



A STUDY AND ANALYSIS OF ADVERSE PERINATAL OUTCOME IN THIRD TRIMESTER

B. P Das	Professor Department Of Obstetrics and Gynaecology, Gauhati Medical College and Hospital. Guwahati, Assam
Tanma Saikia Das	Assistant Professor Department Of Obstetrics and Gynaecology, Gauhati Medical College and Hospital. Guwahati, Assam
Dipanjali Barman*	Final Year PG Student Department Of Obstetrics and Gynaecology, Gauhati Medical College and Hospital. Guwahati, Assam *Corresponding Author

ABSTRACT **Objective:** To assess adverse perinatal outcomes and associated factors in third trimester pregnancy in Gauhati Medical College and Hospital.

Methods: An institutional based cross sectional study was conducted in Gauhati Medical College and Hospital from 1st June 2018 to 31st May 2019. Of all the deliveries that took place at the hospital, 400 cases were selected by random sampling who fulfilled the inclusion and exclusion criteria. The data collected in the study were analysed statistically using descriptive statistics. The data were entered MS excel spread sheets and analysis were carried out by Fischer's exact test and chi square test. Graph padinstat was used for analysing data. Results were tabulated and analysed statistically using SPSS version 21.0.

Results: A total of 400 mothers delivered participated in this study which yields 100% response rate. The study finding showed that the proportion of adverse perinatal outcome among study participants was 25%. Out of 400 deliveries 2.2% very low birth weights, 5.75% birth asphyxia, 5.75% preterm, 8% hyperbilirubinaemia, 0.25% meconium aspiration syndrome and 2.75% perinatal deaths. Mothers who did not have antenatal check up were more likely to have adverse perinatal outcome as compared to mothers with proper ante natal check ups. Similarly teenage and advanced maternal age associated with more adverse perinatal outcome as compared with adult pregnancies. The presence of any form of pregnancy complications to current pregnancy were more likely to results in adverse pregnancy outcome as compared to no pregnancy complication.

Conclusions and recommendation: The proportion of adverse perinatal outcome among study participants was quite high. Lack of proper antenatal care, haemoglobin level, pregnancy complication, maternal age were predictors of adverse perinatal outcome. Having proper antenatal check up is determinant factor identified as preventive factor to adverse perinatal outcome. So, by increasing antenatal check up, prevention and treatment of chronic medical illness and improving quality of maternal health services proportion of adverse perinatal outcome can be reduce.

KEYWORDS : Adverse Perinatal Outcome, Perinatal Mortality, Third Trimester Pregnancy

INTRODUCTION:

Successful motherhood is a unique achievement in every women's life. Though it is a natural process yet the way to achieve it may endanger the life of both mother as well as fetus. Perinatal period is the period lasting from 28 weeks of gestation to the seventh day after birth.

World health organisation (WHO) defines perinatal mortality for developing countries as "neonatal deaths of less than seven days of age and fetal deaths after 28 weeks of gestation". PMR is taken as major health indicator of society. It has multifactorial etiology and depends on quality of health care provided to pregnant women and babies. "Almost all (97-99%) of the estimated 3 to 4 million stillbirths and 3 million neonatal death that occurred each year globally, occur in low and middle income countries.[1,2]

Pregnancy outcome varies from pregnancy to pregnancy which includes normal live birth, low birth weight, prematurity, stillbirth, early or late neonatal death. Adverse pregnancy outcomes are those pregnancy outcomes other than normal live birth which mainly includes preterm birth, low birth weight, stillbirth.

Though there are studies on the various forms of adverse birth outcomes particularly in developing countries, there is limited information on determinant maternal and fetal factors of adverse birth outcomes at GMCH.

Low birth weight infants may suffer the risk of developing many complications which includes respiratory distress, sleep apnea, heart problems, jaundice, anemia, chronic lung disorders, and infections. Complications of preterm birth also outrank all other causes as the world's number one killer of young children. The birth-weight of an infant is the single most important determinant of newborn survival; Neonatal illness is closely related to low birth-weight. Stillbirth rate is an important indicator of quality of antenatal and delivery care.

Knowing the factors associated with adverse perinatal outcomes like

prematurity, low birthweight and stillbirth will help the primary prevention employed against it to be easy, safe and cost effective. Therefore, this study aimed to assess the adverse perinatal outcome and associated among factors among delivered mothers in GMCH.

AIMS AND OBJECTIVES

- 1) The aims of the study is to study about the adverse perinatal outcome i.e stillborn, perinatal death, neonates requiring ICU care like very low birth weight, hyperbilirubinaemia > 15 mg/dl, preterm baby, birth asphyxia, sepsis, MAS (meconium aspiration syndrome) etc.
- 2) To identify the causes and risk factors (medical, obstetrical and socioeconomical) of adverse perinatal outcome.

MATERIALS AND METHODS

The study was conducted in the Department of Obstetrics and Gynaecology in Gauhati Medical College and Hospital during the period from June 2018 to May 2019 satisfying the all exclusion and inclusion criteria.

INCLUSION CRITERIA:

- 1) All high risk pregnancies (GDM, hypertension in pregnancy, anaemia, maternal infections, teenage pregnancy, elderly primigravida etc)
- 2) Women with adverse perinatal outcomes.
- 3) All pregnancies from 28 weeks of gestation to delivery.

EXCLUSION CRITERIA:

- 1) Congenital malformations.
- 2) Intrauterine fetal demise.
- 3) Birth weight > 1.5 kg
- 4) Hyperbilirubinaemia < 15 mg/dl
- 5) First trimester and second trimester of pregnancy

Of all the total patients delivered during this study year, we included all the women who fulfilled the inclusion and exclusion criteria.. 400 cases were selected by random sampling. The study is done to identify

the factors associated with adverse perinatal outcome (demographic, socioeconomic, maternal and obstetrical factors). A thorough history was elicited from those women chosen for study. The women were interviewed in their own language in full details regarding age, literacy, socioeconomic status, parity, previous obstetrics and medical illness, diet etc. pregnancy detailed regarding antenatal check up , significant past and family history were noted . History of present pregnancy is taken from hospital records. Proper history about the mode of delivery , duration of labour is taken. Detailed history of the babies birth weight,sex, apgar score at 1 minutes and 5 minutes collected. Babies admitted in the NICU are followed up.The data collected in the study were analyzed statistically using descriptive statistics .the data were entered into MS Excel spread sheets and analysis were carried out by Fischer's exact test and Chi square test. Percentage, mean and standard deviation were calculated. Graph Pat instat was for analyzing data. The results were tabulated and statistically analysed using SPSS version 21.0.

TABLE 1: SOCIODEMOGRAPHIC FACTORS OF WOMEN ATTENDED LABOUR IN GMCH.

Variables		Frequency	Percentage
Age (years)	<20	136	34%
	21-30	232	58%
	>31	32	8%
Residence	Urban	198	49.5%
	Rural	202	50.5%
Religion	Hindu	246	61.5%
	Muslims	136	34%
	Christian	15	3.75%
	Others	3	0.75%
SES	Middle	192	48%
	Lower	208	52%
No. Of ANC	No ANC	188	47%
	< 4	112	28%
	>4	100	25%
Booking status	Booked	212	53%
	Unbooked	188	47%
Parity	Primi	180	45%
	Multi	220	55%

TABLE 2: MEDICAL AND OBSTRETIC RELATED FACTORS IN WOMEN ATTENDED LABOUR IN GMCH.

Variables	categories	Frequency	percentage
Medical illness	Yes	251	62.75%
	No	149	37.25%
Types of pregnancy complication	Hypertension	40	10%
	GDM	48	12%
	Anaemia	76	19%
	APH	12	3%
	PROM	75	18.75%
Haemoglobin	<11 g/dl	76	19%
	>11 g/dl	324	81%
Mode of delivery	Normal	192	48%
	LSCS	184	46%
	instrumental	24	6%
Duration of labour	<18 hours	232	58%
	>18 hours	56	14%
	unrecorded	112	28%

RESULTS:

CHARACTERISTICS OF PARTICIPANTS:

A total of 400 women with 100% of response rate were involved in the study of which 136 cases (34%) in age group <20 years , 232 cases (58%) in 21-30 years and rest 32 cases . (8%) in age group >31 years with mean age of 23 years and standard deviation of 6.96.Majority of the mothers 50.5% were urban residents. 246 women (61.5%) mothers were Hindu, 136 (34%) Muslims, 15 (3.75%) were christian and rest 3 (0.75%) were others (Table 1).

PREGNANCY AND LABOR RELATED FACTORS:

From all participants 251 (62.57%) mothers encountered complications during recent pregnancy. Common complications

reported by participants were Pregnancy induced hypertension 40 (15.93%) ,premature rupture of membrane 75 (29.88%), Antepartum hemorrhage 12 (4.78%), GDM 48 (19.12%), anaemia 76 (30.29%). The common labor complication was prolonged labor 56 (14%). 192 cases(48%) had normal delivery, 184 cases (46%) had caesarean section and rest 24 cases (6%) had instrumental delivery. 188 cases(47%) do not have any antenatal check up, 112 cases (28%) cases have less than 4 antenatal check up and 100 cases only have (25%) more than 4 antenatal check up .

MEDICAL AND OBSTETRIC RELATED FACTORS:

Among the study participants, 180 (45%) were primigravida and 220(55%) were multi-gravidas, In our study group, out of 400 cases , 76 cases (19%) were having haemoglobin less than 11g/dl.

PROPORTION OF ADVERSE BIRTH OUTCOMES:

In our study showed that among the all adverse perinatal outcome hyperbilirubinaemia was most common (32%) followed by birth asphyxia (23%) and preterm birth(23%). Rest MAS (meconium aspiration syndrome), sepsis and stillbirth constitute 1% each.

FACTORS ASSOCIATED WITH ADVERSE BIRTH OUTCOME:

This study results showed Hemoglobin less than 11 gm/dl, who do not had antenatal care follow up, have chronic medical illness, having current pregnancy complication and Duration of labor more than 18 hours were important predictor factors for adverse birth outcome (Table 3). Mothers who didn't attend antenatal care were more likely to have adverse birth outcome when compared to those who attended antenatal care follow up. Similarly, mothers with hemoglobin level less than 11g/dl had more adverse birth outcomes. Participants who had chronic medical illness were more likely to result in adverse birth outcome.

TABLE 3: FACTORS ASSOCIATED WITH ADVERSE PERINATAL OUTCOME AMONG WOMEN DELIVERED IN GMCH.

variables	Adverse perinatal outcome		P value	
	Yes	No		
Residence	Rural	68	134	<0.0001
	Urban	32	166	
Booking status	Unbooked	57	131	0.0277
	Booked	43	169	
Religion	Hindus	63	183	0.7302
	Muslims	34	102	
	Christians	03	12	
SES	Middle	46	146	0.7289
	Lower	54	154	
No. Of ANC	No ANC	57	131	0.0399
	<4	26	86	
	>4	17	83	
Age (years)	<20	54	82	<0.0001
	21-30	22	210	
	>31	24	8	
Parity	Primi	42	138	0.8851
	Multi	58	162	
Pregnancy complications	Yes	82	169	<0.001
	No	18	131	
Mode of delivery	Normal	40	152	0.06
	LSCS	50	134	
	Instrumental	10	14	
Duration of labour	<18 hours	49	183	0.1015
	>18 hours	18	38	
	Unrecorded	33	79	

DISCUSSION:

Perinatal mortality is one of the indicator of poor obstetrics. Birth outcomes are the measures of health at birth. Birth outcomes have improved worldwide in past 50 years. Yet there is still a large gap between the outcomes in developed and developing countries. Though there are many studies on the various forms of adverse birth outcomes available, but there is limited information on determinants of maternal and fetal outcomes.

In our study the overall prevalence of adverse perinatal outcome was

25%. Similar prevalence found by the studies done earlier. Amber et al studied on 352,407 single pregnancies between 2000-2008, showed that perinatal morbidity ranged from 17.3%-23.6% [3]. Balakiran et al in 2017, showed prevalence of adverse perinatal outcome to be 23% [4]. Prevalence of VLBW was 2.2 % of live births similar to study by Mani madhavan et al in 2017 2.08% [5]. Prevalence of birth asphyxia was 57.5/ 1000 live births. Similar prevalence found by Solyman et al 56.7/ 1000 live births [6]. Prevalence of neonatal sepsis was 2.5/1000 live birth. Difference in prevalence in comparison to other studies may be due to prompt antibiotic coverage in mothers with draining per vagina or proper aseptic and antiseptic measure taken during delivery.

In our study, we observed that the incidence of preterm was 5.75% which was similar to the previous study done by P Steer et al [7]. In our study prevalence of hyperbilirubinaemia was 8%. It was comparatively less than other studies. It may be due to inclusion criteria as only babies having bilirubin more than 15 were included in our study or may due to variation of study population. In our study, it was observed that perinatal mortality was 27.5/1000 live births which was similar to previous study done by M J Sarkar et al [8].

In this study, a significant relationship between booking status of mothers and pregnancy outcome was found. Adhikary et al 2018, also showed that frequency of birth asphaxia, LBW, NICU admission more in unbooked cases as compared to booked cases [9]. Study reported that higher perinatal mortality and morbidity for the mothers who had small number of antenatal check up or no antenatal visit during pregnancy. Ziyu FY et al in 2007, reported that fetal outcome was significantly related to no. of antenatal check up [10]. Present study showed higher incidence of low birth weight, neonatal hyperbilirubinaemia, birth asphaxia and perinatal death in teenage and advanced maternal age group. Usta IM et al 2008 found that preterm birth, low birth weight and perinatal deaths were more in teenage pregnancy as compared to adult group [11]. Carolan M et al in 2011, found that adverse perinatal outcome were more in pregnancies with advanced maternal age [12].

Mothers with complication in recent pregnancies were found to have higher odds of experiencing adverse birth outcomes (preterm births, low birth weight, still birth etc.) than those without the complications. This finding was consistent with the study done by Bayou et al between 2008-2010 [13]. This may be explained in terms of the fact that the complications that have occurred during pregnancy affect the well-being of the fetus in the uterus.

CONCLUSIONS:

Pregnancy outcomes refer to life events that occur to a newborn infant from the age of viability that is 28 weeks to first week of life. These adverse birth outcomes represent a significant problems in both developing and developed countries. Each year, about 15 millions babies in the world are born too prematurely. More than one million of those babies dies shortly after birth; countless others suffer from lifelong physical, neurological or educational disabilities, often at great cost to the families and societies. This study has found that preterm birth was the highest among adverse pregnancy outcomes and on the other hand birth asphyxia was second most adverse birth outcome followed by low birth weight from the births that takes place in Gauhati Medical College. Having proper ANC check up is determinant factor identified as preventive factor to adverse pregnancy outcome. Lastly early identification of complication of pregnancy during antenatal care visits is critical toward the reduction of adverse pregnancy outcomes. Furthermore high risk pregnancies should be referred to obstetrician at the earliest time possible for further assistance.

Further research should be carried out to understand the factors associated with adverse pregnancy outcomes, in coming years to get move insight into this important problem.

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