

A prospective review of maternal and perinatal outcome in a tertiary care rural teaching hospital

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Abstract

Background: The maternal mortality ratio (MMR), expressed as maternal deaths per 100,000 live births over a given period, is a major measure of quality of obstetric care. According to World Health Organization (WHO) estimates, it varies up to 100-fold, from approximately 10 in developed countries to approximately 1,000 in least developed. Obstetric emergencies are the leading causes of maternal and perinatal mortality worldwide and particularly in developing countries where literacy, poverty, lack of antenatal care, poor transport facilities and inadequate equipment/staffing combine to magnify the problem. There have been several studies in India on maternal mortality but none on obstetric emergencies in general and their influence on maternal and perinatal mortality. This study is therefore designed to explore this subject. **Aims and Objectives:** 1) To Study the Maternal and Perinatal outcome of Emergency Obstetrics referral patients in a tertiary care teaching hospital. Study was conducted in a prospective observational manner; a pre validated data collection sheet of all pregnant emergency referral patients was entered after stabilizing them. Both maternal and perinatal outcome was studied. The necessary minimum laboratory investigations, medical and surgical interventions done as and when demanded. Inclusion criteria: All Pregnant women coming to Emergency Department. Exclusion Criteria: nil. **Results:** Of 100 cases studied, 20 (20.0%) had pre-eclampsia, 18 (18.0%) had anaemia, 11 (11.0%) had eclampsia. 3 (3.0%) had ruptured ectopic, 3 (3.0%) had PPH, 3 (3.0%) had abruption placenta, 2 (2.0%) had hypovolemic shock, 2 (2.0%) had hypo/hyper thyroid and 9 (9.0%) had other illness. 94% mothers were discharged home and 6% died. Out of 100 births, 68% were live and discharged, 30% died and 2% were abortions. Of 100 neonates studied, 6 (6.0%) had no birthweight record, 7 (7.0%) had birthweight below 750gm, 12 (12.0%) had birthweight between 750 – 1499 gm, 44 (44.0%) had birthweight between 1500 – 2499 gm and 31 (31.0%) had birthweight more than 2500gm. Of 100 neonates studied, 4 (4.0%) had no record on gestational age, 20 (20.0%) had gestational age below 30 weeks, 39 (39.0%) had gestational age between 30.0 – 36.9 weeks and 37 (37.0%) had gestational age more than 37.0 weeks i.e full-term. **Conclusion.** The study showed that Obstetric emergency is frequent cause of adverse maternal and perinatal t with incidence of 10.68% of all deliveries during this period of one year. IEC (Information, Education Communication) to community is needed so as to decrease/improve perinatal and maternal outcome and to evolve a protocol for antenatal management from registration to delivery.

Key words: Maternal outcome, Referral, Perinatal Outcome

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INTRODUCTION

Obstetric emergencies are the leading causes of maternal and neonatal mortality worldwide and particularly in developing countries where illiteracy, poverty, lack of antenatal care, poor transport facilities and inadequate equipment/staffing combine to magnify the problem. Although there are sparse data the contribution of obstetric emergencies to maternal mortality in sub-Saharan Africa and developing countries like Nigeria where the maternal mortality ratios are very alarmingly

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high¹. Although Hospital-based studies have their limitations including referral-bias they are easy to perform in low-resource countries and can provide substantial and useful information. Worldwide every year approximately 8 million women suffer from pregnancy related complication. Seventy-five percent of maternal deaths occur during childbirth and the postpartum period, and the vast majority of maternal deaths and injuries are avoidable when women have access to health care before, during and after childbirth². Prevention wherever possible and prompt and effective treatment of obstetric emergencies will go a long way to reduce the magnitude of ever-increasing maternal mortality which appears to have defied all proposed measures set to reduce it by WHO. There have been several studies in India on maternal mortality but none on obstetric emergencies in general and their influence on maternal and perinatal mortality. This study is therefore designed to explore this subject.

METHODOLOGY

Aims and Objectives:1) To Study the Maternal and Perinatal outcome of Emergency Obstetrics referral patients in a tertiary care teaching hospital.

Study was conducted in Obstetrics and Gynaecology department of B.K Walawalkar Rural Hospital, Sawarde during the time period from December 2017 to December 2018. All the patients referred or admitted to the Emergency room were included in the study during this period. Sample size was 100 as it was a pilot study. It was a prospective observational study, a pre validated data collection sheet in which all demographic, socioeconomic and clinical profile of all pregnant emergency referral patients was entered after stabilizing them. The necessary minimum laboratory investigations, medical and surgical interventions were done as and when demanded. Both maternal and Neonatal outcome was studied. NICU admission and reasons for NICU admissions, clinical course of the baby before discharge of mother and if any complications occurred was noted.

Institutional Ethics Committee Approval taken

Inclusion criteria: All Pregnant women coming to Emergency Department.

Exclusion Criteria: nil.

Ethical Approval: Taken

RESULTS

Age distribution: Of 100 cases studied, 21 (21.0%) had age between 19 – 23 years, 48 (48.0%) had age between 24 – 28 years, 21 (21.0%) had age between 29 – 33 years and 10 (10.0%) had age more than 33 years.

Occupation status: Of 100 cases studied, 85 (85.0%) were house wives, 7 (7.0%) were into farming, 6 (6.0%) had service and 2 (2.0%) had other occupation.

Educational status: Of 100 cases studied, 4 (4.0%) were illiterates, 56 (56.0%) had primary/secondary education and 40 (40.0%) had Xth/XIIth education.

Table 1: Distribution of demographic characteristics of referred cases

Characteristics		No. of cases	% of cases
Age Group (years)	19 – 23	21	21.0
	24 – 28	48	48.0
	29 – 33	21	21.0
	>33	10	10.0
Occupation	House wife	85	85.0
	Farmer	7	7.0
	Service	6	6.0
	Other	2	2.0
Educational status	Illiterate	4	4.0
	Primary/Secondary	56	56.0
	Xth/XIIth	40	40.0
Total family income (Rs)	Below 10000	33	33.0
	10000 – 15000	50	50.0
	15000 – 30000	12	12.0
	>30000	5	5.0
Family size	2 – 4	28	28.0
	5 – 7	43	43.0
	8 – 10	25	25.0
	>10	4	4.0

Total family income: Of 100 cases studied, 33 (33.0%) had income below 10000 Rs, 50 (50.0%) had income between 10000 – 15000 Rs, 12 (12.0%) had income 15000 – 30000 Rs, 5 (5.0%) had income more than 30000 Rs.

Family size: Of 100 cases studied, 28 (28.0%) had family size between 2 – 4, 43 (43.0%) had size between 5 – 7, 25 (25.0%) had size between 8 – 10 and (4.0%) family size more than 10.

Table 2: Distribution of parity among the cases studied

Parity	No. of cases	% of cases
0	8	8.0
1	64	64.0
2	21	21.0
>2	7	7.0
Total	100	100.0%

Of 100 cases studied, 8 (8.0%) had parity 0, 64 (64.0%) had parity 1, 21 (21.0%) had parity 2 and 7 (7.0%) had parity more than 2.

Table 3: Distribution of reasons for referral among the cases studied

Reason for referral	No. of cases	% of cases
PV Bleeding	37	37.0
Pain in abdomen	18	18.0
Swelling on body	13	13.0
Convulsions	9	9.0
Headache	4	4.0
Collapse/shock	3	3.0
Vomiting	2	2.0
Other	6	6.0

Of 100 cases studied, 37 (37.0%) had PV bleeding, 18 (18.0%) had pain in abdomen, 13 (13.0%) had swelling on body, 9 (9.0%) had convulsions, 4 (4.0%) had headache, 3 (3.0%) had collapse/ shock, 2 (2.0%) had vomiting and 6 (6.0%) had other reasons for referral.

Table 4: Distribution of medical illness among the cases studied

Medical illness	No. of cases	% of cases
Nil	30	30.0
Pre-Eclampsia	20	20.0
Anemia	18	18.0
Eclampsia	11	11.0
Ruptured ectopic	3	3.0
PPH	3	3.0
Abruptio placenta	3	3.0
Hypovolemic shock	2	2.0
Hypo/Hyper thyroid	2	2.0
Other	9	9.0

Of 100 cases studied, 30 (30.0%) did not have any medical illness, 20 (20.0%) had pre-eclampsia, 18 (18.0%) had anaemia, 11 (11.0%) had eclampsia. 3 (3.0%) had ruptured ectopic, 3 (3.0%) had PPH, 3 (3.0%) had abruption placenta, 2 (2.0%) had hypovolemic shock, 2 (2.0%) had hypo/hyper thyroid and 9 (9.0%) had other illness.

Table 5: Foetal heart sounds (FHS) among the cases studied

Obstetric examination	No. of cases	% of cases
Normal	73	73.0
FHS Absent	27	27.0
Total	100	100.0

Of 100 cases studied, 73 (73.0%) had normal findings and 27 (27.0%) had absence of FHS on obstetric examination.

Table 6: Distribution of type of delivery among the cases studied

Type of delivery	No. of cases	% of cases
Normal	59	59.0
LSCS	35	35.0
Laporotomy	3	3.0
Abortion	2	2.0
Hysterectomy	1	1.0
Total	100	100.0%

Of 100 cases studied, 59 (59.0%) had normal delivery, 35 (35.0%) had LSCS, 3 (3.0%) had Laporotomy, 2 (2.0%) had abortion and 1 (1.0%) had Obstetric hysterectomy.

Table 7: Distribution of maternal outcome among the cases studied

Maternal outcome	No. of cases	% of cases
Discharged	94	94.0
Dead	6	6.0
Total	100	100.0%

Of 100 cases studied, 94 (94.0%) were discharged and 6 (6.0%) died.

Table 8: Distribution of neonatal outcome among the cases studied

Neonatal outcome	No. of cases	% of cases
NA	2	2.0
Alive	68	68.0
Dead	30	30.0
Total	100	100.0%

Of 100 cases studied, 68 (68.0%) were alive and 30 (30.0%) died and the outcome was not applicable in cases of 2 cases due to abortion.

Table 9: Distribution of birthweight in the study group

Birthweight (g)	No. of cases	% of cases
NA	6	6.0
<750	7	7.0
750 – 1499	12	12.0
1500 – 2499	44	44.0
>2500	31	31.0
Total	100	100.0%

Of 100 cases studied, 6 (6.0%) had no birthweight record, 7 (7.0%) had birthweight below 750gm, 12 (12.0%) had birthweight between 750 – 1499 gm, 44 (44.0%) had birthweight between 1500 – 2499 gm and 31 (31.0%) had birthweight more than 2500gm.

Table 10: Distribution of gestational age in the study group

Gestational age (weeks)	No. of cases	% of cases
NA	4	4.0
<30.0	20	20.0
30.0 – 36.9	39	39.0
>37.0	37	37.0
Total	100	100.0%

Of 100 cases studied, 4 (4.0%) had no record on gestational age, 20 (20.0%) had gestational age below 30 weeks, 39 (39.0%) had gestational age between 30.0 – 36.9 weeks and 37 (37.0%) had gestational age more than 37.0 weeks.

Table 11: Distribution of registered and unregistered cases in the study group

Status	No. of cases	% of cases
Registered	87	87.0
Unregistered	13	13.0
Total	100	100.0%

Of 100 cases studied, 87 (87.0%) were registered and 13 (13.0%) were unregistered cases in the study group.

Table 12: Distribution of no. of USG visits in the study group

No. of USG visits	No. of cases	% of cases
0	9	9.0
1	16	16.0
2	27	27.0
3	25	25.0
4	14	14.0
>4	9	9.0
Total	100	100.0%

Of 100 cases studied, 9 (9.0%) had no USG visit, 16 (16.0%) had only one visit, 27 (27.0%) had 2 visits, 25 (25.0%) had 3 visits, 14 (14.0%) had 4 USG visits and 9 (9.0%) had more than 4 USG visits in the study group.

DISCUSSION

Considering that our hospital was a tertiary referral hospital in a Rural area, and the referrals come from peripheries with poor roads, infrequent public transport unskilled healthcare facilities, illiteracy, poverty the delay to reach our hospital was the cause of most of the Obstetric emergencies and cause of Maternal and neonatal morbidity and mortality. Maternal Mortality is used internationally as measure of the quality of obstetric intervention. Severe maternal morbidity has been used as an alternative measure. Severe Obstetric morbidity was defined clinically to be severe pre-eclampsia, severe obstetric haemorrhage and sepsis. In our study highest incidence was of pre-eclampsia (20%) similar to study by Saha *et al.*, Sabale and Gupta *et al.*^{3,7,8} followed by anaemia (18%) which was common in Indore study⁶ and then eclampsia (11%). The most common presentation of emergencies in our study was Obstetric haemorrhage/ Per Vaginal bleeding (37%) similar to Saha *et al.*³ and Guntur study⁵. Most of the studies also found that these two causes as leading causes of obstetric morbidity^{5,7,8,10,11} Of 100 cases studied, (59.0%) had normal delivery, (35.0%) had LSCS, (3.0%) had Laparotomy, (2.0%) had abortion and (1.0%) had Obstetric hysterectomy. These findings of more incidence of Normal delivery was similar to study by Daver *et al.*⁴ but contrary to most studies (3,5,6,7,8) which had a higher rate of caesarean sections. Usually Obstetric emergencies land up in Caesarean sections, however in our study we delivered them vaginally with good outcome. We had to opt for Laparotomy in 3 cases. Out of 100 cases studied 64% were Primiparas and 7% were multiparas which was same as Sabale *et al.* and Gupta *et al.*^{7,8} and contrary to the Guntur study⁵ which had more multiparas. Also (87.0%) were registered and (13.0%) were unregistered cases in the study group which was also contrary to the studies by Mustafa *et al.*, Upadhyaya *et al.* and Guntur^{1,5,7,11} who all had unregistered cases more than registered. More registered cases are a welcome sign in our study. Out of 100 pilot cases (48.0%) had age

between 24 – 28 years which was similar to almost all studies³⁻¹⁰ and educational status was only till School level less than 10 th level in 56 % of cases⁵. Regarding Gestational age presentation (39.0%) had gestational age between 30.0 – 36.9 weeks and (37.0%) had gestational age more than 37.0 weeks contrary to Guntur study⁵ which had more preterm presentations. Out of 100 deliveries, (31.0%) neonates had birthweight more than 2500gm and 63% were low birth weight babies and 6 neonates had no birth weight record. The cause for low-birth-weight babies could be the medical conditions in the mother. Also, only 48% of the patients had undergone more than three ultrasonography visits, 43% had undergone less than three visits and 9% had not undergone any USG visits which could be the cause for delay in referral and diagnosis of the fatal cases. Foetal heart sounds were absent in 27% cases on arrival and 73% had normal foetal heart sounds. Regarding the final Maternal outcome 94% of the mothers recovered and were discharged and 6% incidence of Maternal mortality similar to Daver *et al.*⁴ with 7% mortality and in Guntur study it was 10%⁵, however only 2.68% maternal mortality in Gupta *et al.* study⁸ with a larger sample size. Neonatal outcome (68.0%) neonates were discharged and (30.0%) died due to complications similar to other studies quoted.⁹⁻¹¹ The outcome was not applicable in two cases due to abortion.

CONCLUSION

Referral to a higher centre is a critical step in management of Obstetric cases. The referrals from rural areas were totally unaware of the existing antenatal services at the primary health centres. Furthermore, even in these centres, non-availability of trained healthcare workers, anaesthetic facilities, CCU, blood bank and specialist in the field of obstetrics and above all dangerous practices carried by local quacks make the situation worse. Health education and awareness by mass media (IEC) can improve the health of women in rural areas. Traditional birth attendants should be trained properly to promote health, pick up danger signs in the antenatal visits and early referral to tertiary care centres which will improve the maternal and child health. Prevention wherever possible and prompt and effective treatment of obstetric emergencies will go a long way to reduce the magnitude of ever increasing maternal mortality which appears to have defied all proposed measures set to reduce it by WHO .The study showed that Obstetric emergency is frequent cause of adverse maternal and perinatal t with incidence of 10.68% of all deliveries during this period of one year.

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