ASSESSMENT OF THE EFFICACY OF HAPTOGLOBIN AS A DETECTOR FOR NEONATAL JAUNDICE

PROTOCOL OF THESIS
Submitted in partial fulfillment for
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بسم الله الرحمن الرحيم

قُلْ إِنَّ صَلاَتِي وَنُسُكِي وَمَحْيَايَ وَمَمَاتِي لِلّهِ رَبِّ الْعَالَمِينَ (١٦٢) لاَ شَرِيكَ لَهُ وَبِذَلِكَ أُمِرْتُ وَأَنَاْ أَوَّلُ الْمُسْلِمِينَ (١٦٣)

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Abstract

In this study,we tried to outline the causes of neonatal jaundice direct and indirect hyperbilirubinemia and how ignoring these cases and early hospital discharge may lead to significant jaundice leading to kernicteurs ,we try to find a new precictor for neonatal jaundice and this where haptoglobin level which decreases in third day in neonates suffering fron neonatal jaundice.

Key words:
Neonatal jaundice, haptoglobin, kernicteurs.

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Contents

Subject	Page
List of Abbreviations.	**I**
List of Tables.	II
List of Figures.	III
Introduction.	**1-3**
Aim of the Work.	**4**
Review of Literature:	
Θ CHAPTER I: ❖ Neonatal jaundice	**5-44**
Θ CHAPTER II: ❖ Haptoglobin and hemopexin	**45-51**
Θ CHAPTER III: ❖ Management of neonatal jaundice	**52-67**
Patients and Methods.	**68-75**
Results.	**76-94**
Discussion.	**95-101**
Summary.	**102-104**
Conclusion.	**105**
Recommendations.	**106-107**
References.	**108-122**
Arabic Summary.	**123-129**

List of Abbreviations

AAP	American academy of pediatrics
ABE	Acute bilirubin encephalopathy
BBB	Blood brain barrier
BIND	Bilirubin induced neurologic dysfunction
BVR	Bilivirdin reductase
CO	Carbon monoxide
DNA	Dineucleotide adenosine
ETCO	End tidal carbon monoxide
EX	Exchange
FT	Full term
G6PD	Glucose -6-phosphate dehydrogenase
HO	Heme-oxygenase
HP	Haptoglobin
IgG	Immune globulin G
IgM	Immune globulin M
IVIG	Intra venous immunoglobulin
NO	Nitric oxide
NPV	Negative predictive vaue
OD	Optical density
PCR	Polymeras chain reaction
PPV	Positive predictive value
PT	Preterm
RBCS	Red blood cells
RES	Reticulo endothelial system
RH	Rhesus factor
ROS	Reactive oxygen species
Sens	Sensitivity
Spec	Specificity
TSB	Total serum bilirubin
UDPGT	Uridine diphosphate glucuronyl transferase
UTI	Urinary tract infection
XT	Exchange transfusion

List of Tables

No.	Title	Page
1	Risk factors for hyperbilirubinemia	16
2	Causes of unconjugated hyperbilirubinemia	24
3	Clinical and laboratory features of immune hemolysis due to RH and ABO incompatibility	30
4	Laboratory evaluation of jaundiced infants of 35 or more weeks gestation	42
5	Risk factors for development of sever hyperbilirubinemia in infant of 35 or more weeks gestational	54
6	Follow up of newborns	55
7	Management of hyperbilirubinemia	56
8	American academy of pediatrics guidelines for management of hyperbilirubinemia	65
9	Characteristics of studied newborns	77
10	Mode of feeding of studied neonates	79
11	Hematological indices of the studied newborn	80
12	Distribution of ABO and RH incompatibility among cases	81
13	Distibution of jaundiced cases that required readmission	82
14	Comparison between day 1 and day 3 haptoglobin	83
15	Comparison between haptoglobin and TSB on day 1	84
16	Comparison between haptoglobin and TSB on day 3	85
17	Relation between haptoglobin and hemoglobin on day 1	86

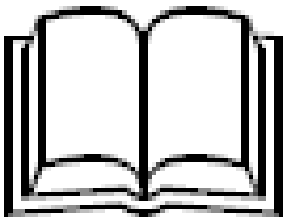
18	Comparison between haptoglobin and reticulocytic count	87
19	Sensitivity and specificity between haptoglobin and hemoglobin	88
20	Sensitivity and specificity between haptoglobin and reticulocytic count	90
21	Sensitivity and specificity between haptoglobin and TSB on day 1	91
22	Sensitivity and specificity between haptoglobin and TSB on day 3	93

List of Figures

No.	Title	Page
1	Chemical structure of bilirubin	9
2	Bilirubin production	10
3	Metabolic pathway of degradation of heme and formation of bilirubin	11
4	Amplification of neuro protective effect of bilirubin by redox cycling	13
5	Bilirubin metabolism	13
6	Fetal bilirubin metabolism	15
7	Pathways of bilirubin synthesis, transport,metabolism	18
8	Causes of neonatal jaundice	20
9	Difference between RH and ABO incompatibility	27
10	Mechanism of sensitization in RH incompatibility and its prevention with anti D	27
11	Erythroblastosis fetalis	29
12	Pentose phosphate pathway	32
13	Spherocytosis incompatibility with normal RBCS	32
14	Hereditary elliptocytosis	33
15	Newborn jaundice biology	52
16	Age-specific total serum bilirubin	53
17	Mechanism of phototherapy	57
18	Neonate on conventional and billi blanket phototherapy	58
19	Intensive phototherapy	59
20	Warmer lined with aluminum foil	60
21	Exchange transfusion in jaundiced neonate	64
22	Sex distribution among neonates	78

23	Mode of delivery among neonates	79
24	Mode of feeding among neonates	80
25	Correlation between haptoglobin and TSB on day 1	85
26	Correlation between haptoglobin and TSB on day 3	86
27	Correlation between haptoglobin and hemoglobin on day 1	87
28	Correlation between haptoglobin and reticulocytic count on day 1	88
29	Sensitivity and specificity between haptoglobin and hemoglobin	89
30	Sensitivity and specificity between haptoglobin and reticulocytic count	91
31	Sensitivity and specificity between haptoglobin and total serum bilirubin day 1	92
32	Sensitivity and specificity between haptoglobin and total serum bilirubin day 3	94

Introduction



INTRODUCTION

Jaundice is a frequently encountered problem during the newborn period. Although up to 60% of term newborns have clinical jaundice in the first week of life, few have a significant underlying diseases. However, it can be associated with severe illnesses such as hemolytic disease, metabolic and endocrine disorders, enzymatic deficiencies of the liver and infections **(Bilgen et al., 2006)**.

A total serum bilirubin(TSB) level greater than 1 mg/dL (17 micromol/L) is encountered in almost all newborn infants, which is the upper limit of normal for adults. As the TSB increases, it produces neonatal jaundice, the yellowish discoloration of the skin and/or sclerae caused by bilirubin deposition **(Dennery et al., 2001)**.

Neonatal jaundice accounts for up to 75% of hospital readmissions in the first week after birth (**Porter & Dennis, 2002)**.

The causes of neonatal hyperbilirubinaemia are numerous, and may include: bilirubin overproduction which occurs in haemolytic diseases with either positive Coombs test (ABO incompatibility, Rhesus incompatibility, and minor bloodgroup antigens) or negative Coombs test (red blood cellmembrane defects, e.g. spherocytosis, elliptocytosis, and/or red blood cell enzyme defects, such as glucose-6-phosphate dehydrogenase [G6PD] and pyruvate kinase deficiencies) **(Porter & Dennis , 2002).**

The management of unconjugated hyperbilirubinemia focuses on two key elements, prevention of hyperbilirubinemia in order to prevent future cases of kernicterus, by identifying at risk infants and initiation of preventive therapeutic interventions (e.g, phototherapy) as needed and reduction of TSB in infants with severe hyperbilirubinemia **(Bhutani et al., 1999).**

kernicterus occurs in term or nearterm infants with hyperbilirubinemia, defined as TSB >95th percentile for hours-of-age on the Bhutani nomogram **(A.A.P., 2004).**

Prevention of hyperbilirubinemia can be done by universal screening of all term and nearterm infants which identifies at-risk infants for hyperbilirubinemia. In these patients, phototherapy is initiated to prevent hyperbilirubinemia when TSB exceeds a threshold level based upon a nomogram of TSB levels adjusted by the infant's age in-hours and the presence or absence of additional risk factors **(Bhutani et al**., **1999)**.

Hemolysis has a significant role in bilirubin increase in newborn, intrauterin it is tolerated by the maternal metabolism in life. When hemolysis takes place, a decrease is expected in the haptoglobin and haemopoexin blood levels binding hemoglobin , it may be considered that haptoglobin and haemopexin from the early period umbilical cord blood may be indicators in determining jaundice likely to develop in late stages **(Cakmak et al., 2008).**

AIM OF THE WORK

The aim of the study is to determine if low umbilical cord and third day postnatal , serum haptoglobin levels can be predictors of neonatal jaundice.

Review of Literature