

A Prospective Observational Study of Outcome of Obstetric Emergency Referrals at a Tertiary Care Centre

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Background and objectives: An emergency can be defined as a situation of serious and often dangerous nature, developing suddenly and unexpectedly and demanding immediate attention in order to save life.¹ Obstetrics is unique in that there are two lives to consider and care for, a mother and a baby or foetus. Obstetric emergencies are the leading cause of maternal 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.² A Prospective Observational study was carried out over a period of two years among patients who are referred for obstetric emergency to department of Obstetrics and Gynaecology, Kakatiya Medical College, Warangal with an aim to study the reasons and outcomes of obstetric emergency referrals

Materials and Methods: Prospective Observational study. The study was carried out over a period of 16 months from June 2019 to September 2020. The present study was conducted at Department Obstetrics and Gynaecology, Kakatiya Medical College, Warangal. All emergency obstetric referrals to Government Maternity Hospital, Hanamakonda

Results: During the study period 1429 obstetric emergency cases were admitted into the department of Obstetrics and among them 278 cases were obstetric emergency referrals. The proportion of Obstetric referral cases in the present study was 19.4% (91.7%) were unbooked cases at the hospital and 23(8.3%) were booked cases. Hypertensive disorders in pregnancy (Eclampsia - 14.7%, Imminent eclampsia – 12.6%, Severe Preeclampsia - 13.7%) was the most common cause accounting for 41% of referrals. The next common cause for referral was Abruptio placentae (16.9%) and Ectopic Pregnancy (9.7%). In the present study among 278 referred cases live born were 81.7%. The prevalence of still birth among the referral cases was 8.6% and miscarriage was 9.7%. The prevalence of neonatal deaths among the referral cases was 9.2% (21/227). The neonatal mortality rate in the present study was 92/1000 live births. The perinatal mortality in the study was 19.1% (24 still birth + 21 neonatal death).

Interpretation and Conclusion: Health education to pregnant women about maternal health services and its proper implication, Early ANC booking and regular check-ups, identification of high-risk pregnancy and timely referral, fully functional first referral units, availability of transport facilities for these emergency patients, availability of obstetrician, anaesthetist, neonatologist, physician and surgeon services round the clock are the need of the hour.

Keywords: Obstetric Emergency Referral, Maternal & foetal outcome,

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I. Introduction

An emergency can be defined as a situation of serious and often dangerous nature, developing suddenly and unexpectedly and demanding immediate attention in order to save life.¹

Obstetrics is unique in that there are two lives to consider and care for, a mother and a baby or foetus. Obstetric emergencies are the leading cause of maternal 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.²

According to World health organisation (WHO) report about 2,95,000 women died during and following pregnancy and childbirth in 2017. The vast majority of these deaths (94%) occurred in low-resource settings, and most could have been prevented.³ Sub-Saharan Africa and Southern Asia accounted for approximately 86% of the estimated global maternal deaths. At the same time, between 2000 and 2017, Southern Asia achieved the greatest overall reduction in MMR: a decline of nearly 60%.⁴

II. Aim and Objectives

1. To study the maternal and perinatal outcomes.

2. To carry out analysis of the various emergencies & work out how best they can be solved and prevented.

III. Materials and Methods

STUDY DESIGN: Prospective Observational study

STUDY PERIOD: The study was carried out over a period of 16 months from June 2019 to September 2020.

STUDY PLACE: The present study was conducted at Department of Obstetrics and Gynaecology, Kakatiya Medical College, Warangal.

STUDY POPULATION: All emergency obstetric referrals to Government Maternity Hospital, Hanamakonda.

INCLUSION CRITERIA:

Obstetric emergency referrals to GMH, Hanamakonda

EXCLUSION CRITERIA:

1.Post-partum patients.

2.Gynecological emergency referrals.

SAMPLE SIZE CALCULATION:

$$N = Z^2 PQ/L^2$$

N= sample size Z=1.96 at 95% CI

P (prevalence) = 20.86% (Proportion of referred cases of the total obstetric admissions based on the study conducted by Goswami P et al., on pattern of obstetric cases referred at tertiary care centre in Central India)

$$Q = 100 - 20.86 = 79.14\%$$

L = 5% (Precision)

$$N = 3.84 \times 20.86 \times 79.14 / 5 \times 5 = 6339.3 / 25$$

$$N = 253.57$$

For the present study the final sample size was rounded to 275 cases.

METHOD OF COLLECTION OF DATA:

Institutional ethical committee clearance was obtained from ethical committee of Kakatiya Medical College, Warangal prior to the start of study. A written and informed consent was taken from postpartum women who had participated in the present study.

Data regarding name, age, place of residence, distance commuted to reach referral hospital, socio-economic status, reason for referral, parity, level of antenatal care received in present pregnancy, present obstetric complications, previous obstetric history, and LMP to calculate gestational age are recorded.

General physical examination including vital signs, detailed obstetric examination, examination for other complications resulting from the condition, and other systemic examination is done. Mode of delivery, nature of surgeries performed, number of pints of blood transfused, intensive care interventions performed, duration of hospital stay, and maternal and perinatal outcome are recorded.

With patients admitted to ICU details regarding the reason for admission, the status of the patient on admission with respect to vitals, treatment received before admission and after- interventions like mechanical ventilation, transfusions, use of vasopressors, continuous monitoring, duration of ICU care needed, process of weaning and recovery, the outcome whether recovery or mortality and reasons for the same are noted.

Basic investigations like CBC, Blood grouping and typing, Serology for associated medical illnesses, Urine routine, USG abdomen, Coagulation profile, RBS, renal and liver function tests was done according to the case.

DATA ANALYSIS: Data collected was entered into MS-Excel 2013 spreadsheet. The collected data was analysed using IBM statistical package for social sciences (IBM SPSS) version 23 software.

Statistical Tests:

1.Continuous variables was reported as mean ± standard deviation (SD) while categorical variables was expressed as absolute values and percentages.

2.Microsoft Excel 2013 was used for generating charts and diagrams.

IV. Results

Table 1: Distribution of cases according to age

Age group	Number of cases	Percentage
≤ 20 years	16	5.8%
21 – 25 years	119	42.8%
26 – 30 years	129	46.4%
> 30 years	14	5%
Total	278	100%

Mean age \pm SD = 25.5 \pm 3.6 years (Range = 17 – 34 years)

The mean age of the obstetric emergency cases referred to the hospital was 25.5 \pm 3.6 years with an age range of 17 – 34 years. Majority (46.4%) of the referred cases belong to 26 – 30 years followed by (42.8%) 21 – 25 years. 5.8% of the referred cases were \leq 20 years and 5% were > 30 years.

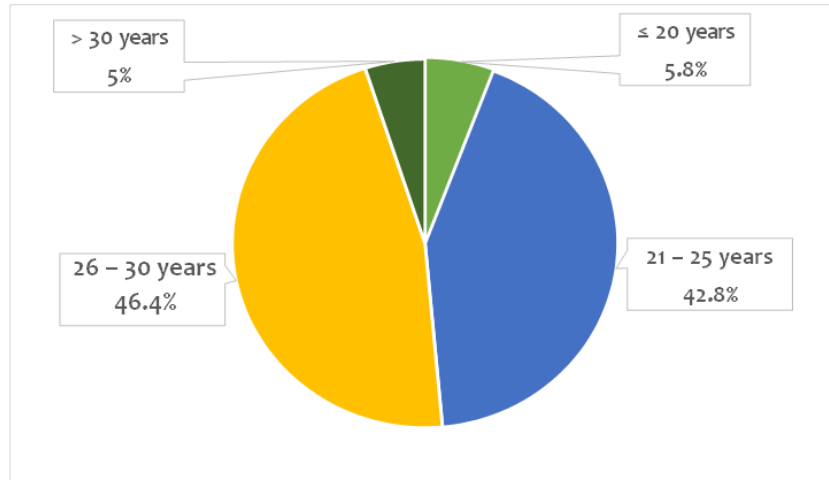


Fig 1: Pie chart showing age distribution of referred cases

Table 3: Distribution of cases according to booking status

Booking status	Number of cases	Percentage
Booked	23	8.3%
Unbooked	255	91.7%
Total	278	100%

In the study out

referred cases 255(91.7%) were unbooked cases at the hospital and 23(8.3%) were booked cases.

present
278

Fig 3: Pie chart showing distribution of cases according to booking status

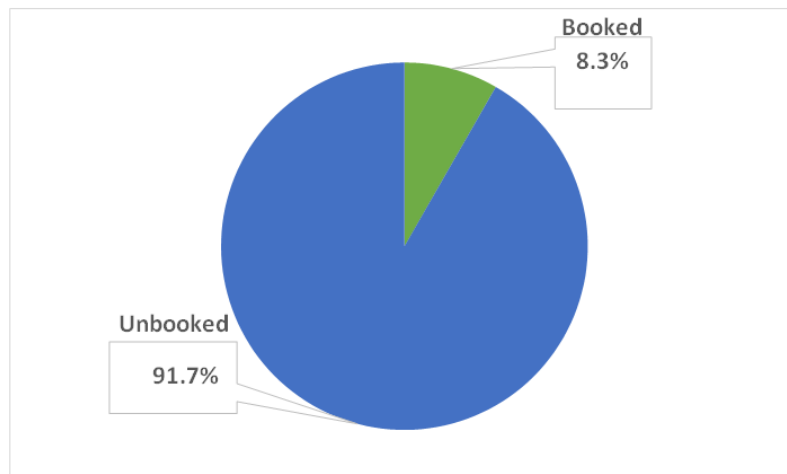


Table 9: Distribution of cases based on causes for referral

	Number of cases	Percentage
Abruptio placentae	49	17.6%
Placenta Previa	26	9.3%
Eclampsia	41	14.7%
Severe Anemia in labour	31	11.2%
Imminent eclampsia	35	12.6%
HELLP Syndrome	4	1.4%
Severe Preeclampsia	38	13.7%
Obstructed Labor	17	6.1%
DIC	2	0.7%
Vasa previa	1	0.4%
Scar rupture	6	2.2%
Cord prolapse	1	0.4%
Ectopic Pregnancy	27	9.7%
Total	278	100.0

Hypertensive disorders in pregnancy (Eclampsia - 14.7%, Imminent eclampsia – 12.6%, Severe Preeclampsia - 13.7%) was the most common cause accounting for 41% of referrals. The next common cause for referral was Abruptio placentae (16.9%) and Ectopic Pregnancy (9.7%).

Fig 8: Pie chart showing intrauterine death among the referral cases

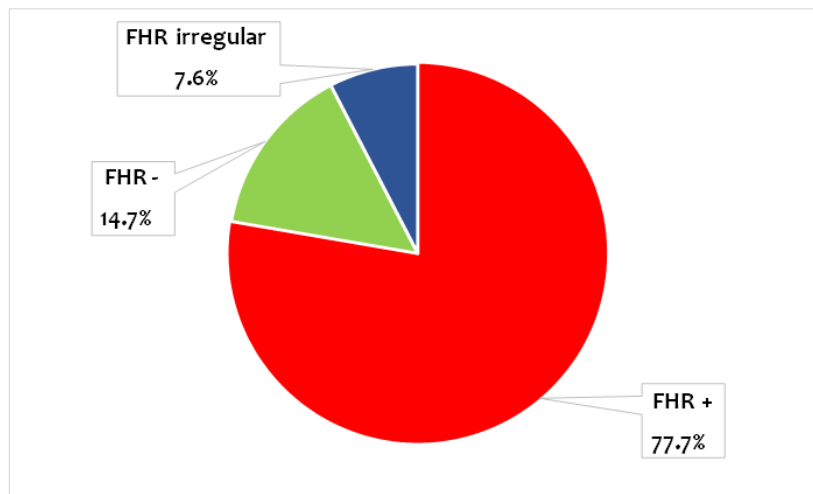


Table 13: Foetal outcome at delivery in referral cases

Outcome	Number of cases	Percentage
Live birth	227	81.7%
Still birth	24	8.6%
Miscarriage	27	9.7%
Total	278	100%

In the present study among 278 referred cases live born were 81.7%. The prevalence of still birth among the referral cases was 8.6% and miscarriage was 9.7%.

Table 14: Perinatal and Neonatal mortality among the referral cases

		Number of cases	Percentage
Live born & Healthy		145	57.8%
Live born & admitted into SNCU (n=82)	Neonatal death	21	8.4%
	Recovered	61	24.3%
Still birth		24	9.5%
Total		251	100%

The prevalence of neonatal deaths among the referral cases was 9.2% (21/227). The neonatal mortality rate in the present study was 92/1000 live births. The perinatal mortality in the study was 19.1% (24 still birth + 21 neonatal death).

Table 17: Causes of Perinatal mortality

	Number of cases	Percentage
Birth asphyxia	13	28.9%
Prematurity	19	42.2%
Congenital malformations	4	8.9%
Septicemia	9	20%
Total	45	17.9%

The most common cause of perinatal mortality in the present study was prematurity (42.2%) followed by birth asphyxia (28.9%). Congenital malformations accounts for perinatal mortality in 8.9% and septicaemia in 20% cases.

V. Discussion

The obstetric emergencies can happen suddenly, or they can develop as a result of a complication that are not properly managed or monitored. The World Health Organization estimates that at least 88-98% of maternal deaths can be averted with timely access to existing, emergency obstetric care using effective and efficient referral systems. Timeliness and appropriateness of referral are a challenge to obstetricians, since the delay in referral affects the maternal and perinatal outcome adversely, hence identification of “at risk” patients and obstetric emergencies and timely referral is of immense importance.

A Prospective Observational study was carried out over a period of two years among patients who are referred for obstetric emergency to department of Obstetrics and Gynaecology, Kakatiya Medical College, Warangal with an aim to study the reasons and outcomes of obstetric emergency referrals.

During the study period 1429 obstetric emergency cases were admitted into the department of Obstetrics and among them 278 cases were obstetric emergency referrals.

Aparna A et al.⁶ had reported that 55% of pregnancies were delivered by lower segment caesarean section similar to the present study. Narendra S et al.¹¹ study had also reported that majority of them delivered by caesarean section (76%) which was similar to the present study.

In Bindal L et al.¹⁴ study, out of total referred cases, 27.9% of cases underwent caesarean section and 48% delivered vaginally. Sorbye et al.,¹⁰⁵ found that referral status contributed substantially to the increased caesarean section rate, which was 55% in formally-referred similar to the present study.

However, in a study by Goswami et al.⁵ out of the total referred cases, 48% had vaginal delivery (either spontaneous or induced), 28% had caesarean section.

However, Ambike A et al.,⁹⁵ had reported that 59% had normal delivery, 35% had LSCS, 3% had laparotomy, 2% had abortion and 1% had Obstetric hysterectomy which was contrast to the present study where majority of the cases were delivered by

caesarean section. Not in accordance with the study findings Ghardallou M et al.⁷ reported that 72.5% had vaginal deliveries and 20.6% had caesarean section deliveries. In Gupta PR et al.,⁸⁴ study caesarean section rate was 22.75% in the referred cases which was low when compared to the present study.

Blood transfusion was done to manage excessive haemorrhage in 20.5% of cases which is comparable with the study conducted by Aparna A et al.,⁹⁰ where they reported 17% cases needed blood transfusion. In this study, emergency blood transfusion of 1-3 pints per patient was done to manage acute blood loss due to haemorrhage in placenta previa, abruptio placentae, and severe anaemia cases. Blood components transfusion was done in maximum cases.

Condition of foetus at time of admission and foetal outcome in referred cases

At the time of admission among referral cases foetal heart sounds were absent in 41 (14.7%) cases and irregular in 21 (7.6%) referral cases. The prevalence of neonatal deaths among the referral cases was 9.2% (21/227). The neonatal mortality rate in the present study was 92/1000 live births. The perinatal mortality in the study was 19.1% (24 still birth + 21 neonatal death) and the perinatal mortality rate was 191/1000 births.

In accordance with the study findings Kaur et al.,⁸⁵ had also reported that 70.2% were live births and 29.8% were still births. Kujur R et al.,⁹⁷ study had also reported that the total no of still births were 10.85% and NICU admissions is 10.5% and no of healthy babies were 78.58%.

Ambike A et al.⁸ study had reported that 27% had absence of FHS on obstetric examination and the neonatal mortality rate in their study was 300/1000 live births which was high when compared to the present study. Regarding fetal outcomes, 98.2% of babies were born alive and 1.8% were still born as reported by Ghardallou M et al.,⁹³ study on obstetric referrals to a tertiary care maternity.

Causes of perinatal mortality

Among the referred cases, 2(0.7%) died during the course of treatment. Maskey S et al.¹² found in their study that maternal deaths occurred in 1.8% which is correlated with our study. Jakhar R et al.⁹ had also reported maternal mortality of 0.88% which was similar to the present study. Similar findings were also reported by Maskey S et al.,⁸¹ that there were 2 mortalities during the study period.

However, Ambike A et al.,⁹⁵ had reported high mortality 6% obstetric emergencies in their study. Gupta PR et al.¹³ study had also reported high incidence of maternal mortality when compared to the present study. The most common cause of perinatal mortality in the present study was prematurity (42.2%) followed by birth asphyxia (28.9%). Congenital malformations accounts for perinatal mortality in 8.9% and septicaemia in 20% cases.

Kujur R et al.¹⁰ study had also reported that preterm, birth asphyxia and low birth weight was the most common causes for neonatal mortality.

VI. Summary & Conclusion

A Prospective Observational study was carried out over a period of two years among patients who are referred for obstetric emergency to department of Obstetrics and Gynaecology, Kakatiya Medical College, Warangal with an aim to study the reasons and outcomes of obstetric emergency referrals. The proportion of Obstetric referral cases in the present study was 19.4%.

Health education to pregnant women about maternal health services and its proper implication, Early ANC booking and regular check-ups, identification of high-risk pregnancy and timely referral, fully functional first referral units, availability of transport facilities for these emergency patients, availability of obstetrician, anaesthetist, neonatologist, physician and surgeon services round the clock are the need of the hour.

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