Correlation between Asymptomatic Bacteriuria and Preterm Labor

Thesis

Submitted for Partial Fulfillment of Master Degree

In ***Obstetrics & Gynecology***

By

Mohamed Shabaan Mahmoud

M.B.,B.Ch., (2012)

October Six University-Resident of Ob &Gyn

October Six University

Supervisors

Dr. Magd El-Din M. Mohamed

Professor of Obstetrics & Gynecology

Faculty of Medicine-Ain Shams University

Dr. Dina Yahia Mansour

Lecturer of Obstetrics & Gynecology

Faculty of Medicine -Ain Shams University

Faculty of Medicine

Ain Shams University

2017

العلاقة بين البيلة الجرثومية عديمة الأعراض والمخاض المبكر

رسالة

توطئة للحصول على درجة الماجستير

في التوليد وأمراض النساء

مقدم من

الطبيب/ محمد شعبان محمود

بكالوريوس الطب والجراحة (٢٠١٢)

جامعة ٦ أكتوبر

طبيب مقيم التوليد وامراض النساء ، جامعة ٦ أكتوبر

تحت إشراف

الدكتور/ مجد الدين مجد الدين محمد

أستاذ التوليد و أمراض النساء

كلية الطب – جامعة عين شمس

الدكتورة/ دينا يحيى منصور

مدرس التوليد وأمراض النساء

كلية الطب – جامعة عين شمس

كلية الطب

جامعه عين شمس

٢٠١٧

Acknowledgement

First and last praise to ALLAAH.

It is a great honor to express my sincere gratitude and appreciation to Dr. Magd El-Din M. Mohamed Professor of Obstetrics & Gynecology, Faculty of Medicine, Ain Shams University, for his unfailing interest, untiring help, keen supervision and support.

I am grateful to Dr. Dina Yahia Mansour Lecturer of Obstetrics & Gynecology, Faculty of Medicine, Ain Shams University, for her kind suggestion and scientific supervision.

Finally this work could not have happened without my lovely family and my dear friends who always supported me in everything.

Mohamed Shabaan Mahmoud

Contents

Subjects Page

List of abbreviations

ASB	**:**	Asymptomatic bacteriuria
BPD	**:**	Bronchopulmonary dysplasia
BUN	**:**	Blood urea nitrogen
CFU	**:**	Colony forming units
CLD	**:**	Chronic lung disease
CLED	**:**	Cystein-lactose-electrolyte deficient
CP	**:**	Cerebral palsy
CVF	**:**	Cervicovaginal fluid
fFN	**:**	Fetal fibronectin
GFR	**:**	Glomerular filtration rate
IL16	**:**	Interleukin-16
IL-6	**:**	Interleukin-6
IL8	**:**	Interleukin-8
LBW	**:**	Low birth weight
MSSU	**:**	Mid stream sterile urine .
NEC	**:**	Necrotizing Enterocolitis
NSAID	**:**	Nonsteroidal anti-inflammatory drug.
phIGFBP1	**:**	Phosphorylated insulin-like growth factor binding protein-1
PMA	**:**	Post Menstrual Age
RSV	**:**	Respiratory syncytial virus
TPN	**:**	Total parenteral nutrition
UAE	**:**	United Arab Emirates
UTI	**:**	Urinary tract infection
UTIs	**:**	Urinary tract infections

List of Tables

List of Figures

Introduction

Preterm birth (birth before completed 37 weeks' gestation) is the most significant clinical problem facing contemporary obstetrics in the developed world. Preterm birth occurs in 5-18 percent of all deliveries worldwide with most developed countries reporting an increased incidence over the last 3 decades ***(March of Dimes, 2009).***

It is estimated that 15 millions preterm births occur each year with 1.1 million infants dying from preterm birth complications. Fifteen populous countries (including the USA) account for 75 percent of these deaths ***(Howson, 2012)***

Advances in perinatology and neonatology in the past decade have resulted in increased survival rates, particularly for the extremely premature baby (born between 24 and 27 weeks' gestation) but unfortunately the associated morbidity for these survivors remains significant where one-fifth to one-quarter will suffer at least one major disability including chronic lung disease, impaired mental development, cerebral palsy, deafness, or blindness ***(Chandiramani, 2007).***

Even late preterm infants (born between 32 and 36 weeks gestation) have a greater risk of respiratory distress syndrome, feeding difficulties, temperature instability, jaundice, and' delayed brain development ***(Kugelman, 2013).***

About one half of preterm deliveries are the result of spontaneous labor with intact membranes, one fourth are associated with preterm premature rupture of membranes (PPROM), and one fourth are iatrogenic ***(Alexander GR 2007).***

Iatrogenic factors include elective preterm delivery by induction of labor or cesarean delivery for medical indications, such as hypertensive diseases of pregnancy, intrauterine growth restriction, placental abruption, or non-reassuring fetal surveillance ***(Ananth et al., 2006)***.

The pathogenesis of preterm labour is not well understood, and it is often not clear whether preterm labour represents early idiopathic activation of the normal labour process or results from a pathologic mechanism. So, preterm labour probably represents a syndrome rather than a specific diagnosis, since the causes are varied ***(Lockwood et al., 2015).***

The association between asymptomatic bacteruria and preterm delivery (<37 weeks of gestation) and that between asymptomatic bacteruria and low birth weight (<2500 grams) were unknown until 1962 when Kass first published an account of fortuitous observation while looking for kernicterus in newborn of mothers treated with long acting sulphonamides, he noted an increased risk among untreated bacteruric women for the delivery of low birth weight ***(Cunningham et al., 2010).***

Furthermore, the mean duration of pregnancy among untreated bacteriuric women was found to be reduced by 1 week on average ***(Hazhir, 2007).***

Asymptomatic bacteriuria (ASB) is defined as the presence of actively multiplying bacteria in the urinary tract, excluding the distal urethra, in a patient without obvious urinary symptoms ***(Tadesse et al., 2014)***.

It is also defined as two consecutive clean-catch midstream urine cultures showing at least 100,000 cfu/mL of the same single species from an individual without any symptoms of urinary tract infection (UTI) ***(Kacmaz et al., 2006).***

Asymptomatic bacteruria occurs in approximately 2% to 14% of pregnant women and 80,000 to 400,000 cases occur each year in the United States ***(Mittal, 2005).***

Pregnant women are at increased risk for UTI(starting in week 6 through week 24), because of stasis of urine, and the bacteria in the urinary tract from relative obstruction, that is caused by the physiological changes during pregnancy that predispose women to bacteruria. These physiological changes include the dilatation of the ureters secondary to progesterone, and to the mechanical obstruction by the gravid uterus later in pregnancy. Glycosuria, proteinuria, and aminoaciduria found in pregnancy, also facilitate bacterial growth ***(Jones, 2009).***

Without treatment, 20% to 40% of asymptomatic bacteruria cases among pregnant women progress to pyelonephritis, a serious kidney infection. Pyelonephritis complicates 1% to 2% of all pregnancies and affects 100,000 women each year in USA. It is also a leading cause of antepartum hospitalization. With appropriate screening and treatment, only 3% of bacteruria cases will progress to pyelonephritis ***(Mittal, 2005).***

Also it increases the risk for preterm delivery and low birth weight and may also increase the risk of fetal and

perinatal mortality ***(Calogne, 2004).*** Prevalence of asymptomatic bacteriuria (ASB) in those with premature uterine contractions and others with no history of Preterm labour were 23.5% and 16.9% respectively. A highly significant association between ASB of the mothers and preterm labor was noted ***(El-Sokkary, 2011).***

Risk factors for asymptomatic bacteruria during pregnancy include low socioeconomic status, urinary tract infections (UTIs) in childhood. Other risk factors include preexisting medical conditions such as diabetes, sickle cell disease, immunosuppression (e.g., HIV/AIDS), urinary tract anatomic anomalies, and spinal cord injuries. UTIs experienced before pregnancy are predictive of the diagnosis of asymptomatic bacteruria at the first prenatal visit ***(Mittal, 2005)***.

Urinary tract infections (UTIs) during pregnancy are among the most common health problems worldwide affecting many women in their reproductive years especially in developing countries. Due to several anatomical and hormonal changes, pregnant women are more susceptible to develop UTIs. The prevalence of UTIs among pregnant women was (14.2%) regardless of the women's age, parity and gestational age ***(Wamalwa et al., 2013).***

The organisms that cause UTIs during pregnancy are the same as those found in non-pregnant patients. Escherichia coli (E. coli) accounts for 80 to 90% of infections. Other gram-negative rods such as Protues mirabilis and Klebsiella pneumoniae are also common. Gram-positive organisms such as group B Staphylococcus saprophyticus are less common causes of UTI ***(Alvarez et al., 2010).***

Aim of the Work

Primary: study correlation between asymptomatic bacteruria and preterm labour.

Secondary: Detect prevelance of asymptomatic bacteruria in woman attending Ain shams maternity university hospital.

Research hypothesis: In pregnant ladies asymtomatic bacteruria may lead to preterm labour.

Research question: In Pregnant ladies is asymptomatic bacteruria lead to preterm labour.