Risk Factors of Missed Miscarriage at Ain-Shams University Maternity Hospital

Thesis

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List of Abbreviations

Abb.	Full term
CRL	Crown rump length
DIC	Disseminated intravascular coagulopathy
FSH	Follicle stimulating hormone
GA	Gestational age
hCG	Human chorionic gonadotropin
IUP	Intrauterine pregnancy
Ig	Immunoglobulin
LMP	Last menstrual period
NK	Natural killer
PCOS	Polycystic ovary syndrome
SD	Standard deviation
TVS	Transvaginal sonography
US	Ultrasound
HTN	Hypertension
DM	Diabetes mellitus
PE	Physical exercise
UK	United Kingdom

Abb.	Full term
PID	Pelvic inflammatory disease
D&C	Dilatation and curettage
LPD	Luteal phase defect
VTE	Venous thromboembolism
AIDS	Autoimmune deficiency syndrome
CMV	Cytomegalovirus
HSV	Herpes simplex virus
MMR	Measles Mumps Rubella
EMF	Electromagnetic field
LDA	Low dose aspirin
LMWH	Low molecular weight heparin
BMI	Body mass index

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Introduction

Miscarriage is defined as the spontaneous termination of pregnancy before 20 weeks of gestation or delivery of a fetus weighing 500 grams or less (a non-viable fetus), after which fetal death is known as a stillbirth ***(Chayachinda et al., 2012).***

Miscarriage is the most common complication of pregnancy; it has been estimated that the miscarriage rate among women who know they are pregnant is 10% to 20% while rates among all conceptions is around 30% to 50% ***(Lippincott Williams & Wilkins, 2012).***

Miscarriages are generally classified as first trimester (up to 12 weeks' gestation), late or second trimester (from 12–24 weeks' gestation). This subdivision into two different categories is important because of the different etiologies and types of treatment applied ***(Brown, 2008).*** About 80% of pregnancy losses occur in the first trimester; the incidence decreases with each gestational week. ***(Berek, 2007).***

Miscarriages are categorized as threatened, inevitable, incomplete, complete, or missed, and can be further classified as sporadic or recurrent ($\geq$3 occurrences)

(American College of Obstetricians and Gynecologists (ACOG), 2010).

Missed miscarriage, also known as delayed miscarriage is defined as unrecognized intrauterine death of the embryo or fetus before the 20 week of gestation without expulsion of the products of conception, the fetal death occurs with no uterine activity to evict the products of conception. Women experiencing a missed miscarriage may have no self-awareness due to the lack of obvious symptoms ***(Zegiri et al., 2010).***

Missed miscarriage is a common gestational pathology that affects approximately between 15% and 20% of clinically diagnosed pregnancies ***(Chen and Creinin, 2007).***

One in three women miscarries at some time during reproductive life and the incidence of early embryonic demise (missed miscarriage) is high compared with other early pregnancy complications. ***(Jeve et al., 2011).*** Based on missed miscarriage statistics, about 17% to 22% is the over-all risk. When heartbeats are detected, the missed miscarriage rate is about 9.4% at 6 weeks and this tends to reduce upon reaching the 9th week ***(Allison and Schust 2009).***

More than 80 percent of missed miscarriage occur in the first 12 weeks of pregnancy, and at least half result from chromosomal anomalies. After the first trimester, both the missed miscarriage rate and the incidence of chromosomal anomalies decrease ***(Cunningham et al., 2010)***.

Despite the importance of missed miscarriage, little is known regarding its causes and risk factors. Because of the folklore surrounding missed miscarriage and the reluctance of those who experience a missed miscarriage to share that experience, there is a significant information gap between the medical diagnosis of missed miscarriage and the etiology of missed miscarriages ***(Schaffir et al., 2007).***

Although Most missed miscarriages are caused by chromosomal abnormalities in the fetus, which do not allow the pregnancy to develop however, there is a possible Risk factors may increase the incidence of missed miscarriage related to personal factors, life style, environmental factors, occupational and miscellaneous factors ***(Branch et al., 2010).***

Although chromosomal abnormalities are implicated in approximately 50% of all spontaneous miscarriages, the

remaining 50% may be preventable and related to environmental factors ***(Stephenson, 2007)*.**

The exact causes of most missed miscarriages are considered unknown, but may include maternal age, chromosomal abnormalities, endocrine disorders, thrombophilia, infection, and environmental factors ***(Tabor & Alfirevic, 2010)***. However, the causes of these missed miscarriages in many cases are still unknown. In this study, we evaluated all risk factors "Maternal and Environmental" that is related to missed miscarriage cases at Ain Shams Maternity hospital in an attempt to provide clues for prevention of incident cases of missed miscarriage.

Goal of the Study

The goal of the study is to decrease the incidence of missed miscarriage cases and its related complications.

Research question

What are the risk factors of Missed Miscarriage at Ain-Shams University Maternity hospital?

Research Hypothesis:

There is association between some Environmental, behavioral factors and occurrence of missed miscarriage (e.g. passive smoking, not practicing physical exercise, Exposure to mobile phone radiation, family and job stress).

Objectives

To determine the risk factors for Missed miscarriage among women attending the emergency room and outpatient clinic at Ain-Shams University Maternity hospital.

Chapter I:

Miscarriage Definition and Types

Definiton

Miscarriage is defined as the spontaneous termination of pregnancy before 20 weeks of gestation or delivery of a fetus weighing 500 grams or less (a non-viable fetus), after which fetal death is known as a stillbirth ***(Chayachinda et al., 2012).***

Before the 1980s, health professionals used the phrase "spontaneous abortion" for a miscarriage and "induced abortion" for a willful termination of the pregnancy ***(Moscrop, 2013).***

The definition varies in the upper limit of gestational age according to the countries and available facilities ***(Chayachinda et al., 2012).*** Those born before 24 weeks of gestation rarely survive. However, the designation "fetal death" applies variably in different countries and contexts, sometimes incorporating weight, and gestational age from 16 weeks in Norway, 20 weeks in the US and Australia, 24 weeks in the UK to 26 weeks in Italy and Spain ***(Li et al., 2012).***

Magnitude of the proplem

Miscarriage is the most common complication of pregnancy; it has been estimated that the miscarriage rate among women who know they are pregnant is 10% to 20% while rates among all conceptions is around 30% to 50% ***(Lippincott Williams & Wilkins, 2012).***

Even though the majority of these losses occur before a missed menstrual period,Approximately one-fourth of all pregnancies are complicated by bleeding before 20 weeks gestation and 12-57 % of these pregnancies end up being actually lost ***(Hasan et al., 2010).***

Classification of miscarriage

Miscarriages are generally classified as first trimester (up to 12 weeks' gestation), late or second trimester (from 12–24 weeks' gestation). This subdivision into two different categories is important because of the different etiologies and types of treatment applied ***(Apuzzio et al., 2006).*** About 80% of pregnancy losses occur in the first trimester; the incidence decreases with each gestational week ***(Berek, 2007).***