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## Original Research Article

# Maternal and neonatal outcome among referred women

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## ABSTRACT

**Background:** The availability of emergency obstetric care is considered to be an indicator of the preparedness of a health care services. Timely referral plays an important role in the management of diseases in any healthcare system.

**Methods:** This study included all referred women admitted in the hospital with more than 20 weeks gestational age. 220 referred women were included in the study. All details were noted and women were monitored. Maternal and foetal outcome were analysed.

**Results:** Caesarean section was performed in 58.32% of those delivered. 75.72% of neonates had 7 or higher APGAR score. There were 5.78% stillbirths.

**Conclusions:** The study showed good referral practices from most referring centres. Overall maternal and neonatal outcome was good. Utilizing community health workers to educate and identify high risk women for frequent antenatal care and early referrals will improve maternal outcome.

**Keywords:** Outcome, Referral services, Referred

## INTRODUCTION

Health worker at one level of the health care system, with limited resources (medicines, equipments, skills) to treat the clinical condition, seeks the help of another facility at the same or higher level. This is called as referral system.<sup>1</sup> Referral services are an integral part of maternal and neonatal health care and help to identify and manage high risk obstetric cases.<sup>2</sup> Emergency Obstetric Services are of great relevance, and help to decrease deaths in mother and foetus.<sup>3</sup> The emergency obstetric care and its availability is considered a vital indicator of health care services. Early and timely referral plays a key role in health management. The study aimed to analyse the maternal and foetal outcome of referred pregnant women.

## METHODS

This was a hospital based observational study conducted in Department of obstetrics and gynecology, SMS Medical College, Jaipur from Nov 2022 till April 2023. Institutional Review Board and Ethical Committee approval was taken prior to the study.

### Inclusion criteria

All obstetrics cases more than 20 week gestational age or postpartum, referred to the labour room for further management were included.

### Exclusion criteria

Any referred woman who expired before or at reaching the hospital, before treatment could be initiated was excluded from the study.

### Statistical analysis

Detailed sociodemographic, personal and obstetric history was noted. Complete examination was done and required investigations sent. All data were recorded and analysed.

## RESULTS

The study was conducted over a period of 1 year. 220 referred women were included in the study. 65.45% women aged 21-30 years, mean age was  $27.70 \pm 4.43$  years, 74.09% had upto primary education or less. The majority, 62% women belong to the lower middle class or less. Over half (51.40%) of women were primigravida, experiencing their first pregnancy followed by 17.76% in their second pregnancy (Table 1).

**Table 1: Characteristics of referred women.**

Characteristic		n=220
Age	Mean	$27.70 \pm 4.43$ years
Literacy level	≤Primary	74.09%
Socio-economic class	≤Lower middle class	62%
Gravida	≤2	69.16

18.64% women were discharged after management and kept under antenatal care. Caesarean section was performed in 58.32% of those delivered. Indications of caesarean section were previous caesarean section, abnormal presentation, obstructed labour, eclampsia/hypertensive disease in pregnancy, dystocia and foetal distress (Table 2).

**Table 2: Delivery outcome in referred women.**

Delivery outcome		Number (n=220)	Percentage
Delivered (n=173)	Caesarean Section	101	45.91
	Vaginal delivery	72	32.73
Undelivered		41	18.64
Delivered prior to referral		6	2.73

Majority (79.55%) of women were admitted for 5 days or less, only 20.45% stayed 6 days or more. The mean hospital stay duration was 3.98 days. The most common reasons for longer stay was due to eclampsia, wound sepsis or due to neonate admission in neonatal intensive care unit (NICU) (Table 3).

**Table 3: Duration of hospital stay of referred women.**

Duration of hospital stay	Number (n=220)	Percentage
2-3 days	85	38.64
4-5 days	90	40.91
≥6 days	45	20.45
Mean±SD	$3.98 \pm 1.42$	

In the study, 5.78% women had stillbirth. Majority (75.72%) of neonates had 7 or higher APGAR score, indicating good overall health at birth. 18.5% had APGAR 4 or less needing immediate resuscitation (Table 4).

**Table 4: Neonatal outcome of referred women.**

APGAR score	Number (n=173)	Percentage
Stillbirth	10	5.78
1-4	22	12.72
5-7	10	5.78
>7	131	75.72

## DISCUSSION

Caesarean section was performed in 58.32% of those delivered. Caesarean section rate varied from 38.67% to 62.3% across different studies on obstetric referrals.<sup>4-9</sup>

In a study, Sorbye et al compared caesarean section rates among women formally referred to a tertiary care centre versus self-referred women. In both groups, term nulliparous singleton cephalic pregnancies and women with previous caesarean constituted two thirds of CS deliveries.<sup>10</sup>

The commonest indication of caesarean section amongst referred patients was high risk pregnancy in most studies. Foetal distress was also a common indication.<sup>11</sup>

Placenta previa besides other obstetric reasons like abnormal presentation, obstructed labour are absolute indications of caesarean section and also form a high percentage of referrals, hence the caesarean section rate is high in referred cases.

Majority (79.55%) of women were admitted for 5 days or less. Longer stay was due to medical diseases like hypertension, diabetes, wound sepsis or because of neonate admission in NICU.

Majority (75.72%) of neonates had 7 or higher APGAR score. Foetus of women referred due to obstructed labour, severe jaundice due to RH incompatibility, eclampsia and congenital anomaly resulted in still birth. Early referral of these women could have prevented their poor foetal outcome.

In concordance with these results, Dutta et al reported perinatal mortality as 95.23/1000 live births, stillbirths

were 4.5%.<sup>9</sup> While Bellad et al reported the perinatal mortality rate (PNMR) of 49.4 per 1000 births and the stillbirth rate of 43 per 1000 births.<sup>12</sup>

The cause of death in the early neonatal period was mainly due to birth asphyxia which could have been prevented with earlier referral. As far as obstetric events were concerned, birth asphyxia was mainly due to obstructed labour, eclampsia, and haemorrhage.

The study was performed in a single centre which may not be representative of referral services of the entire state/district, was limitation of this study.

## CONCLUSION

The study showed good referral practices from most referring centres. Overall maternal and neonatal outcome was good. However, there were 5.78% stillbirths, these can be reduced by improving infrastructure at peripheral centres and early referrals whenever required. Utilizing community health workers to educate and identify high risk women for frequent antenatal care will improve maternal outcome.

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