

Maternal outcome in obstetric cases referred to tertiary referral center

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Abstract

Background: Maternal outcome in Obstetric emergencies is adversely affected by lack of transport facilities, delay at various levels, result in adverse outcome. Timely identification of high risk cases and their prompt referral to a tertiary referral centre may improve the fetomaternal outcome. **Aim:** To evaluate referred obstetric cases and its maternal outcome. **Material and Methods:** All pregnant cases referred to tertiary care centre undelivered or delivered or aborted or within 42 days after termination of pregnancy were studied in the form of referred from, medical personal accompanying, mode of transport, distance of referral center, time required to reach the institute, treatment given at institute and maternal outcome. **Results:** Most of these referral patients were in undelivered state 931 (91.27%) cases and 89 (8.73%) cases were referred in postpartum period. Maternal mortality rate was 10.65/1000 live birth in referred cases. The most common cause of death was maternal haemorrhages with shock followed by preeclampsia and eclampsia and medical diseases. **Conclusion:** Health education to community, better antenatal care up to grass root level, better transport facility and availability of specialist in field of obstetrics at referral unit, will definitely reduce maternal and perinatal morbidity and mortality.

Key Words: Maternal mortality, referral, Obstetric emergencies, tertiary referral centre.

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INTRODUCTION

Obstetric emergencies are the leading causes 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.¹ In majority of rural home confinement, delivery is attended by untrained birth attendant. After realizing difficulty in labor, midwife or doctor is called at home, rather than immediately shifting woman to hospital. After shifting woman to a local hospital, she is further observed with the hope of

vaginal delivery, which results in further unpardonable delay. When all attempts of delivery at local hospital fails, decision of referring to higher unit is made.² Maternal outcome in Obstetric emergencies is adversely affected by lack of transport facilities, financial constraints due to poverty, illiteracy, ignorance, inadequate health infrastructure and meager blood bank facilities. Delay at various levels, result in adverse outcome.¹ Timely identification of high risk cases prone to land up in such complication as well as identification of patients with such complication and their prompt referral to a centre well equipped to tackle such cases may improve the fetomaternal outcome.³ The present study was undertaken to evaluate referred obstetric cases and its maternal outcome.

MATERIAL AND METHODS

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

delivered or delivered or aborted or within 42 days after termination of pregnancy were studied. All included cases were studied in the form of referred from, 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, treatment given at institute and maternal 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.

Table 1: Cases Referred From

Referred from	No. of Cases	Percentage
Primary Health Centre	310	30.39%
Rural and Sub District Hospital	485	47.55%
Civil Hospital	89	8.72%
Private Hospital	136	13.34%

Out of referred cases most of the cases were referred from primary, secondary care centres and also from private hospital (Table 1). 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 hours. 282 (27.64%) cases

referral came with private vehicle and 35 (3.44%) cases used rickshaw for transport. Under national rural health mission facility, 595 (58.33%) cases were accompanying by NRHM doctors. 395 (38.72%) cases were brought by relative, 25 (2.45%) cases were brought by ASHA workers. Most of the cases 1009 (98.92%) reached to tertiary care centre within 6 hrs. Only 11 (1.08%) cases required more than 6 hrs. No case required more than 24 hrs.

Table 2: Maternal Complication (n = 175)

Maternal Complication	No. of Cases	Percentage
Abruptio Placentae	17	9.71%
Placenta Previa	21	12%
Post partum Haemorrhages	18	10.29%
Antepartum Eclampsia	34	19.43%
Postpartum Eclampsia	7	4%
Severe Anemia	17	9.71%
Severe Preeclampsia	38	21.71%
Sepsis	11	6.29%
Heart Disease	5	2.86%
Jaundice	4	2.29%
Other (GDM-1, Hypothyroidism-1, Pancytopenia-1)	3	1.71%

All these referred patients which came to tertiary referral centre had all these complications and they were referred for further management (Table 2). Out of 608 cases delivered vaginally 514 patients were induced for preeclampsia, eclampsia, postdate and PROM and 94 delivered spontaneously. Out of 289 cases 25 cases were posted for elective LSCS for reasons like previous to LSCS not in labor medical disease like heart disease, thyroid disorder and oligohydramnios and 264 cases were taken for emergency LSCS according to indications.

Table 3: Maternal Mortality in Referred Cases (n= 9)

Maternal Mortality	No. of Cases
DIC with Hypovolemic Shock	4
Postpartum Haemorrhage with Shock	1
Acute Fatty Liver of Pregnancy	1
Status Eclampticus with Ischemic Brain Damage	1
Severe Preeclampsia with HELLP Syndrome with Pulmonary Edema	1

In our study we had maternal mortality rate of 10.65/1000 live birth in referred cases. The most common cause of death was maternal haemorrhages with shock followed by preeclampsia and eclampsia and medical diseases.

DISCUSSION

The referral system is an essential component of any health system which is important in pregnancy and childbirth for providing access to essential obstetric care.

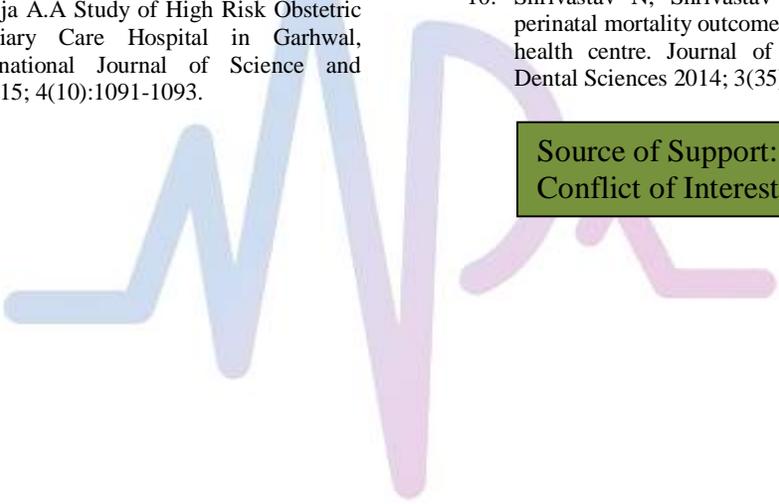
Even though pregnancy and childbirth are physiological processes bringing happiness to the couple these are associated with risk and complications, sometimes taking life of the women and her baby if they are not taken care in time.⁴ Timeliness and appropriateness of referrals are challenge to the obstetrician since, delayed referral affect maternal and perinatal outcome adversely, hence the identification of high risk patient and obstetric emergencies with timely referral is important.⁵ In present study, 931 (91.28%) cases referred in undelivered state, either during antepartum period or intrapartum period and 89 (8.72%) cases referred in postpartum period i.e. after delivery, indicate that high risk factors were identified early i.e. before the onset of labour and the possible complications affecting the maternal and perinatal outcome were prevented. This study is similar to Goswami *et al*³ and Bhat *et al*² in this aspect. 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.⁶ Present study similar to Patel *et al* study in this aspect. In present study, 233 (22.84%) cases were illiterate and 787 (77.16%) cases were literate. majority of female could get education up to 8th std. with high school dropout. Most of the cases, i.e., 855 (83.82%) were of low socioeconomic status 165 (16.18%) cases from middle socioeconomic status. Low socioeconomic status was main reason for lack of follow up of good quality of antenatal care and referral services. Patel *et al* study have 72% cases from lower socioeconomic status in referred cases.⁶ Siddiqui *et al* study concluded that 95% cases from referral were from family of household worker or agriculture worker suggesting low socioeconomic status.⁷ In present study, majority of referral cases of primigravida 475 (46.57%) and 323 (31.67%) were second gravida, 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. Gupta *et al* study had 52.17% cases of primigravida.⁵ Siddiqui *et al* study had 49.16% cases of primigravida.⁷ Our present study was similar to both mentioned study in these aspect. 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. Due to lack of medicines, expertise and well equipped OT etc. Peripheral health care system needs to be strengthened. Rathi *et al* concluded the similar observation.⁸ Ambreen *et al* study concluded that training of TBA, LHV, local doctors is needed for better management and timely referral of difficult cases.⁹ In

present study 577 (56.56%) cases were referred within 30 min from referring center. 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 maternal and 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 maternal and fetal outcome. 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. 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. Ultimately referred late and had adverse outcome. Bhat *et al*² had 78% cases referred by vehicle from health unit, present study is similar to Bhat *et al* in these aspect. 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.⁵ Shrivastav *et al* study observed 82% cases reached within 6 hrs of referral.¹⁰ Maternal mortality is personal tragedy and social disaster. In our study we had maternal mortality rate of 10.65/1000 live birth in referred cases. Bhatt *et al* maternal mortality rate 19.41/1000 live birth in referred cases.² In this study most common cause of death was maternal haemorrhages with shock followed by preeclampsia and eclampsia and medical diseases. Bangal *et al* concluded that maternal haemorrhages are leading causes of maternal mortality.¹ Circumstances which leads to maternal death are lack of

empowerment specially for rural women result in seeking medical attention often too late. Moreover, failure of diagnosis of identification a high risk factor before referral, inadequate facility for primary treatment and initial management before referral from peripheral sector. To conclude, health education to community, better antenatal care up to grass root level, emergency care, better transport facility, availability of blood and blood products, anaesthetic facilities, lab facilities and availability of specialist in field of obstetrics at referral unit, will definitely reduce maternal and perinatal morbidity and mortality.

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