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Original Research Article

Evaluate Determinant and Feto Maternal Outcome of Maternal Near Cases in Tertiary Care Hospital.

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Abstract

Background: Maternal morbidity and mortality is a major public health issue. Each year more than half a million women in the reproductive age group, die from the complications of pregnancy and childbirth. The study was conducted to evaluate determinant and feto maternal outcome of maternal near cases in Tertiary Care Hospital.

Methods: The present observational study was carried among pregnant women admitted for delivery, or within 42 days of delivery or termination of pregnancy, booked at hospital or referred from elsewhere who fit into the criteria of WHO MNM during November 2019 to October 2020. Sample sizes of 100 participants were enrolled in study. The collected data were analyzed with proper statistical methods using MS excel 2016.

Results: The mean age among pregnant women was 27.48± 4.03 years. Majority of cases had underlying disorder of hypertensive disorder of pregnancy followed by anemia. The delivery outcome shows that, Still born was seen in 14% and IUD 6% respectively.

Conclusions: Obstetric care in tertiary hospitals has improved dramatically in developed countries. But primary care facilities and referral systems still need to be improved in developing countries.

Keywords: Determinant, Outcome, Maternal near miss

Introduction

Maternal and Child Health Care is one of the eight basic components of primary health care in declaration of Alma Ata. [1,2] The focus on maternal mortality was sharpened when reduction of maternal mortality became one of the eight Millennium Development Goals. [3]

Despite therapeutic advances during this century and a growing perception of the safety of childbirth morbidity and mortality continue to occur in obstetric patient. [4] More than 1 women dies every minute from such causes; 585000 die each year. For every maternal death there are serious life-threatening complications of pregnancy. [5] Yet little attention is given to near miss cases. [6].

In the last two decades, the concept of conducting a Maternal Near-Miss (MNM) review has gained importance as an additional strategy to help identify gaps in

health service provision. A near-miss has been defined as 'a woman who almost died but survived complications during childbirth' Near miss audit has been considered a less threatening approach than maternal death audit, and can be used to identify what needs to be done to improve the quality of maternal health care. [7]

Therefore, the present study was conducted to evaluate determinant and feto maternal outcome of maternal near cases in Tertiary Care Hospital.

Objectives:

- To study the causes of maternal near miss.
- To study maternal and perinatal outcome of maternal near miss cases

Methodology:

The present observational study was carried among pregnant women with maternal near miss (MNM). The study was carried out at Department of Obstetrics and Gynaecology of tertiary care centre during November 2019 to October 2020. The study was conducted after obtaining clearance from the Ethical Committee of the institute. A total sample size of 100 pregnant women satisfying inclusion and exclusion criteria were selected. All pregnant women admitted for delivery, or within 42 days of delivery or termination of pregnancy, booked at our hospital or referred from elsewhere who fit into the criteria of WHO MNM 4 were included in the study. Pregnant ladies who did not fit into the WHO MNM criteria or had maternal mortality were excluded from this study. The collected data were analyzed with proper statistical methods using MS excel 2016. Data was summarized in percentages and proportions.

Results:

Table 1: Socio-demographic variables among MNM cases:

Variables		No. of Patients (n=100)	Percentage
Age group (years)	≤20	3	3
	21-25	41	41
	26-30	34	34
	31-35	16	16
	>35	6	6
Education	Illiterate	11	11
	Primary	62	62
	Secondary	23	23
	Graduate and above	4	4
Occupation	Professional & Semi professional	11	11
	Clerical, Shop-owner, Farmer	9	9
	Skilled & Semi Skilled Worker	18	18
	Homemaker	62	62
Socioeconomic status (Modified B.J.Prasad Classification)	Class I (Upper)	7	7
	Class II (Upper Middle)	10	10
	Class III (Lower Middle)	24	24
	Class IV (Upper Lower)	32	32
	Class V (Lower)	27	27

The table no. 1 describes demographic profile of the patients. Among 100 patients, majority were in age group 26-30 years (34%) with mean age of 27.48± 4.03 years. Majority of the patients were with primary education (62%) and homemaker (62%). It was seen that 32% were from upper lower class.

Table 2: Underlying cause for MNM cases

Underlying disorder	MNM cases	
	Frequency	%
APH	11	11
Anemia	26	26
Hypertensive disorders of pregnancy	33	33
Acute Pancreatitis	1	1
RHD	3	3
Thrombocytopenia	1	1
Asthma	2	2
GDM	4	4
Jaundice	7	7
Pancytopenia	2	2
Cerebral malaria	1	1
Bronchopneumonia	1	1

(*Multiple response present)

The majority of cases had underlying disorder of hypertensive disorder of pregnancy i.e. 33%. Anemia was 2nd most common underlying disorder in 26% cases. APH was observed in 11% cases.

Table 03: Organ dysfunction among MNM cases

System involved	MNM cases*	
	Frequency	%
Respiratory System	36	36
CNS	23	23
Cardiovascular System	35	35
Hepatobiliary	11	11
Renal system	6	6
Haemat	39	39

(*Most of the patients had more than one system involved)

The majority of cases involved hematological system (39%) followed by respiratory system (36%). In relation to the commonest pathology i.e Hypertension and Anemia, haematological and respiratory system were involved.

Table 04: Complications among MNM cases

Complications	MNM cases (n=100)	
	Frequency	%
PPH	36	36
Eclampsia	25	25
Hypovolumic Shock	19	19
Uterine Rupture	8	8
Pulmonary edema	18	18
Respiratory failure	11	11

AKI	6	6
LVF	4	4
ARDS	6	6
Pulmonary embolism	2	2
Sepsis	13	13
Liver Cirrhosis	1	1
Acute pancreatitis	2	2
Acute fatty liver of pregnancy	2	2
Peripartum Cardiomyopathy	1	1
Placenta accreta	1	1
MODS	4	4
Anaphylactic shock	1	1
Mortality	17	17

The majority of cases had complication of PPH (36%) followed by eclampsia (25%), shock (19%). Maternal deaths was observed in 17% cases.

Table 05: Fetal outcome among MNM cases

Delivery outcome	MNM cases* (N=100)	
	Frequency	%
Live	80	80.00
Still born	14	14.00
IUD	06	06.00

The delivery outcome shows that, the majority of cases had live born child i.e. 90%. Still born was seen in 14% and IUD 6% respectively.

Discussion:

Reduction in maternal mortality is one of the targets of Millennium Development Goals for 2015 [8] but in spite of efforts of national, international, and developmental health agencies, high maternal morbidity and mortality remains a major challenge in developing countries. A clinical audit of MNM cases yields useful information on pathways leading to severe morbidity and death and is proposed to be a useful approach to investigate and monitor the quality of obstetric health care system. [8]

The present observational study carried out at Tertiary Institute to study causes of maternal near miss and maternal and perinatal outcome of maternal near miss cases. The study was conducted in the Department of Obstetrics and Gynaecology of tertiary care centre and serves as a referral centre for other Primary Health Centre and District hospitals. All cases of maternal near miss (MNM) as per newer WHO criteria was included in the study.

In the present study, among 100 patients, majority were in age group 26-30 years (34%) with mean age of 27.48± 4.03 years. Majority of the patients were with primary education (62%) and homemaker (62%). It was seen that 32% were from upper lower class. (Table 1)

Like other studies conducted in Nepal and Ethiopia, majority of cases were in age group of 20-34 years of age. [9,10]

The majority of cases had underlying disorder of hypertensive disorder of pregnancy i.e. 33%. Anemia was 2nd most common underlying disorder in 26% cases. APH was observed in 11% cases. (Table 2)

In Agrawal N et al, [11] hemorrhage (33%) was the most common potential life-threatening complication in near miss. Postpartum hemorrhage (PPH) was more common than the antenatal hemorrhage. Hypertensive disorders were the second

major direct cause of near miss. Eclampsia and preeclampsia with severe features were the second most common complication in MNM group (30%). Sepsis contributed to 26% in the MNM group.

Similarly, in Pandey et al [12] study, 83.1 % cases of MNM were due to direct obstetric complications viz. hemorrhage, hypertensive disorders of pregnancy, sepsis, and obstructed labor/rupture uterus. Like other studies done by Basket TF et al [13] and Shrestha NS et al, 8 hemorrhage and hypertensive disorders of pregnancy were the leading cause of MNM (45.7 and 24.2 %, respectively). Improving protocols and resources for combating PPH and focussed strategies for managing APH and early pregnancy hemorrhage can further help in reducing morbidity due to this condition.

The majority of cases involved hematological system (39%) followed by respiratory system (36%). In relation to the commonest pathology i.e Hypertension and Anemia, haematological and respiratory system were involved. (Table 3) The majority of cases had complication of PPH (36%) followed by eclampsia (25%), shock (19%). Maternal deats was observed in 17% cases. (Table 4)

In Agrawal N et al [11] study majority of organ dysfunction was observed in renal system (34%) followed by respiratory system. (21%)

Recent studies have demonstrated puerperal sepsis, followed by hemorrhage and preeclampsia as the most frequent causes. [14] Norhayati et al [15] conducted a study in Malaysia in which the most common organ system affected was haematological (74.5%), followed by uterine (40.4%) and cardiovascular (34.0%). Respiratory (17%), neurological (4.3%), hepatobiliary (2.5%) contributed to the rest. Interestingly, none of the patients had renal dysfunction.

The delivery outcome shows that, the majority of cases had live born child i.e. 90%. Still born was seen in 14% and IUD 6% respectively. (Table 5)

Similarly in a study by Apoorva Kamboj et al, [16] 70 (78.65%) were live born out of which 62 (88.6%) were delivered in CMC. 5 (8%) were neonatal deaths (NND). 17 (19.1%) were fresh still births (FSB), and 2 (2.2%) were Macerated still births (MSB). [17]

One of the very important factor contributing to maternal/fetal death or maternal/fetal near miss in our part of the world is a preference for home deliveries, the prevalence of anemia, lack of skilled health care professionals, drugs and equipment in primary health care facility. In India awareness have been made at the community level by the participation of ASHA/ ANM workers. They work to sensitize pregnant women to integrate antenatal checkups, encourage them to take hematinic and helps in choosing the birthplace with the availability of skilled birth attendant.

Current study had limitations of having a small sample size and included retrospective data along with prospective cases. A prospective cohort study with a larger sample size will give a true picture of near miss events and strategies to prevent and reduce maternal morbidity.

Conclusion:

The present study concludes that, hypertensive disorder of pregnancy and anemia are the major causes of maternal near miss. The developing nations and low resource setting countries like India carry high burden of maternal mortality and morbidity. All the above causes of MNM are preventable causes, which can be identified timely and treated early to prevent life threatening complications.

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