وزن الجنين عند الولاده وعمره الحملى كمؤشر لنقص السكر فى الدم فى حالات الحمل غير السكرى

رسالة

توطئة للحصول على درجة الماجستير فى

أمراض النساء والتوليد

مقدمة من

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FETAL BIRTH WEIGHT AND GESTATIONAL AGE AS A PREDICTOR FOR NEONATAL HYPOGLYCEMIA IN NON DIABETIC PREGNANCY

Thesis

Submitted for Partial Fulfillment of the Master Degree in Obstetrics and Gynecology

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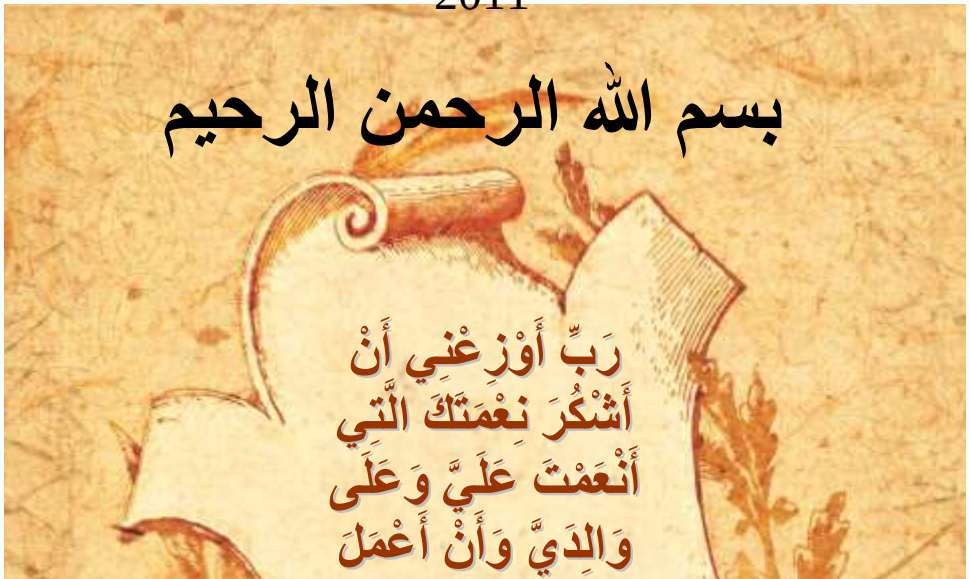

SUMMARY

This study was designed in a cross sectional manner to study the fetal birth weight and gestational age as a predictor for neonatal hypoglycemia in non diabetic pregnancy.

The study population was 2000 non diabetic pregnant were attending the Ain Shams University Maternity Hospital for delivery either vaginaly or by caesarean section aging 18-40 years ,gestational age 37-40 weeks having singleton pregnancy and the delivered new born birth weight is 2000 grams or more.

Birth weight of newborn of non diabetic mothers is taken and put in the weight for gestational age chart according to the gender to determine if the newborn is average for gestational age or large for gestational age or small for gestational age.

2 ml venous blood samples will be obtained from the neonate 2 hours after delivery under complete sterile condition to estimate the blood glucose level.

According to the results of the test the newborns were categorized into two groups:

1- Hypoglycemic group: when the blood glucose level is below 40 mg/dl.

Dedication

Lovely dedicated to

My father and mother
and my brothers
whose prayers and endless
encouragement and support helped
me in everything I achieved
throughout my whole life.
My husband and
my charming children
(Nagham, Ziad, Farah)
whom all my life
is dedicated.

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Also, I would like to express my thanks to all the patients who agreed to contribute in this study.

Last but not least I keep all my good feelings for those who shared me the moments of success.

Nehad Farouk

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List of Abbreviations

Abb.	Meaning
%ile	*Percentile*
ACTH	*Adreno cortico trophic hormone .*
AGA	*Average for gestational age.*
BAER	*Brain stem auditory evoked response.*
BMI	*Body mass index.*
BP	*Blood pressure.*
BW	*Birth weight.*
Cm	*Centimeter.*
CNS	*Central nervous system.*
CS	*Caesarian section.*
DBP	*Diastolic blood pressure.*
DNA	*Deoxyribo nucleic acid.*
EDD	*Expected date of delivery.*
EEG	*Electro encephalography.*
Eg	*For example.*
ELBW	*Extremely low birth weight.*
FFA	*Free fatty acids.*
g	*Gram.*
G-6-pase	*Glucose 6 phosphatase.*
GDM	*Gestational diabetes mellitus.*
GA	*Gestational age.*
Gest. age	*Gestational age.*
GH	*Growth hormone.*
GLUTs	*Glucose transporters.*
GTP	*Guanine triphosghate.*
H	*Houre.*
HAPO	*Hyperglycemia and adverse pregnancy outcomes.*
HHI	*Hyperinsulinemic hypoglycemia of infancy.*

H-MRS	*Proton magnetic resonance spectroscopy.*
HTN	*Hypertension.*
IGFs	*Insulin like growth factors.*
IOM	*Institute of medicine.*
IV	*Intravenous.*
KATP	*Adenosine trinuceotide phosphate-regulating potassium channel.*
KG	*Kilograms.*
KIR	*Inward rectifying potassium channel.*
L	*Liter.*
LGA	*Large for gestational age.*
LMP	*Last menstrual period.*
Mg/dL	*Milligram per deciliter.*
Mg/kg/d	*Milligram per kilogram per day.*
Mg/kg/min	*Milligram per kilogram per minute.*
mmHg	*Millimeter mercury.*
Mmol/L	*Millimole per liter.*
Mol/min	*Mole per minute.*
MRI	*Magnetic resonance imaging.*
MSH	*Melanocyte stimulating hormone.*
Mu/ml	*Milliunit per milliliter.*
N	*Number.*
Ng/ml	*Nanogram per milliliter.*
NICU	*Neonatal intensive care unit.*
N.S	*Non significant.*
NVD	*Normal vaginal delivery .*
P	*Para*
PET	*Positron emission tomography.*
PG	*Prime gravida.*
POMC	*Pro opio melanocyte stimulating hormone.*
P-val.	*P-value.*
S	*Significant.*

SBP	*Systolic blood pressure.*
SD	*Standard deviation.*
SGA	*Small for gestational age.*
SUR	*Sulfonylurea receptor gene.*
Temp .	*Temperature.*
u/l	*Units per liter.*
USA	*United Stats of America.*
VEP	*Visual evoked potentials.*
Vs	*Versus.*
WKs	*Weeks.*
WHO	*International classification of diseases.*

INTRODUCTION

Glucose is the essential substrate for brain function. Although important at all ages, it is particularly so in childhood because a normal supply is necessary to protect neural development ***(Nicole et al., 2006).***

It is the primary fuel used by the brain and is essential for cerebral metabolism. At birth, the healthy newborn adapts to an environment that provides an intermittent supply of glucose. Glycogenolysis and gluconeogenesis are therefore needed to maintain blood glucose levels ***(Robin et al., 2002).***

Neonatal hypoglycemia is a common problem affecting 3% to 29% of pregnancies ***(Johnson, 2003).***

Although hypoglycemia may be asymptomatic, many infants will exhibit symptoms, such as jitteriness, hypotonia, lethargy, irritability, apnea, tachypnea, poor feeding, hypothermia, and seizures ***(Cornblauth and Lochord, 2000).***

Neonatal hypoglycemia may lead to significant neurologic consequences, such as permanent brain damage or death, if not treated promptly ***(Amy, 2009).***

However, the exact point where damage occurs is unknown and may be different for each newborn ***(Cornblath et al., 2000).***

Certain situations place infants at increased risk for hypoglycemia, including prematurity, macrosomia, intrauterine growth restriction, maternal diabetes mellitus, and sepsis ***(Amy, 2009).***

However, it is not possible to define a blood glucose level that requires intervention in newborn infant because there is uncertainty over the level and duration of hypoglycemia that cause damage, and little is known of the vulnerability, or lack of it, of the brain of infants at different gestational ages for such damage ***(Marvin et al., 2000).***