

Fetal outcome in obstetric cases referred to tertiary referral center

Vidya R Tirankar¹, Pradeepkumar Sandipan Jadhavar^{2*}, Sujit Naikal³

Department of Obstetrics and Gynaecology, Dr VM Government Medical College, Solapur, Maharashtra, INDIA.

Email: pradipbjmc@gmail.com

Abstract

Background: Labour complications have a very strong effect on perinatal mortality complications and increase the risk of perinatal death, which is higher in home deliveries. Delayed referral affect maternal and perinatal outcome adversely, hence the identification of high risk patient and obstetric emergencies with timely referral is important. **Aim:** To evaluate fetal outcome in obstetric cases referred to tertiary referral center. **Material and Methods:** All pregnant cases (referred to tertiary care centre) un-delivered or delivered or aborted or within 42 days after termination of pregnancy were included in the study. To know Fetal outcome APGAR score was noted, cause of NICU admission, birth weight along with that follow-up was done. In cases of still birth and early neonatal deaths causes were noted. **Results:** Out of 931 undelivered patient referred, 845 (90.76%) cases had live births, 72 (7.74%) cases delivered as dead baby due to various reasons. 14 cases aborted (1.5%). Most of babies died had birth weight <1000 gm and mother had complication. Out of total 21 neonatal deaths, 4 babies had RDs, 3 cases were extremely low birth weight. 5 cases developed sepsis during NICU stay. **Conclusion:** Deliveries in rural areas potentially need emergency obstetric care. Frequent maternal morbidity, and its association with adverse perinatal outcome, suggests need for strengthening peripheral health care systems.

Key Words: Obstetrics Referrals, perinatal morbidity mortality, fetal outcome, tertiary care.

*Address for Correspondence:

Dr. Pradeepkumar Sandipan Jadhavar, Department of Obstetrics and Gynaecology, Dr VM Government Medical College, Solapur, Maharashtra, INDIA.

Email: pradipbjmc@gmail.com

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INTRODUCTION

The referral system is particularly important in pregnancy and childbirth for providing access to Emergency Obstetric Care. Linking the primary, secondary and tertiary levels of care are an essential element of primary health care. A referral system offers women some degree of health care at every level of health care system while linking the different levels through an established communication transport system. It is observed that labour complications have a very strong effect on

perinatal mortality complications such as antepartum haemorrhage, obstructed labour, prolonged labour, malpresentation, eclampsia, prematurity and premature rupture of membranes, increase the risk of perinatal death and rate of perinatal death is higher in home deliveries.¹ The fact that many of the complications responsible for fetal mortality can't be predicted needs to be emphasised. It is for this reason that every pregnancy needs to be managed very vigilantly and there must be a system in place for identification and management of any complication associated with pregnancy and childbirth. The present study was conducted to evaluate fetal outcome in obstetric cases referred to tertiary referral center.

MATERIAL AND METHODS

This study was conducted at tertiary care centre over a period of two years. All Cases coming to labour room with or without referring letter, referred from peripheral health sectors, Govt. as well as private were studied. All pregnant cases (referred to tertiary care centre) un-

delivered or delivered or aborted or within 42 days after termination of pregnancy were included in the study. To know Fetal outcome APGAR score was noted, cause of NICU admission, birth weight along with that follow-up was done. In cases of still birth and early neonatal deaths causes were noted. All cases were studied in form of referred from, reason for referral, high risk factors, treatment received at referring health unit, medical personal accompanying, mode of transport, distance of referral center, time required to reach the institute and fetal outcome

RESULTS

A study of cases referred to our institute during the study period and those who were willing to participate in the study was done and maternal and fetal outcome were studied. A total of 1020 cases referred were admitted and their Socio-Demographic profile was studied. Out of the referred 311 (30.50%) cases of the cases were in the age group 18-20 years, 491 (48.13%) cases were in age group 21-25 years, 191 (18.73%) of the cases were in 26-30 years and 27 (2.64%) of the cases were >30 years. Most of these referral patients were in undelivered state 931 (91.27%) cases and 89 (8.73%) cases were referred in postpartum period. Out of the referred cases 765 (75%) cases were registered and rest of the cases were unregistered i.e. 255 (25%) cases. Majority of cases 787 (77.16%) cases were educated and 233 (22.84%) cases were illiterate. Majority of cases 855 (83.82%) belonged to low socioeconomic status while 165 (16.18%) cases belong to middle group. Out of 1020 cases, 475 (46.57%) cases were primigravida, 323 (31.67%) cases were second gravidas and 162 (15.88%) cases were third gravida and 60 (5.88%) cases were fourth and above gravida in all referred cases. Out of referred cases most of the cases were referred from primary, secondary care centres and also from private hospital. 310 (30.39%) cases referred from primary health centres and 485 (47.55%) cases were referred from rural hospital and sub district hospitals and 89 (8.72%) cases were referred from Civil hospitals and rest 136 (13.34%) cases came from private hospitals. Out of total 710 patients referred from RH, SDH, CH and private, 255 (35.92%) patient were referred from other Health centre like PHC/SC and 455 (64.08%) patient came directly from RH, SDH, CH to tertiary care centre. Decision to refer the case to tertiary health institute was taken within 30 min. by majority of referring health units. 577 (56.56%) cases were referred within 30 mins. stay in referring unit. 415 (40.68%) cases were referred after initial treatment for 6 hrs. and only 28 (2.76%) cases referred after 6 hrs. Most of the cases 698 (68.43%) were referred from less than 50 km. area of tertiary care centre, 303 (29.70%) cases were referred from 50-100 km.

distance and only 19 (1.87%) cases were referred from more than 100 km. distance. Because of improved transport facility due to national rural health mission 703 (68.92%) of the referred cases reach the tertiary institute within 6 hour. 282 (27.64%) cases referral came with private vehicle and 35 (3.44%) cases used rickshaw for transport.

Table 1: Perinatal Outcome of Referred Cases (n = 931)

Outcome of Pregnancy	No. of Cases	Percentage
Live Births	845	90.76%
Intrauterine Deaths	72	7.74%
Aborted	14	1.50%
Neonatal Deaths	21	19.09% (of 110 NICU admission)

Out of 931 undelivered patient referred 845 (90.76%) cases had live births, 72 (7.74%) cases delivered as dead baby due to various reasons. 14 cases aborted (1.50%). 21 babies out of 110 babies shifted to NICU after birth died due to complication of preterm prematurity.

Table 2: Outcome of Live Births (n = 845)

Outcome of Live Births	Number of Cases	Percentage
Babies with Mother	735	86.99%
NICU admitted	110	13.01%
Outcome on Discharge		
Neonatal Deaths	21	2.45%
Take Home Babies	824	97.55%

Out of 859 live births, 86.99% (735 cases) babies were with mother and 12.80% (110 cases) shifted to NICU. 2.45% (21 cases) died in NICU, so, take home babies were 97.55% (824 cases).

Table 3: Causes of Neonatal Death in Referred Patients (n = 21)

Causes of Neonatal Death	No. of Cases
RDS	4
ELBW	3
Birth Asphyxia	5
Multiple Congenital Anomaly	2
Sepsis	5
Convulsion	1
Unknown	1

Most of babies died had birth weight <1000 gm and mother had complication. Out of total 21 neonatal deaths, 4 babies had RDS, 3 cases were extremely low birth weight. 5 cases developed sepsis during NICU stay. In one case cause was convulsion, one case died in NICU due to unknown reason. Out of 21 neonatal deaths, 9 cases had birth weight < 1 kg. (800 gm or 900 gm), 4 cases were between 1 – 1.5 kg. Only 2 cases were 1.6 – 2 kg and 6 cases with birth weight >2 kg died in NICU. Out of which 2 cases had congenital anomaly non compatible with life, 2 cases developed birth asphyxia during labour

baby shifted to NICU which could be prevented by early decision of LSCS, 1 case developed sepsis and 1 case had status eclampticus which were unavoidable.

DISCUSSION

Labour carries an inherent risk of complications. It requires supervision by skilled birth attendants. Obstetrical care in the western world is at its peak. But in developing countries it is still at the docks due to illiteracy, male dominant society and untrained birth attendants. Majority of the population living in the rural areas do not have an accessibility to the maternity centres and may develop life threatening complications. Delayed referral affect maternal and perinatal outcome adversely, hence the identification of high risk patient and obstetric emergencies with timely referral is important.² In our study, 765 (75%) cases were registered in either public health sector or private hospital and 255 (25%) cases were not registered anywhere and did not have ANC visit. Patel *et al* study, 70.8% cases were registered and 21.2% cases were unregistered.³ A study conducted by Kaur *et al* showed higher rate of fetal distress (61.12%) in unregistered mothers which lead to increased incidence of cesarean section.⁴ Low socioeconomic status was main reason for lack of follow up of good quality of antenatal care and referral services. In our study, most of the cases, i.e., 855 (83.82%) were of low socioeconomic status 165 (16.18%) cases from middle socioeconomic status. Patel *et al* study have 72% cases from lower socioeconomic status in referred cases.³ Siddiqui *et al* study concluded that 95% cases from referral were from family of household worker or agriculture worker suggesting low socioeconomic status.⁵ Primigravida require more obstetric care during labor than 2nd and 3rd gravida and 60 (5.88%) cases were 4th gravida above these cases were who had poor awareness of family planning and mostly from lower socioeconomic group. In present study, majority of referral cases of primigravida 475 (46.57%) and 323 (31.67%) were second gravida. Gupta *et al* study had 52.17% cases of primigravida.² Siddiqui *et al* study had 49.16% cases of primigravida.⁵ Due to lack of medicines, expertise and well equipped OT etc. at rural hospitals they tend to refer most of the cases. In our study, most of the cases, i.e., 485 (47.55%) referred to tertiary care center from rural and sub district hospital in our study. These were mostly second referrals from rural areas near to RH and SDH. Rathi *et al* concluded the similar observation.⁶ Ambreen *et al* study concluded that training of TBA, LHV, local doctors is needed for better management and timely referral of difficult cases.⁷ There is a need of time to strengthen peripheral health care systems. These were cases in which high risk factor identified and referred

without primary treatment and 415 (40.68%) cases were referred with period of 30min-6 hrs and primary treatment like iv fluids and anti-hypertensives was given. 28 patients who were referred after 6 hrs from referring centre were ultimately responsible for delay referral causing prolonged obstetric labor and increase complication resulting in adverse fetal outcome. In present study, most of cases 698 (68.43%) were referred from health unit within 50 km from tertiary care centre. These are second referral coming from PHC in remote area to RH and SDH. 19 (1.87%) cases referred from health centre more than 100km away, resulted in late access to tertiary care centre with more than 6 hr interval and had adverse fetal outcome. Due to increased availability of NRHM vehicle in peripheral area most of patient can reach referred centre within time, cases coming by private vehicle required time and money for arrangement. A total of 703 (68.92%) cases referred with either ambulance from referring unit or NRHM vehicle, 282 (27.64%) cases arranged private vehicle by their own. Bhat *et al* had 78% cases referred by vehicle from health unit, present study is similar to Bhat *et al* in these aspect.⁸ In present study 595 (58.33%) cases referred doctor with NRHM doctor. These patient could get some sort of obstetric care in well-equipped ambulance by NRHM doctor during transport. 395 (38.72%) cases referred with relative and had difficulty during transport resulting in on way delivery and complication of PPH, retained placenta and adverse neonatal outcome. Only 25 (2.45%) cases referred with ASHA worker, indicate poor utilization of peripheral health worker. A total of 1009 (98.72%) cases reached to tertiary care centre within 6 hrs. 11 (1.08%) cases required 6-24 hrs, these were mainly from remote areas. Two patient from outside state and had uterine rupture due obstructed labor, this is due to delayed referral where doctors failed to identify warning signs of seriousness of patient's condition. Financial constraint of family is also factor. Gupta *et al* observed that 59.34% cases coming within 6 hrs.² Shrivastav *et al* study observed 82% cases reached within 6 hrs of referral.⁹ In present study, out of 931 undelivered cases, 845 (90.76%) were live birth and 72 (7.74%) cases were IUD and out of 72 IUD cases, 40 cases beyond age of viability (> 28 wks) and 21 cases of neonatal death, so we have perinatal mortality rate 72.18/1000 live birth in referred cases. In study of Rathi *et al* PNMR was 28.23%.⁶ Whereas, in a study conducted by Bhat *et al* PNMR was 194/1000 live birth.⁸ This disparity is due to study group in our tertiary care centre contains mostly high risk cases with multiple obstetric complications. Neonatal mortality rate in this study was 19.09%. Neonatal deaths resulted due to high risk factor in mother like preeclampsia, preterm labour, eclampsia. Ambreen *et*

al study shows 23% neonatal death.⁷ Most of the neonatal death occur in babies admitted with birth weight <1 kg (9 cases) and developed respiratory diseases, birth asphyxia, sepsis and in 1 case cause was unknown. Deliveries in rural areas potentially need emergency obstetric care. Frequent maternal morbidity, and its association with adverse perinatal outcome, suggests need for strengthening peripheral health care systems.

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