



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكرو فيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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Studies for Children

**Evaluation of Motor & Cognitive Milestones in
Preterm and Full Term Neonates with
Hyperbilirubinemia
(Follow up study)**

Thesis

Submitted for the Fulfillment of PhD Degree in Childhood Studies
(Department of Medical Studies for Children)

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم العظيم

صدق الله العظيم

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List of Abbreviations

<i>Abbr.</i>	<i>Full-term</i>
AAP	: American Academy of Pediatrics
ABE	: Acute bilirubin encephalopathy
ABO	: Blood group
ASQ	: Ages and Stages Questionnaire
ASQ:SE	: Ages and Stages Questionnaires: Social-Emotional
ATNR	: Asymmetric Tonic Neck Reflex
BABES	: Behavioral Assessment of Baby's Emotional Social
BAER	: Brainstem Evoked Response Audiometry
BDIST	: Battelle Developmental Inventory Screening Test
BIND	: bilirubin-induced neurologic dysfunction
BINS	: Bayley Infant Neurodevelopmental Screener
BITSEA	: Brief Infant/Toddler Social Emotional Assessment
BSID-II	: Bayley Scales of Infant Development 2nd edition
BSID-III	: Bayley Scales of Infant and Toddler Development III
BTAIS	: Birth to Three Assessment and Intervention System
CBC	: Complete Blood Count
CBE	: Chronic bilirubin encephalopathy
CDC	: Centers for Disease Control and Prevention
CDI	: Development Inventories
CP	: Cerebral palsy
DDST-II	: Denver Developmental Screening Test II
DIAL	: Developmental Indicators for the Assessment of learning
DP-3	: Developmental Profile 3
ECI- 4	: Early Childhood Inventory-4
ESI-R	: Early Screening Inventory – Revised
ESP	: Early Screening Profiles
g/dl.	: Grams per deciliter
G-6-PD	: Glucose-6-phosphatase dehydrogenase

GDD	: Global Developmental Delay
GI	: Gastrointestinal
IDM	: Infant of Diabetic Mother
IgG	: Immunoglobulin G
IL	: Interleukine
ITFI	: Infant-Toddler and Family Instrument
IVIG	: Intravenous immunoglobulins
KIDS	: Kent Inventory of Developmental Skills – 3 rd Edition
MCHCs	: Maternal Child Health Centers
Mmol/l	: Micromole Per Litter
NDT	: Neuro-developmental therapy
NICUs	: Neonatal Intensive Care Units
PCV	: Packed cell volume
PEDS	: Parents' Evaluations of Developmental Status
RBC	: Red Blood Cell
Rh	: Rheuses factor
RHDN	: Rhesus hemolytic disease of the newborns
SnMP	: Synthetic metalloporphyrins
TcB	: Transcutaneous Bilirubinometer.
TORCH	: Toxoplasmosis, otheriruses, rubella, cytomegalovirus, and herpes
TSB	: Total Serum Bilirubin
UDPGT	: uridine diphosphoglucuronyltransferase enzyme
USA	: United States of America
WHO	: World Health Organization

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Abstract

BACKGROUND:

Neonatal jaundice is one of the main causes of the patient's admission in the neonatal period and is potentially linked to morbidity & developmental delay in infancy & childhood.

AIM: This study aimed to detect the possible occurrence of motor & cognitive delay in infants as a complication of neonatal hyperbilirubinemia.

METHODS:

A prospective longitudinal case control study was conducted from 1/2/2015 to 1/10/ 2018 by using Bailey scale III to evaluate and follow up motor & mental developmental parameters in cases and control groups, The sample pool of cases (group I) represented by 109 neonates which were subdivided into [group Ia to included 55 full-term neonates with jaundice and group Ib which represented by 54 preterm jaundiced neonates], this sample pool of cases was admitted in Neonatal Intensive Care Unit in New Cairo Hospital, and the control group represented by 52 non jaundiced neonates attended Health Center of The Ministry of Health in New Cairo as (control group), motor and mental developmental parameters by using Bayley scale III were followed up during 1st. eighteen months of life, all variables in this study were analyzed using SPSS software.

RESULTS:

In this study, about 161 neonates were followed up, cases group divided into 2 groups (group Ia) including 55 Full term neonates with hyperbilirubinemia, (group Ib) including 54 Premature neonates with hyperbilirubinemia & control (group II) represented by 52 Full term, clinically normal neonates, .

Findings of this study depicted that there was significant relationship between neonatal hyperbilirubinemia and further developmental delay (motor and mental) in infancy ($P < 0.05$), therefore, identification of developmental delay can facilitate catching up of these infants to normal development, and reduce subsequent complications.

CONCLUSION:

Neonatal jaundice should be considered and followed up for development of motor and mental skills during infancy, as an early identification of developmental delay. It can be effective in preventing susceptible developmental problems later on through interventional programs.

Keywords: Neonatal Jaundice, developmental delay, Bayley III scale.

Introduction

There are various definitions of periods in a child's development, since each period is a continuum with individual differences regarding starting and ending. Some age-related development periods and examples of defined intervals include: newborn (ages 0–28 days); infant (28days – 1 year); toddler (ages 12 months-24 months); preschooler (ages 2–5 years); school-aged child (ages 6–12 years); adolescent (ages 13–19) (*Kail & Robert, 2011*).

The neonatal period (birth to 28 days) is a time of extensive and ongoing system transition from uterine environment to external world, this includes the initial period after birth which is referred to as the perinatal period (*Fatima et al., 2019*), the term applies to premature, full term, and postmature newborn infants (*Escobar et al., 2010*).

An infantile developmental history is usually organized by domains of development, areas to be included are gross motor skills, fine motor skills, social interaction, language and behavioral development (*Escobar et al., 2010*).

Early recognition of infants at risk of developmental disability is important, so early complete head-to-toe examination is important to identify abnormalities that may have an impact on a child's development. The examination begins