



**Prevalence of stillbirths and their
associated risk factors at Ain Shams
University Maternity Hospital in the period
from 2008 to 2012**

Thesis

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

By

Abeer Sayed Shaaban El-Sayed

*Resident of Obstetrics and Gynecology, El Khalifa general Hospital
M.B. & B. Ch. (2003) Ain Shams University*

Under supervision of

Prof. Ihab Hassan Abdel Fattah

*Professor of Obstetrics and Gynecology
Faculty of Medicine, Ain Shams University*

Prof. Fekrya Ahmed Mohamed Salama

*Professor of Obstetrics and Gynecology
Faculty of Medicine, Ain Shams University*

Dr. Walid El-Basuony Mohamed

*Lecturer of Obstetrics and Gynecology
Faculty of Medicine, Ain Shams University*

Faculty of Medicine
Ain Shams University
2016

Acknowledgement

First and foremost, thanks **Allah** to whom I relate any success in my life.

I would like to express my utmost gratitude and appreciation to ***Professor Ihab Hassan Abdel Fattah***, Professor of obstetrics and gynecology, Faculty of Medicine, Ain Shams University for his dedicated effort, continuous support and constructive criticism.

I wish to express my deep gratitude and appreciation to ***Professor Fekrya Ahmed Mohamed Salama*** Professor of obstetrics and gynecology, Faculty of Medicine, Ain Shams University. It is a real pleasure to acknowledge her sincere encouragement, Keen interest and excellent guidance throughout this work.

I am very grateful to ***Dr. Walid El-Basuony Mohamed*** Lecturer of obstetrics and gynecology, Faculty of Medicine, Ain Shams University, for his continuous help and faithful guidance throughout this study. I am really indebted to him for his unlimited support gentleness and kind encouragement.

Thanks to **my parents, my mother and my father** and **my family** and thanks to **my husband engineer Ahmed kotb** for helping, supporting, encouraging me to finish this work.

Last but not least, thanks to **Archive staff** for helping me and facilitating the methods of data collection of this study.

LIST OF CONTENTS

Title	Page
♦ List of Abbreviations	
♦ List of Tables	
♦ List of Figures	
♦ Protocol of thesis	
♦ Abstract.....	
♦ Introduction.....	1
♦ Aim of the work	6
♦ Review of the Literature:	
○ Definition stillbirth	7
○ Incidence and epidemiology of stillbirth.....	8
○ Causes of stillbirth	16
○ Unexplained stillbirth	24
○ Classification of stillbirth	26
○ Risk factors of stillbirth.....	29
○ Diagnosis and management of stillbirth.....	35
○ Evaluation of stillbirth	41
○ Prevention strategies of stillbirth.....	44
○ Counseling parents after stillbirth	50
○ Prenatal mortality	56

Title	Page
♦ Subjects and Methods.....	62
♦ Results	68
♦ Discussion	93
♦ Summary.....	102
♦ Conclusion and Recommendations	108
♦ References.....	109
♦ Arabic Summary.....	

LIST OF ABBREVIATIONS

Abbreviation	Definition
AAP	American Academy of Pediatrics
ACOG	American College of Obstetricians and Gynecologists
ANC	Ante-Natal Care
APLA	Anti-phospholipid antibody syndrome
ASES	Average Socio-Economic Status
BOH	Bad Obstetric History
CDC	Center for Disease Control and Prevention
CS	Cesarean Sections
CFMF	Congenital Fetal Malformations
CMV	Cytomegalovirus
DVT	Deep Venous Thrombosis
DIC	Disseminated Intravascular Coagulation
DKA	Diabetic ketoacidosis
DM	Diabetes Mellitus
ELBW	extremely low birth weight
GDM	Gestational Diabetes Mellitus
GIT	Gastrointestinal tract
HTN	Hypertension
IMR	Infant Mortality Rate
IUFD	Intra Uterine Fetal Death
IUGR	Intra Uterine Growth Retardation
LBW	Low Birth Weight
LSES	Low Socio-Economic Status
MSL	Meconium Stained Liquor
NCHS	National Center for Health Statistics

NICU	Neonatal Intensive Care Unit
NM	Neonatal mortality
NMR	Neonatal Mortality Rate
PE	Preeclampsia
PIH	Pregnancy Induced Hypertension
PM	Perinatal Mortality
PMR	Perinatal Mortality Rate
PROM	Premature Rupture Of Membranes
PTL	Pre-Term Labour
SGA	Small for Gestational Age
SES	Socio-Economic Status
SLE	Systemic Lupus Erythromatosis
SVD	Spontaneous Vaginal Delivery
SB	Stillbirth
SIDS	Sudden Infant Death Syndrome
TOP	Termination Of Pregnancy
TRAP	Twin Reverse Arterial Perfusion
UN	United Nation
US	Ultrasonography
UTI	Urinary Tract Infection
WHO	World Health Organization

LIST OF TABLES

Table No.	Title	Page
Table (1):	Some causes of fetal death	23
Table (2):	Risk factors for fetal death	30
Table (3):	The number and percentage of stillbirth and the total delivery number of each year during the study period	68
Table (4):	Descriptive data of different groups.....	69
Table (5):	Prevalence of stillbirth with different maternal age groups	70
Table (6):	Prevalence of stillbirth with different parity	71
Table (7):	Prevalence of Stillbirth with different fetal gestational age /week	73
Table (8):	Correlation between modes of delivery with stillbirth	73
Table (9):	indications of CS with stillbirth	74
Table (10):	Prevalence of stillbirth with antenatal care	75
Table (11):	Prevalence of stillbirth with different socioeconomic status.....	76
Table (12):	Prevalence of stillbirth with maternal history of abortion	77

Table No.	Title	Page
Table (13):	Prevalence of stillbirth with maternal bad obstetric history	78
Table (14):	Prevalence of stillbirth with different types of maternal bad obstetric history	79
Table (15):	Prevalence of stillbirth with CFMF.....	80
Table (16):	Prevalence of stillbirth with different types of congenital fetal malformations	81
Table (17):	Prevalence of stillbirth with maternal medical diseases	82
Table (18):	Prevalence of stillbirth with the most common maternal medical diseases	83
Table (19):	Prevalence of stillbirth with different aspects of maternal DM	84
Table (20):	correlation between controlled and uncontrolled DM with stillbirth	85
Table (21):	Prevalence of stillbirth with different types of maternal HTN	86
Table (22):	Prevalence of stillbirth with the other maternal medical diseases.....	87
Table (23):	Prevalence of stillbirth with maternal antepartum complications.....	89

Table No.	Title	Page
Table (24):	Prevalence of stillbirth with Family History of SB	91
Table (25):	The number and percentage of unexplained stillbirth	92

LIST OF FIGURES

Fig. No	Title	Page
Figure (1):	The number and percentage of stillbirth and the total delivery number of each year during the study period	69
Figure (2):	Prevalence of stillbirth with different maternal age groups.....	70
Figure (3):	Prevalence of stillbirth with different parity.....	71
Figure (4):	Prevalence of Stillbirth with different fetal gestational age.	72
Figure (5):	Correlation between modes of delivery with stillbirth.....	73
Figure (6):	indications of CS with stillbirth.....	74
Figure (7):	Prevalence of stillbirth with antenatal care	75
Figure (8):	Prevalence of SB with different SES	76
Figure (9):	Prevalence of stillbirth with maternal history of abortions.....	77
Figure (10):	Prevalence of stillbirth with maternal bad obstetric history.....	78
Figure (11):	Prevalence of stillbirth with different aspects of maternal bad obstetric history	79

Fig. No	Title	Page
Figure (12):	Prevalence of stillbirth with CFMF.....	80
Figure (13):	Prevalence of stillbirth with different types of CFMF.....	81
Figure (14):	Prevalence of stillbirth with maternal medical diseases.....	82
Figure (15):	Prevalence of stillbirth with the most common maternal medical diseases	83
Figure (16):	Prevalence of stillbirth with different aspects of maternal DM.....	84
Figure (17):	correlation between controlled and uncontrolled DM with stillbirth	85
Figure (18):	Prevalence of stillbirth with different aspects of maternal HTN	86
Figure (19):	Prevalence of stillbirth with the other maternal medical diseases	88
Figure (20):	Prevalence of SB with maternal antepartum complications.....	90
Figure (21):	Prevalence of stillbirth with family history of SB	91
Figure (22):	The number and percentage of unexplained stillbirth	92

Prevalence of stillbirths and their associated risk factors at Ain Shams University Maternity Hospital in the period from 2008 to 2012

By

Abeer sayed shaaban El Sayed

Resident of obstetrics and gynecology

Abstract

Background: Stillbirth is an important public health concern and its rate indicates the sanitary development of society. Counting stillbirths is the first step in analysis and prevention. For public health prospective, there is a need for information, associated conditions and underlying causes of stillbirths. This information will guide efforts to prevent stillbirths and improve quality of care. Screening and monitoring in pregnancy are strategies used by health care providers to identify high risk pregnancies. Theoretically, appropriate management of maternal and fetal risk factors and complications that are detected in pregnancy and labour could prevent a large proportion of the world stillbirths, as well as minimize maternal and neonatal morbidity and mortality.

Objective: The aim of this study is to determine the prevalence of stillbirths and its associated causes and risk factors to provide recommendations for appropriate diagnosis and timely intervention.

Design: A retrospective cohort study of all stillbirth cases.

Sitting: Ain Shams University Maternity Hospital.

Timing: The documented cases of stillbirth in the period from 2008 to 2012.

Methods: Data was collected from the patient's admission records and files in the hospital archive after taking permission from the ethical committee of obstetrical and gynecological department to determine maternal history and characteristics and fetal characteristics of all stillbirth cases.

Abstract

Results: The total deliveries during the study period was 58167 cases, the total number of stillbirth was 1398 cases. The prevalence of still birth in this period was 2.4%. The highest number of stillbirth was 310 cases in 2008 and the lowest number was 218 cases in 2012. The percentage of spontaneous SVD with stillbirth cases is higher 78.97% than CS 21.03%. High prevalence of stillbirth in PG women 47.78% compared to different other categories. 24.96 % of the mothers having a bad obstetric history in the previous pregnancy. 21.6% of stillbirths having CFMF. 76.68% of mothers having maternal medical diseases. 26.75% having maternal diabetes mellitus. 30.90% was hypertensive mothers. 24.64% of mothers having previous history of stillbirth. 25.54% was unexplained stillbirth.

Conclusion: Stillbirth is one of the most stressful life events. Stillbirth is a multifactorial problem has many risk factors. Despite a global progress in diagnostic tools and investigations of stillbirth, there are many unknown causes of stillbirth especially on the molecular and genetic levels.

Keywords: stillbirth, risk factors, perinatal mortality, maternal diseases, obstetric complications.

INTRODUCTION

Stillbirth refers to all pregnancy losses after 22 weeks of gestation, but for numerical comparisons between international data, the **WHO definition** of a birth weight of at least 1000 g or a gestational age of at least 28 weeks (third-trimester stillbirth).

Millions of stillbirths occur uncounted each year and are not reflected in global policy. Until now, UN data collection systems have not included stillbirth. Global policy targets, such as the Millennium Development Goals (MDGs), omit stillbirths, as does the Global Burden of Disease. In an era of global efforts for maternal health, a woman's own aspiration of a live baby is missing from the world's health agenda.

(Frøen et al., 2011)

In society, stillbirths are also hidden. Even in high-income countries, recognition of a parent's grief after a stillbirth is recent. In low-income countries, bereavement rituals for a stillbirth are a rarity and are not recognized by society.

Results from a large, web-based survey of health-care professionals and parents in 135 countries showed that most stillborn babies are disposed without recognition or rituals, such as naming, funeral rites, or the mother holding or dressing the baby. *(Frøen et al., 2011)*

Introduction

A widespread belief is that stillbirth represents a natural selection of babies never meant to live. Almost a third of stillbirths are almost always blamed on the woman or on evil spirits. Efforts are needed to overcome this fatalism, lessen the stigma associated with stillbirth, and provide bereavement support. Stigma and blame add to, and prolong parents' grief. The silence surrounding stillbirths hides the problem and impedes investment.

Stillbirths do count for families, and society. Effective policies and program action rely on more public and individual recognition of stillbirth. UN agencies and existing reports hardly mention stillbirth. Not one professional organization takes responsibility for stillbirth reduction, and yet midwives and obstetricians have a crucial part to play. Knowledge of stillbirth numbers and causes as well as feasible solutions is a key to designing effective policies and programs. (*Frøen et al., 2011*)

At least 2.6 million third-trimester stillbirths occur every year, 98% in low-income and middle-income countries. Nigeria and Pakistan have the highest stillbirth rates (42 and 46 per 1000 births, respectively) and Finland and Singapore the lowest (two per 1000 births). Worldwide, 1.2 million stillbirths occur during labour (intrapartum). (*Lawn et al., 2011*).

The risk of intrapartum stillbirth for an African woman is 24 times higher than for a woman in a high-