Original Article

Emergency Obstetric Complications During Labour And Delivery Among Mothers Attending Maternity Teaching Hospital /Erbil City/ Iraq. A Cross-Sectional Study

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Abstract

Background: Every year, over half a million women continue to lose their lives during pregnancy, childbirth and postpartum. Although, pregnancy and childbirth are a normal process Pregnancy can sometimes present life-threatening health problems for a mother and her baby. These problems are called obstetric emergencies. An obstetric emergency may arise at any time during pregnancy, labor and birth. This study aimed to determine the emergency obstetric complications which occurred during labor and delivery, and evaluate their associations with socio-demographic, obstetrical characteristics and fetal complications.

Methods: A descriptive cross-sectional study was conducted on 200 women who attended the delivery room of Maternity Teaching Hospital. The tool that used was an examiners-made questionnaire, containing 3 parts: demographic characteristics, obstetrical history, and emergency obstetrical complications which occurred during labor and delivery. The data were analyzed through frequency, percentage and Chi-Square test using the SPSS statistical program.

Results: Mean age of respondents was 30.15 years. We have found that the 39% of cases developed complication. Among the complications, most common problems: high blood pressure, postdated delivery, bleeding before delivery, difficult labor, premature rupture of membranes and prolonged labor respectively.

Conclusions: The burden of emergency obstetric complications during labor and delivery is high.
Efforts should be made at both the community and hospital levels to increase awareness regarding emergency obstetrical problems and reduce its associated morbidity and mortality.

Keywords: Emergency Obstetric Problems, Labor. Fetal Complications.

Introduction

Although, pregnancy and childbirth are a normal process, complications may occur any time during antenatal or post-natal period. Obstetric Emergencies are health problems that are life threatening for pregnant women and their babies, which are unexpected, develop rapidly, are relatively uncommon and often fatal for the women and fetus. These conditions may develop any time during the maternity cycle. Conditions such as severe hypertensive disorder, hemorrhage, and amniotic fluid embolism threaten the life of the mother while prolapse of the umbilical cord, and vasa previa directly threats the life of the fetus [1].

It should be noted that most but not all obstetric complications occur during or immediately after delivery, at a time when the woman is, or should be, under the observation of the skilled attendant [2]. Obstetric emergencies that may arise during labor include: shoulder dystocia, prolapsed umbilical cord, placenta accreta, rupture of the uterus, inversion of the uterus, amniotic fluid embolism [3]

The death of women during pregnancy, childbirth or in the postpartum period was once a common occurrence worldwide. Today, 99% of maternal deaths occur in the developing world, reflecting the greatest disparity between wealthy and resource-poor countries of any health indicator [4]. The vast majority of maternal deaths are due to direct obstetric complications—hemorrhage, sepsis, complications of abortion, hypertensive disorders of pregnancy, prolonged/obstructed labor, ruptured uterus and ectopic pregnancy [5]

In 2013, 4.6 million infants died worldwide before their first birthday, [6] 50% within the first day and almost 75% within the first week [7]. Another 2.6 million stillbirths occur annually, [8] 25% of which during labor. Most stillbirths and early neonatal deaths are related to complications during birth and could be prevented [9].

A package of medical interventions required to treat the seven major direct obstetric complications was identified by WHO, UNICEF and UNFPA. This package of services is known collectively as emergency obstetric care [10]. Emergency obstetric and newborn care is effective in treating obstetric complications and preventing maternal and perinatal mortality and morbidity. However, availability and quality of emergency obstetric and newborn care was found to be insufficient in most low-income countries [11]. Even if risk selection is successful, 20% of low-risk pregnancies result in life-threatening complications requiring emergency treatment [12]. Immediate access to basic emergency obstetric and newborn care should, therefore, be guaranteed at health centers. In addition, a well-functioning referral system is essential to provide access to comprehensive care [13].

In this study We hypothesize that sociodemographic factors and complications of labor affect maternal as well as neonatal outcomes. A more in-depth understanding of such associations may influence strategic initiatives for training clinical providers and improved hospital facilities. This study aimed to: 1) determine the socio-demographic characteristics of the study samples, 2) find out emergency complication which occurred during labor and delivery, 3) evaluate the associations between emergency obstetrical complications and selected variables.

Methods

This descriptive cross-sectional study was conducted on 200 women in Maternity Teaching Hospital at Erbil City of the Kurdistan Region of Iraq during the period September to November 2022.

The target population were selected from pregnant women who attended the delivery and postpartum unit of Maternity Teaching Hospital, but with stable general condition at that moment. We included only women with singleton pregnancies. Similarly, we excluded women carrying a fetus with congenital abnormalities, as these women have a higher risk of adverse outcomes.

Data collection was conducted by face-to-face interviews using structured questionnaires as the interview guide. Questionnaire was consisting of 3 parts which was developed for the use in this study. Demographic part included questions regarding age, education level, employment, residential status. Second part composed of questions concerning obstetric history, third part consist of questions regarding complication which occurred during labor and delivery.

The study was conducted after approval of the study proposal had been obtained from the Scientific and Ethics Committee of Erbil Medical Technical Institute of Erbil Polytechnic University. All participants were informed of the study's objective and consents for the interview were taken from the respondents.

Data Analysis: Data entry and analysis was performed in SPSS version 21. Missing data were corrected and data were presented as mean ±SD for continuous variables with normal distribution, median for continuous variables without normal distribution and proportions for categorical variables. Chi-square test was used to find the association. The analysis was considered to be statistically significant at $p < 0.05$.

Results:

Characteristics of Respondents

Table 1 shows the socio demographic profile of the respondents. In this study, the mean age of the study samples was 30.15. ± 5.514 years. The education level of the majority (37%) was illiterate and just (10%) had a higher education. (90%) of them were jobless. Also, the study indicates that the (58%) of the participants from urban.

Table 1. Socio-demographic characteristic of the study sample (n=200)

Variables	No.	%
Age/Year		
< 20	5	3
20 – 30	125	62
31 – 40	60	30
> 40	10	5
($\overline{X} \pm SD$: 30.15. ± 5.514)		
Level of education/Year		
Illiterate	75	37
Read & write	28	14
6	47	24
9	18	9
12	11	6

> 12	21	10
Occupation of the mothers		
House wife	180	90
Worker	18	9
Student	2	1
Resident		
Urban	116	58
Rural	84	42
Total	200	100

Obstetrical history

Table (2): shows that majority of the study samples (68%) was multiparous and (32%) of them was grand multiparous women. More than half (64%) of the women in this study didn't had history of abortion. Regarding history of the mode of delivery, it was by normal vaginal delivery in the more than half (57.5%) of the women and we found that the proportion of cesarean delivery was (2%).

Table2.Obstetrical history of the study sample(n=200)		
Variables	No.	%
Number of para		
< 5	136	68
≥ 5	64	32
History of abortions		
Yes	71	36
No	129	64
History of normal vaginal delivery		
Yes	115	57.5
No	85	42.5
History of cesarean section		
Yes	4	2
No	196	98
Total	200	100

Emergency complication which occurred during labor

A total number of 200 women with normal vaginal delivery were recruited for this study. Among the study population emergency complication was reported in 78 (39 %) cases and the rest 122 (61%) cases were without any emergency complications (Table3). Among the 78 maternal complications the most common reported condition was high blood pressure which was 23(29.48%) followed by postdate delivery, bleeding before delivery, difficult labor and premature rupture of membranes which were 14 (17.95%) cases, 11 (14.1%) cases, 9(11.54%) and 8 (10.26%) cases respectively (Table 3).

Table (3): Complications which occurred during labor and delivery (No.:78)		
Variables	No.	%
Having emergency complication during labor	78	39
Type of complication which occurred during labor		
Hemorrhage before delivery	11	14.1
Hemorrhage after delivery	2	2.57
Cord prolapses	2	2.57
Premature rupture of membranes	8	10.26
Prolonged labor	3	3.84
High blood pressure	23	29.48
Preterm delivery	6	7.69

Postdate delivery	14	17.95
Difficult labor	9	11.54
Total	**78**	**100**

Data presented in table 4 shows association of the emergency complications with age of mothers. The computed chi square value was found to be no statically significant with all variable because the p-value is greater than (0.05).

Table (4): Relation between complications (No.: 78) and age of mothers.

Complications	Age of mothers								Fisher's Exact Test P- value
	< 20		20-30		31-40		> 40		
	No.	%	No.	%	No.	%	No.	%	
Bleeding before delivery	0	0	6	4.8	4	6.7	1	10	0.590
Bleeding after delivery	0	0	2	1.6	0	0	0	0	1.000
Cord prolapses	0	0	2	1.6	0	0	0	0	1.000
Premature rupture of membranes	0	0	4	3.2	4	6.7	0	0	0.617
Prolonged labor	0	0	1	0.8	2	3.3	0	0	0.404
High blood pressure	0	0	10	8	10	16.7	3	30	0.072
Preterm delivery	0	0	4	3.2	2	3.3	0	0	1.000
Postdate delivery	1	20	7	5.6	6	10	0	0	0.278
Difficult labor	0	0	5	4	4	6.7	0	0	0.743

Table 5 indicate relation between emergency complications and number of parities of mother. The computed chi square value was found to be no statically significant with all variable because the p-value is greater than (0.05).

Table (5): Relation between complications (N0.:78) and para

Complications	Para				Fisher's Exact Test P- value
	< 5		≥ 5		
	No.	%	No.	%	
Hemorrhage before delivery	6	4.4	5	7.8	0.334
Hemorrhage after delivery	1	0.7	1	1.6	0.539
Cord prolapses	2	1.5	0	0	1.000
Premature rupture of membranes	4	2.9	4	6.3	0.271
Prolonged labor	2	1.5	1	1.6	1.000
High blood pressure	12	8.8	11	17.2	**χ^2 Test /P-value**
					0.095
					Fisher's Exact Test/ P- value
Preterm delivery	3	2.2	3	4.7	0.387
Postdate delivery	8	5.9	6	9.4	0.383
Difficult labor	5	3.7	4	6.3	0.471

Discussions

The majority of maternal deaths and severe obstetric complications are clustered around labor and delivery [5]. Measuring morbidity during labor and delivery has advantages over the previously used indicator of antepartum complications and hospitalizations [14]. Conditions of obstetric emergencies required immediate and appropriate interventions. Prompt and effective management of complicated pregnancies and labor are now seen as central focus to reduce maternal and fetal mortality in developing countries. Thus, regular in-service training and updates of midwives on management of obstetric complications are of paramount important [15].

This study was designed to evaluate maternal emergency obstetric problems and newborn health problems during labor. The results confirm that the magnitude of the problem is greater than generally believed. We have found that the 39% of cases developed complication. This rate is higher than the rates known for Guatemala and Kwadabeka Community Health Centre [16,15] at Durban, South Africa. In Kwadabeka Community Health Centre found that a total of 16% of pregnant women experienced any type of obstetric and fetal complications during labor and delivery [15]. In Guatemala, 8% of women reported complications during delivery [16]. Our finding near to rates observed in USA [17]. They found that the 31% of women experienced some type of maternal problem during labor and delivery.

Our results show among the complications, high blood pressure which was 29 %. Other complications were postdated delivery 17%, bleeding before delivery 14%, difficult labor 11 %, premature rupture of membranes 10.26%, prolonged labor 3 %, 2 cases developed bleeding after delivery, also 2 cases developed cord prolapses. This rate is higher than the rates observed in result Kwadabeka Community Health Centre [15] at Durban, South Africa which they found that prolonged labor 17%, hypertensive disorders 13%, and difficult labor 11% in higher proportions. Antepartum hemorrhage 3 %, and also cord prolapses and postdelivery complication rate in their study is low (<1%). A report published by the American Journal of Obstetrics and Gynecology stated that 4% to 6% of pregnancies are complicated by hypertensive disorders [18]. Another study indicated that the incidence of pregnancy-related hypertensive disorders may be as high as up to 22% [19].

In this study we showed pregnant women aged 20 years and older had a greater risk of experiencing maternal morbidities compared to younger women (age < 20), these result contrast with result of Ogawa et al. [20], in which pregnant women aged 45 years and older had a 1.5–2 fold greater risk of experiencing maternal morbidities compared to younger women (age 30–34). This study reveals generally experiencing complications were found more in primi and multi parity cases compared to women with grand multipara. Therefore, this finding unconcern with the finding of demographic risk factors for obstetric complications such as parity [21–23].

This study had its limitations: 1) it was a study with a small sample, so the results cannot be generalized. 2) some women may have preexisted medical condition.

Conclusion:

In conclusion the burden of obstetric complications during labor and delivery is high. We have found that the 39% of cases developed complication. Among the complications, most common problems: high blood pressure, postdated delivery, bleeding before delivery, difficult labor, premature rupture of membranes and prolonged labor respectively. This study recommends that the national and local policies must address women's needs during labor and delivery and to meet the gaps in prevention and research programs. Consistent and improved monitoring and appropriate intervention for maternal complications of the risk groups of pregnant women during labor and delivery are key to reduce maternal morbidity and mortality.

However, efforts should be made at both the community and hospital levels to increase awareness regarding emergency obstetrical problems and reduce its associated morbidity and mortality.

Declarations

- **Ethics approval and consent to participate:** This study is not experimental study and data collected through interview with the study human sample women. The proposal of the study was approved by Scientific and Ethical Committee of Erbil Medical Technical Institute belong to Erbil Polytechnic University. Informed verbal consent was taken from all study participants as generally this approach is preferred by people and the written consent is not mellow in our community which approved by Scientific and Ethical Committee of Erbil Medical Technical Institute belong to Erbil Polytechnic University. All methods that were used in this study is accordance to the guidelines of Erbil Polytechnic University, Kurdistan Region of Iraq.
    - **Consent for publication:** not applicable.

- **Availability of data and material:** The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.
- **Competing interests:** The authors declare that they have no competing interests.
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