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Maternal Near Miss Cases in Medical College Ambikapur Running in Tribal Zone of Chhattisgarh: A Retrospective Study.

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ABSTRACT

Background: MMR being an important index for evaluation of obstetric care of that area has a little information regarding actions to be taken to negotiate the maternal health issues of that area. Hence more number of cases who were moribund and critical but fortunately escaped death grouped as near miss was being studied to find out the shadowed causes of maternal mortality. **Methods:** All 312 near miss cases women were evaluated out of total 6040 admissions in obstetric ward of this institute during a period of one year from April 2017 to March 2018 to know the steps to be taken for improvement of maternal health in tribal and low resource newly started medical college. **Result:** Hypertensive disorders of pregnancy are the main culprit of maternal mortality whereas hemorrhage and its aftereffects are proved to be the most important cause of near miss. Incomplete abortion is the most common cause of hemorrhage and over the counter sell and misuse of Mifegest is found mainly responsible for incomplete abortion. **Conclusion:** To improve the obstetric care we have to educate the public for proper antenatal checkup. It will help health workers to identify the high risk pregnancies and their timely management. Apart from public awareness program there is necessity of well-equipped government health set ups where the poor tribal and also the other needy ones can report easily with all faith and confidence. Scarcity of skilled staff is also a subject to be noticed.

Keywords: Maternal mortality, near miss cases, hypertensive disorder of pregnancy, PPH, MRP, Evacuation.

INTRODUCTION

More than one woman dies every minute from pregnancy related causes; 585,000 women die each year. Apart from maternal death, more than 50 million women experience maternal health problems annually. More than one quarter of all adult women living in the developing world currently suffer from short or long term illness and injuries related to pregnancy and child birth. [1-4] According to global information MMR i.e. maternal mortality ratio is being the most reliable tool for evaluating the health services in developing countries. In any institution women with severe and acute complication during pregnancy, abortion and within 42 days of termination of pregnancy show many pathological and circumstantial factors. A big number of women escape death because of good health care. They are categorized as Maternal Near Miss cases. Near miss is defined as very ill pregnant or recently delivered woman who nearly died but survived a complication during pregnancy, childbirth or within 42 days of termination of pregnancy.[5] If these women are evaluated thoroughly much can be learnt about process and care of women. It can help the health professionals to identify the grey areas of substantial care and obstetric policies.[6] This transition of studying death to studying MNM cases has generated more information. MMR in India is 130/100,000 and in Chhattisgarh it is yet high i.e.173/100,000.[7] It reflects the necessity of more researches on all the aspect of obstetric care including circumstantial and medical care. Here especially in new medical college in tribal areas like Sarguja such study is a priority. As severe maternal morbidity precedes maternal death, the study of near miss cases may provide further understanding of the causes of maternal mortality.

The MMR in India has so far not reached up to the required MDG 2020. If we look into this matter sincerely, then there are certain weak areas which need attention. For this, it is not the maternal mortality but the maternal near miss which has to be focused.[7] WHO set of severity markers (life-threatening conditions) used in maternal near-miss assessments. The classification is based on Sequential Organ Failure Assessment (SOFA) score.[8] The major reasons and causes are the same

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for both MNM and MDR, so review of MNM cases is likely to yield valuable information regarding severe morbidity, which could lead to death of the mother, if not intervened properly and in time. Investigating the instances of severe morbidity may be less threatening to providers because the woman survived. One can learn from the women themselves since they survived and are available for interview about the care they received.

Objective of this study is to determine the incidence of near-miss, maternal death and to study the causes of near-miss and maternal deaths in low resource and recently started government medical college in tribal area.

MATERIALS AND METHODS

A retrospective study was done in the department of Obstetrics and Gynecology in Government Medical College, Ambikapur. It is a tertiary care institute and referral hospital situated in tribal area of Chhattisgarh. This institute provides 24 hours emergency obstetric services. There are also antenatal care and delivery services for both low and high risk pregnancy. Our hospital has 24 hours blood bank facility. The study was done in maternal nearly missed cases admitted in this institute during the period of one year from April 2017 to March 2018. During this period 6040 cases were admitted in the department of Obstetrics and Gynecology in this hospital. Total number of delivery was 4104, of which 312 cases were MNM who met WHO criteria [Table 2] SOFA score and 41 women died. All consecutive MNM cases were selected for the study.

RESULTS

Demographic distribution of MNM cases according to Age, Parity, ANC status, Socio-economic status, Booking status and type of admission is shown in [Table 1].

This study show that near miss occurred in 5% cases admitted in labor ward of this institute. Being a new medical college in tribal area insufficient staff and doctors is a knife on neck. Our all limited but devoted staff is trying their level best to achieve the MDG. This pressure would have been less if there is availability of more such equipped health centre nearby. Considerable numbers of MNM cases are being referred to this centre from 3 other nearby district in already moribund stage. The delay in referral was the major issue in MNM cases. Health education to the tribal public of this area may increase awareness of their own health and thus improve the MMR. During study period 58%of MNM cases were referred from CHC, PHC and nearby district and 42% cases were self-admitted from Sarguja and nearby area. [Table 1].

Table 1: Table 1: Demographic distribution.

S. No	Category	Group	No. Of Cases	Frequency
1.	Age	< 20 year	97	0.310897436
		20 -30 year	141	0.451923077
		> 30 year	74	0.237179487
2.	ANC Status	Antenatal	289	0.92628205
		Postnatal	23	0.07371795
3.	Gravida	1	93	0.298076923
		2	115	0.36858974
		3	80	0.256410256
		>3	24	0.07692308
4.	Gestational Age	< 12 Weeks	94	0.30128205
		12 -28 Weeks	10	0.03205128
		28 - 36 Weeks	41	0.13141026
		Term	144	0.46153846
		Post del	23	0.07371795
5.	Socio Economic Status	APL	33	0.10576923
		BPL	279	0.89423077
6.	Type of Admission	Referred	181	0.58012821
		Self	131	0.41987179
7.	Booking Status	Booked	53	0.16987179
		Unbooked	259	0.83012821

Table 2: SOFA Score.

Clinical conditions	Less risk (SOFA category 1, 2)	Greater risk (SOFA category 3, 4)
Cardiovascular dysfunction	Shock Lactate >5	pH<7.1 Use of continuous vasoactive drugs Cardiac arrest Cardio-pulmonary resuscitation
Respiratory dysfunction	Acute cyanosis Respiratory rate >40 or <6 per min. Oxygen saturation <90 % for >60 min	Gasping PaO2/FiO2 <200 mmHg Intubation and ventilation not related to anaesthesia
Renal dysfunction	Oliguria non-responsive to fluids or diuretics	Creatinine C300 mmol/l or C3.5 mg/dl Dialysis for acute renal failure

Clotting/haematological dysfunction	Clotting failure Transfusion of >5 units of blood/red cells	Acute thrombocytopenia (<50,000 platelets)
Hepatic dysfunction	Jaundice in the presence of pre-eclampsia	Bilirubin >100 mmol/l or >6 mg/dl
Neurological dysfunction	Metabolic coma (loss of consciousness and the presence of glucose and ketoacids in urine) Status epilepticus/uncontrolled fits/total paralysis	Coma/loss of consciousness for 12 h or more
Uterine dysfunction	Hysterectomy due to infection or haemorrhage	

Table 3: Haemorrhage as a chief cause of MNM

Haemorrhage as a chief cause of MNM					
External Haemorrhage			Internal Haemorrhage		
APH Placenta previa	PPH	Abortion	Rupture UT	Ectopic preg.	APH Abruption
23	18	95	41	13	3

Table 4: Distribution according to intervention

Distribution according to intervention							
Evacuation	Laparotomy for ruptured uterus		Laparotomy for ectopic	Cardiotonic	Hysterectomy for PPH	MRP	Conservative t/t
	Caes.Hyst	Repair uterus					
94	5	36	13	32	0	12	120

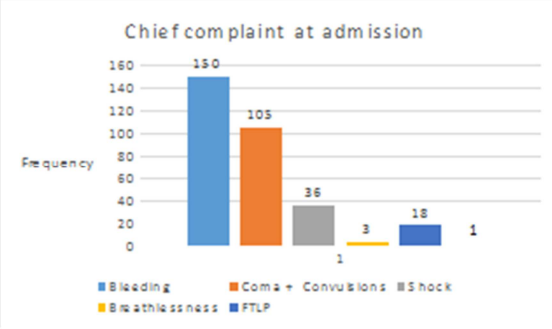

Figure 1: Chief complaint at the time of admission.

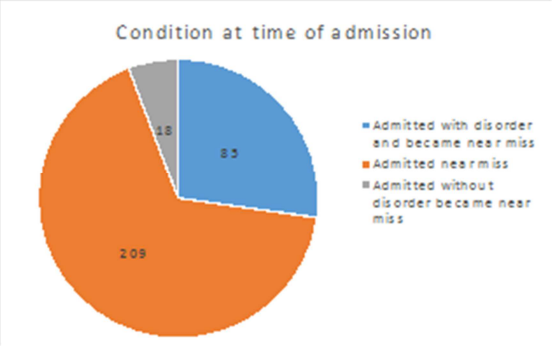

Figure 2: Condition at the time of admission.

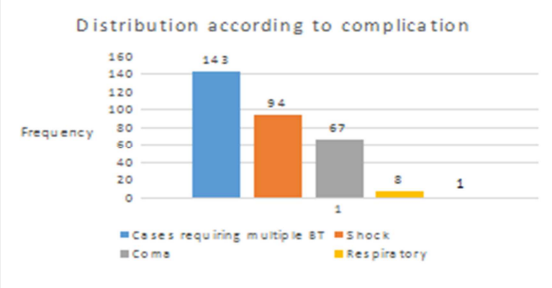

Figure 3: Distribution according to complication.

The maternal mortality in this centre was 41 out of total 6040 admission and 4104 live birth in labor ward. The maternal near miss incidence ratio (MNMR) is 312 out of 6040 i.e. 52/1000 live birth in this set up. For every 7-8 life threatening condition there was 01 maternal mortality. If this ratio increases over a period of time it will prove that there is an improvement in achieving obstetric care. Yearly data may help in assessing the improvement of the facility and care provided. In this institute non availability of ICU made the care harder in potentially risk cases. Though the ICU has been started in this hospital in June this year.

Among near-miss cases, haemorrhage was the leading cause (61.8%) of morbidity, followed by hypertensive disorders (33.6%) and other causes (4.6%). [Figure 1] Hypertensive disorders were the leading cause in both women with potentially life-threatening conditions (33.6%) and maternal deaths (66.6%). If we look back when Mifegest was not in approach of public without medical prescription the leading cause of MNM was hypertensive disorder of pregnancy. But now a day as the Mifegest is freely sold over the counter, patients use it without proper guidance and prescription and so the leading cause of MNM is shifted towards haemorrhage.

Mode of delivery was also analysed. Among cases with potentially life-threatening conditions during labor caesarean section was done in 11.8% i.e. 23 cases while 88.2% i.e. 172 cases had normal vaginal deliveries out of 195 labor cases.

If we see the cases which were admitted with some disorder and became MNM the figure was 27.2% i.e.85 cases. The cases admitted as MNM made the main bulk of study 66.9% i.e. 209 cases and it's a positive figure that the cases who admitted without

disorder and become MNM are very less 0.05% i.e. in 18 cases only. [Figure 2].

As far as distribution of cases according to intervention is done Evacuation was needed in 30.1% i.e. 94 cases. Among 41 cases of rupture uterus 5 patient i.e. 1.6% was required caesarean hysterectomy and 36 cases i.e.11.5% was managed by repair of uterus. All the 13 cases i.e. 4.1% cases underwent laparotomy and 3.8% i.e.12 cases of PPH were managed by MRP. Rest 6 cases of PPH were managed by AMTSL. Not a single hysterectomy was done for PPH. 23 cases i.e.7.3% out of 26 APH cases underwent caesarean section, 32cases i.e.10.2% cases of shock required cardiotonics. Rest 97 cases i.e. 38.4% patient were conservatively managed. [Table 4].

DISCUSSION

Obstetric care in any health center is based on the ideas of understanding the areas where improvement is required. Before 2009 the evaluation of obstetric performance in hospital and health system was limited to the investigation of maternal mortality only. That was providing a very narrow window to focus on all the aspects of quality care. After introduction of WHO criteria of near miss the window was widened and study shifted to MNM cases so that we can evaluate the quality of obstetric services.[9-12]

The most common factor which gives its direct impact on MMR is unbooked emergency cases who present late to hospital. Some of them die and fortunately a major number of them escape the death. They are the near miss ones. The small number of cases makes the evaluation of maternal mortality practically less informative. Identification of exact cause of death is complex and varies across studies.

A study by Roopa et al. in Manipal represents MMR as 313/100,000 live births, whereas maternal near-miss incidence ratio was 17.8/ 1000 live births. Amongst leading causes of near-miss were severe haemorrhage, hypertensive disorders of pregnancy and sepsis, which is similar to our study result. They had taken WHO 2009 criteria for inclusion criteria of near-miss cases.[13]

In the study by Saima Aziz Siddiqui et al. from Pakistan, they used six specific disease groups (1) severe haemorrhage, (2) eclampsia/severe pre-eclampsia with or without HELLP syndrome, (3) sepsis, (4) rupture uterus including peripartum hysterectomy or laparotomy, (5) severe anaemia Hb 6 gm or less and (6) miscellaneous group. The frequency of severe obstetric complications was 86.20/1000 deliveries, and haemorrhage was the leading cause, followed by hypertensive disorders.[14]

In the other study by Wanchai Wianwiset M.D., in Thailand, he used WHO criteria of 2009 for near-miss cases. They are set of orange dysfunction markers including (1) basic laboratory tests, (2) management-based markers and (3) clinical criteria. His study showed a near-miss rate of 57.7/ 1000 deliveries. Amongst the causes of near-miss cases, hypertension (44.7 %) and obstetric haemorrhage were the leading causes, whereas hypertension, embolism, haemorrhage and infection were the leading causes of maternal death.[15]

SAMM study from Brazil was in ICU setting only, not representing all near-miss cases, while our case study included all the near-miss cases. That study did not use WHO criteria. The maternal mortality ratio at our setup was 298/100,000 live births, which is similar to the study by Roopa P S, and it showed an MMR of 313/100,000 live births.[16] In other developing countries, the maternal mortality ratio was 423/10,000 live births and 324/1,000,000 live births.[17,18]

CONCLUSION

Haemorrhage and hypertensive disorders are the leading causes of near miss events. Hypertensive disorder is still a leading cause of maternal mortality. This study has opened a new door of investigating the"over the counter sell of Mifegest"a drug used for abortion. Incomplete abortion becoming main bulk of near miss due to haemorrhage is a result of misuse of Mifegest to a major extant. As near miss analysis indicates quality of health care, it is worth presenting in national indices.

About the Author

Dr. Shipra Shrivastava is an associate professor in the department of obstetrics & gynaecology of government medical college Ambikapur Chhattisgarh India. Various important post held by her in the past include working as gynaecologist at Raghunath district hospital Ambikapur Chhattisgarh from 1995 to 2015 and then heading the department of obs. & gynae. between 2009 and 2015 for seven years while working as a class 1gynaecologist at the same hospital. While her tenure at Raghunath district hospital she performed about 4500 major surgeries including many complicated ones making her one of the most experienced doctors of nation. Her most noticed operation was removing an almost 35-40 kg ovarian cyst from a high risked tribal lady. She also has two paper publications under her name.

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