PREVALENCE OF FIRST TRIMESTER ABORTION IN Al-MATARIA TEACHING HOSPITAL

Thesis

Submitted for Partial Fulfillment for Master Degree in
Obstetrics and Gynecology

By

Marwa Ramadan Habib Mohamed
(M.B., B.Ch.), Cairo University
Resident in Al-Mataria Teaching Hospital

Supervised by

Prof. Dr. Mahmoud Khamis Abdel Rahman
Professor of Obstetrics and Gynecology
Faculty of Medicine, Cairo University

Dr. Mona Mohamed Shaaban
Lecturer of Obstetrics and Gynecology
Faculty of Medicine, Cairo University

Faculty of Medicine
Cairo University
2009

ABSTRACT

The study revealed that the percent of total abortion cases to the total admitted cases was 6.62%. The percent of total abortion cases to the total gynaecological cases was 48.00%. The percent of the total cases of first trimester abortion to the total abortion cases was 68.91 %. The percent of first trimester abortion was more than the double percent of the second trimester abortion (69 %) to (31%). And according to the age of the patients of the first trimester abortion we classify the age into three groups to facilitate the statistical analysis, group one below the age of 20 years old, group two from 21 to 35 years old and the third group above the 35 years old and the result was that the percent of first trimester abortion in the group one was 5.63%, the percent of first trimester abortion in the group two was 79.47% and for the third group was 14.91% this results over the three years from Jan 2006 to Dec 2008. The prevalence of first trimester abortion at ten weeks gestational age was the largest percent (26%), while the least one was at 5 weeks gestation (3%). The prevalence of first trimester abortion in relation to the type of abortion we find the percentage of threatened abortion 2.46%, inevitable abortion 58.04%, missed abortion 6.21%, septic abortion 0.39%, incomplete abortion 30.60% and 1.67% was complete abortion. And according to the pattern of abortion the prevalence of first trimester abortion the sporadic cases of first trimester abortion were 99 %. While the cases of recurrent first trimester abortion were 1%. Although the numbers of first trimester abortion cases admitted to the hospital were (1013) only 94.57% (958) cases managed surgically by dilatation &evacuation .and only 5.43% (55) cases managed medically. Finally the prevalence of short term complications of the first trimester abortion was Post abortive pain (55.68%), PGs fever (60.71%), incomplete evacuation (6.22%), Uterine Perforation (2.17%), Cervical laceration (0.30%), Post abortive bleeding (0.99%), anaesthesia complications (1.28%), so the most common short term complication was Post abortive pain and PGs fever, while the rarest was Cervical laceration, Post abortive bleeding, Anaesthesia complications and Uterine Perforation.

Key Words: PREVALENCE, FIRST TRIMESTER, ABORTION

Acknowledgement

*Firstly and foremost, my deep gratefulness, thankful, and indebtedness as to the merciful "**ALLAH**" who gave me everything I have and the ability and patience for accomplishing this work.*

*I am immensely and deeply grateful to Professor **Dr. Mahmoud Khamis Abdel Rahman**, Professor of Obstetrics and Gynecology, Faculty of Medicine -Cairo University, for his sincere guidance, supervision as well as critical reading for this thesis, and valuable continuous encouragement during the course of this work.*

*I would like to express my profound gratitude to Dr. **Mona Mohamed Shaaban** Lecturer of Obstetrics and Gynecology Faculty of Medicine Cairo University, without her continuous guidance, encouragement, and assistance, the accomplishment of this work would not have been possible.*

*I am deeply indebted and grateful to Professor **Dr.Madiha said Mohamed Abd elrazik** professor of Public health, Faculty of Medicine, Cairo University For her efficient encouragement and helpful advice.*

*I never can miss out on saying many thanks to the administration of **Al Mataria Teaching Hospital** for the great help to complete this study.*

And finally I would like to thank my parents and my husband for their sincere encouragement.

Marwa Ramadan Habib Mohamed

LIST OF CONTENTS

LIST OF ABBREVIATIONS

A1C	: Glycosylated hemoglobin
ACA	: Anticardiolipin antibody
AIDS	: Acquired immune deficiency syndrome
ANA	: Antinuclear antibody
APA	: Antiphospholipid antibodies
APL	: Antiphospholipid antibodies
APS	: Antiphospholipid syndrome
β-HCG	: Beta subunit of Human chorionic gonadotropin
CDC	: Centers for Disease Control and Prevention
CGH	: Comparative genomic hybridization
CMV	: Cytomegalovirus
CSF	: Colony Stimulating Factor
D&C	: Dilatation and Curettage
D&X	: Dilatation and Extraction
DES	: Diethylstilbestrol
ED	: Expected Date
FSH	: Follicle stimulating hormone
GBS	: Group B streptococcal
GM-CSF	: Granulocyte-macrophage colony stimulating factor
GPL	: IgG phospholipid units
HCG	: Human chorionic gonadotropin
HFEVS	: High Frequency Endovaginal Sonography
HIV	: Human immunodeficiency virus
HLA	: Human leucocyte antigen
HPL	: Human placental lactogen
IDM	: Insulin dependant diabetes
Ig	: Immunoglobulin
IL-2	: Interleukin -2
IU	: International units
IUD	: Intra Uterine Device
IV Ig	: Intravenous Immunoglobulin
IVF	: In Vitro Fertilization
LGLs	: Large Granular Lymphocytes
LH	: Luteinizing hormone
LH-RH	: Luteinizing hormone –releasing hormone
LMP	: Last menstrual period
LPD	: Luteal phase defect
MHC	: Major histocompatibility complex

MRI	: Magnetic resonance imaging
MSD	: Mean sac diameter
MTHFR	: Methyl –tetrahydrofolate reductase
NK-cells	: Natural killer cells
PCOS	: Polycystic ovary syndrome
PG	: Prostaglandin
RPL	: Recurrent pregnancy loss
RSA	: Recurrent spontaneous abortion
SLE	: Systemic lupus erythematosus
TNF-∞	: Tumor Necrosis Factor Alpha
TSH	: Thyroid Stimulating Hormone
U/S	: Ultrasound
WHO	: World health organization

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Abortion is the spontaneous or induced termination of pregnancy before fetal viability. Because popular use of the word *abortion* implies a deliberate pregnancy termination, some prefer the word miscarriage to refer to spontaneous fetal loss before viability. Because the widespread use of sonography and serum measurement of human chorionic gonadotropin levels allows identification of an extremely early pregnancy, a number of other names have come into common use. These include, for example, *early pregnancy loss* or *early pregnancy failure*. The National Center for Health Statistics, the Centers for Disease Control and Prevention (CDC), and the World Health Organization (WHO) define *abortion* as pregnancy termination prior to 20 weeks' gestation or a fetus born weighing less than 500 g. ***(Cunningham et al., 2008)***

Spontaneous abortion, which is loss of a pregnancy without outside intervention before 20 weeks gestation, affects up to 20% of recognized pregnancies .spontaneous abortion can be subdivided into threatened abortion, inevitable abortion, incomplete abortion, and recurrent spontaneous abortion. Ultrasonography is helpful in the diagnosis of spontaneous abortion, but other testing may be needed if an ectopic pregnancy cannot be ruled out. Chromosomal abnormalities are causative in approximately 50% of spontaneous abortions; multiple other factors also may play a role. Traditional treatment consisting of

surgical evacuation of the uterus remains the treatment of choice in unstable patients ***(Deutchman et al., 1993).***

Pregnancy loss is the most common complication of pregnancy and it is estimated that fetal viability is only achieved in 30%of all human conceptions.50%of which are lost prior to first missed menses ***(Clark, 2003)***

Miscarriages affects 15%of women, primarily in first trimester whilst most are sporadic and non recurrent, there is a subset comprising 2-5 %of couples that suffers recurrent miscarriage ***(Clark, 2003).***

Approximately 20%of pregnant women will have some bleeding before 20 weeks gestation, and roughly one half of these pregnancies will end in spontaneous abortion .up to 20%of recognized pregnancies will end in miscarriage. However, when women were followed with serial serum human chorionic gonadotropin (HCG) measurements ,the actual miscarriage rates was found to be 31% .many pregnancies are lost spontaneously before a women recognizes that she is pregnant ,and the clinical signs of miscarriage are mistaken for a heavy or late menses ***(Creinin et al., 2001).***

Miscarriage risk increases with the number of previous pregnancy losses but rarely exceeds 40-50%. Risk for pregnancy loss rises with increasing maternal age, moderately after 35 and more rapidly after age 40 ***(Nybo Andersen et al., 2000)***

In a meticulous investigation of 221 healthy women studied through 707 menstrual cycles, ***Wilcox and colleagues, (1988)*** reported that 31 percent of pregnancies are lost after implantation. They used highly specific assays for minute concentrations of β-human chorionic gonadotropin (β-HCG) and reported that two thirds of these early loses were *clinically silent* ***(Cunningham et al, 2008).***

A number of factors influence the spontaneous abortion rate, and it is not known if those that are clinically silent are affected. For example, clinically apparent miscarriage increases with parity as well as with maternal and paternal age ***(Gracia, 2005; Warburton, 1964; Wilson, 1986).*** The frequency doubles from 12 percent in women younger than 20 years to 26 percent in those older than 40. For the same comparison of paternal ages, the frequency increases from 12 to 20 percent. Again, it is not known clinically silent miscarriages are similarly affected by these factors. ***(Cunningham et al, 2008).***Although mechanisms responsible for abortion are not always apparent, during the first 3 months of pregnancy, death of the embryo or fetus nearly always precedes spontaneous expulsion. Thus, finding the cause of early abortion involves ascertaining the cause of fetal death. In later losses, the fetus usually does not die before expulsion and other explanations are sought. ***(Cunningham et al, 2008).***

Of all recognized human pregnancies, 15-20%end in spontaneous abortion .The actual incidence of spontaneous pregnancy loss is greater when early-unconfirmed pregnancies are

included, with the use of high sensitive HCG assays suggested – that up to 30%of pregnancies are lost between implantation and 6weeks of gestational age ***(Wilcox et al., 1988)***. These estimates do not include instances where fertilized ovum fails to implant ***(Warburton, 1987).***

Miscarriage risk increases with the number of previous pregnancy but rarely exceeds 40-50% .Risk for pregnancy loss also rises with increasing maternal age ,moderately after age 35 and more rapidly after age 40 ***(Speroff et al ., 2005.)***

This essay presents an overview of this problem with special emphasis on the causes and its management.

AIM OF WORK

Enquiry about cases of first trimester abortion in Al-Mataria Teaching Hospital over last three years from January 2006 to December 2008 to hypothesis the magnitude of the problem aiming to determine the prevalence of first trimester abortion in Al-Mataria Teaching Hospital and application of suitable polices to improve pregnancy outcome.

PATIENTS AND METHODS

The study is retrospective one to detect the accurate prevalence of first trimester abortion in Al Mataria Teaching Hospital over three years from January 2006 to December 2008.Cases of abortion will be those who admitted to the emergency department of obstetrics and gynaecology.

Collection of data will pass in few stages;

1. Detection of number of cases of first trimester abortion irrespective to the cause in Al Mataria Teaching Hospital over the last three years (2006-2008) the findings will be evacuated in a special form according to the type of abortion.

2. Detection of number of first trimester abortion in Al Mataria Teaching Hospital over the last three years (2006-2008) these findings will be evacuated in special forms according to age of patient , parity ,gravidity ,consanguinity, residence(environmental factors), special habits of medical importance (smoking) ,antenatal care(folic acid supplementation) ,gestational age, history of medical disease (Diabetes, Hypertension, Thyroid, Renal, Liver, Blood, Bronchial Asthma, autoimmune), husband age

3. Detection of the number of all admitted gynecological, obstetric, and second trimester abortion cases

These will be obtained from the hospital recordings system which includes:

1. Department registration.

2. Patient files.

3. Department statistics.

RESULTS:

The results will be statistically analyzed.

CHAPTER I
Physiology of Normal Pregnancy

1. DECIDUAL REACTION

The accommodation of pregnancy is the cardinal function of the endometrium/deciduas. The single physiological and metabolic function of the endometrium/deciduas is to serve, as the maternal tissue interface of pregnancy. The endometrium is the optimal site for blastocyst implantation and embryo-fetal / placental development.

The decidual cells are differentiated from the stromal cells of the endometrium under the influence of progesterone and other stimuli. In addition, there are many bone marrow-derived cells variety of lymphocytes and leukocytes in normal endometrium and deciduas ***(King, 2000).***

The endometrium and deciduas are specialized tissues that carry out multiple functions, which are:

1. The hormonal responsiveness and phenotypic changes of the endometrial/decidual cells facilitate apposition and implantation of the blastocyst.

2. The deciduas serve as an immunologically specialized tissue.

3. The endometrium/deciduas and the spiral arteries accept trophoblast invasion, providing for embryo-fetal nutrition.

4. The deciduas contribute cytokines and growth factors that promote placental growth, function, and the inhibition of (trophoblast) apoptosis ***(Tang et al, 1994).***

5. Furthermore, the deciduas, with its bone marrow-derived cells, also serves first to accept and then to limit trophoblast invasion into maternal tissues.

6. Lastly, the decidua is a highly versatile endocrine tissue, producing prolactin, 1,25-dihydroxy-vitamin D3, corticotrophin releasing hormone, parathyroid hormone related protein , relaxin, prorenin, somatostatin, oxytocin, activin, inhibin, corticosteroid binding globulin , insulin like growth factor-binding protein (s), and multiple pregnancy-specific proteins.

The portion of deciduas directly beneath the site of blastocyst implantation is modified by trophoblast invasion and becomes the ***deciduas basalis;*** that portion overlying the enlarging blastocyst, and initially separating it from the rest of the uterine cavity, is ***deciduas capsularis***.

The ***deciduas capsularis*** is the most prominent during the second month of pregnancy, consisting of decidual cells covered by a single layer of flattened epithelial cells without traces of glands. Internally, this portion of the deciduas contacts the vascular; extra embryonic fetal membrane, the chorion leave. The remainder of the uterus is lined by ***deciduas parietalis (Tang et al., 1994).***