evaluate the alterations of RBC morphology, osmotic fragility, RBCs deformability as well membrane protein and lipids composition due to unconjugated hyperbilirubinemia in neonates.

The results revealed that, hyperbilirubinemia in neonates produced haematological disorders manifested by a significant decrease in RBCs membrane cholesterol and phospholipids level, increased osmotic fragility, decreased deformability as well as morphological changes. The mechanism by which hyperbilirubinemia induced such disturbances might be due to the deposition of bilirubin in the membrane bilayer and disintegration of the lipids with the loss of cholesterol and phospholipids for the membrane.

On the other hand, hyperbilirubinemia in neonates showed no significant change in RBCs count, haemoglobin content, hematocrit value, G6-PDH level nor in membrane protein composition.

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List of Abbreviation

ABO	Blood group
ADP	Adenosine di phosphate
ATP	Adenosine triphosphate
Bb	Bilirubin
Co	Carbon monoxide
G6PD.....	Glucose-6-phosphate dehydrogenase
Hb.....	Hemoglobin
HE	Hereditary elliptocytosis
HOs	Heme oxygenase
Ht	Hematocrit
IgG.....	Immunoglobulin G
NADPH	Nicotinamide adenine dinucleotide phosphate
OFR	Oxygen free radicals
P	Probability
PC.....	Phosphatidyl choline
PE.....	Phosphatidyl ethanolamine
PSA.....	Periodic acid shift
RBCs	Red blood cells
Rh	Rhesus factor
S.....	Significant

SE..... Standard error
SM Spingomyelin
SD..... Standard deviation
UCB..... Unconjugrted bilirubin
UDP..... Uridine diphosphate
UGT..... Uridine diphosphate glucoronaryl
 transferase

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تأثير ارتفاع نسبة الصفراء في الأطفال حديثي
الولادة على سريان الدم وعلى غشاء خلايا الدم
الحمراء والدهون المكونة له

رسالة

توطئة للحصول على درجة الماجستير في العلوم في فسيولوجيا علم
الحيوان

مقدمة من

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الأستاذة الدكتورة / نفيسة حسين مكي

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