THE ASSOCIATION BETWEEN SERUM FERRITIN AND PRETERM LABOR

Thesis
Submitted for partial fulfillment of Master Degree in Obstetrics and Gynecology

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بسم الله الرحمن الرحيم

قالوا

سبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم

صدق الله العظيم

سورة البقرة الآية: ٣٢

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Howayda Adel

العلاقة بين مستوى الفيريتين فى الدم والولادة المبكرة

رسالة

توطئة للحصول على درجة الماجستير فى
التوليد وأمراض النساء

مقدمة من

الطبيبة/ هويدا عادل أحمد فهمى حسين

بكالوريوس الطب والجراحة – جامعة عين شمس ٢٠٠٧

طبيب مقيم توليد وامراض نساء بوزارة الصحة والسكان – المنصورة

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Contents

List of Tables

List of Figures

List of Abbreviations

Abb.	Mean
ACOG	American college of obestetricians and gynecologists.
ACTH	Adrenocorticotropic hormone.
ALT	Alanine transferase.
AUC	Area under curve.
BV	Bacterial vaginosis.
BPD	Bronchopulmonary dysplasia.
BK	Bradykinin.
CRH	Corticotropin releasing hormone.
CIN	Cervical intraepithial neoplasia.
CRP	C reactive protein.
CSF	Cerebrospinal fluid.
Con A	Concanavalin A.
DFO	Deferoxamine.
DRB	Dichlorofuranosylbenzimidazole.
D&C	Dilatation and curettage.
DNA	Deoxyribonucleic acid.
EDD	Expected date of delivery.
ELBW	Extremely low birth weight.
ELISA	Enzyme-linked immunosorbent assay.
FFN	Fetal fibronectin.
GBS	Group B streptococci.
G-CSF	Granulocyte colony stimulating factor.

Abb.	Mean
HCG	Human chorionic gonadotropin.
HCV	Hepatitis c virus.
HIE	Hypoxic-ischemic encephalopathy.
HK	High molecular weight kininogen.
HLH	Hemophagocytic lymphohistiocytosis.
HPS	Hemophagocytic syndrome.
IgG	Immunoglobulin G.
IgM	Immunoglobulin M.
IL6	Interleukin 6.
LBW	Low birth weight.
LIC	Liver iron concentration.
NEC	Necrotizing enterocolitis.
PDA	Patent ductus arteriosus.
PHA	Phytohaemagglutinin.
PPROM	Preterm premature rupture of membranes.
PROM	Premature rupture of membrane.
PTB	Preterm birth.
PTL	Preterm labor.
RDS	Respiratory distress syndrome.
RNA	Ribosomal ribonucleic acid.
ROP	Retinopathy of prematurity.
ROC	Receiver operating characteristic.
SF	Serum ferritin.
STD	Sexually transmitted disease.
TNF-α	Tumor necrosis factor-alpha.

Abb.	Mean
TIL	Transfusion iron overload.
TIBC	Total iron binding capacity.
TLC	Total leucocytic count.
TSH	Thyroid stimulating hormone.
VLBW	Very low birth weight.
WBCs	White blood cells.
WHO	World Health Organization.

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Protocol of thesis

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Introduction

Preterm labor is among the most common and most serious of prenatal complications. Preterm labor and its potential sequellae of preterm delivery and low-birth weight (LBW) infants remain one of the most significant challenges of current obstetrical practice.

Preterm labor is defined as uterine contractions resulting in progressive cervical change before completing 37 weeks gestation. Preterm delivery is delivery prior to 37 weeks gestation. LBW infants are defined as those infants weighing less than 2500 g at delivery regardless of gestational age.

LBW infants should be distinguished from small-for-gestational-age (SGA) infants who are defined as those infants below the fifth percentile for weight based on gestational age.

Preterm birth is one of the major health hazards of human, being the greatest cause (other than congenital anomalies) of neonatal morbidity and mortality. (**Rush et al, 1976**) .

Preterm labor affects approximately 10% of all pregnancies. Preterm delivery affects approximately 13% of all live births. Preterm delivery and LBW infants represent approximately 70% of all perinatal mortality and 50% of all neurological morbidity.

One of the major problems in preventing preterm labor is the inability to accurately identify those subjects truly destined to deliver preterm.

A number of clinical, bacteriological and biochemical markers have been studied for prediction of preterm labor.

It has been postulated that infection is a major etiologic agent in the pathogenesis of preterm labor and premature rupture of membranes.

Plasma ferritin is considered to be the best measure of total body iron, with low levels diagnostic of iron deficiency. **(Lipschitz et al, 1974; Kaneshige, 1981)**

High levels have been associated with inflammation, infection and preeclampsia. **(Kushner, 1988; Entman et al, 1982)**

Ferritin is synthetized by a number of tissues, including the liver as a major site.

Placental tissue makes a form of ferritin (placental isoferritin), and levels of this isoferritin or ferritin in circulation have been correlated with pregnancy outcome in several populations. **(Ulmer and Goepel, 1988; Maymon et al, 1989)**

Ferritin provides the primary form of iron storage in the body. Since the first demonstration of a relationship between serum ferritin concentration and the level of iron stores there have been many subsequent studies of this relationship. **(Wordwood, 1982)**

However, the possible role of ferritin during inflammation has recently been demonstrated. **(Brailsford et al, 1985)**

A large proportion of early spontaneous preterm deliveries are associated with upper genital tract infections. **(Gibbs et al, 1992)**

This infection lead to increase of serum ferritin which act as acute phase reactant that lead to premature rupture of membranes and preterm labor occur.

Aim of the work

This study aims to association the relation between serum ferritin level and preterm labor.

Research Hypothesis:

In women with preterm labor, serum ferritin may be elevated.

Research Question:

In women with preterm labor does serum ferritin level increase?

Subjects and Method

Subjects:

This study is a case control one. It will be carried on the department of Obstetrics and Gynecology of Ain Shams University, during the year 2015.

The study will include 45 women with preterm labor, and equal number of controls.

Inclusion criteria:

- Women with preterm labor .
- Women included as controls, with no past history of preterm labor or any predisposing factor for preterm labor.

Exclusion criteria:

- Anemia.
- Multiple pregnancies.
- Polyhydramnios.
- Pre-eclampsia.
- Placenta previa.
- Cervical incompetence.