

Original research article

Obstetric referral pattern in a tertiary care centre: A prospective observational study

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Abstract

Aim: This study aims to observe spectrum and outcome of obstetric referral pattern in a tertiary care centre in Bihar, India.

Materials and methods: A prospective study was conducted in the Department of Obstetrics & Gynaecology, Government Medical College Bettiah, West Champaran, Bihar, India, for 1 year. Thorough history was taken; complete physical and obstetric examination and relevant investigations were done. Management of the patient, clinical course, mode of delivery, both maternal and perinatal outcomes were documented.

Results: Among 110 patients, maximum number of cases were in the age group of 20-30 years comprising 70(63.64%) of total cases. Majority of the referral cases were primigravida 55 (50%). Out of 110 referred cases, 94 (85.45%) delivered, 9 (8.18%) were treated conservatively. Out of the 94 cases who delivered at our institute majority of the babies were delivered 64(68.09%) delivered normally, while 30 (31.91%) underwent caesarean section. Out of 94 deliveries, there were 22 NICU admissions and 72 were healthy babies. Reasons for admission were varied. In the present study, premature rupture of membranes was the most common cause of referral (17.27%). This is followed by pre-eclampsia and related conditions (15.45%), and meconium stained liquor (9.09%). Previous caesarean sections were the cause of referral in 4.54% of cases. In the present study, 7.27% of cases were referred due to non availability of blood and doctors. 65.45%, 22.72%, 11.81% of the cases were referred to our hospital in their intapartum, antepartum and postpartum period respectively.(table.7). In the present study, 99.10% were live births. In the present study 4.51% had birth asphyxia and 23.40% had NICU admissions. 36.36% of the NICU admissions were for preterm care, 18.18% for meconium aspiration syndrome, followed by 13.63% for neonatal jaundice.

Conclusion: We concluded that the timely referral is crucial for a satisfactory maternal and fetal outcome. To reduce the number of unnecessary referrals and to reduce burden on tertiary care hospitals, health care workers should be trained in essential and emergency obstetric care which will help in reducing morbidity and mortality.

Keywords: referred obstetric cases, Perinatal outcome, neonatal outcome.

Introduction

Women die every year in India^{1,2} which contribute 20-25% of all maternal deaths in the world.³ One estimate shows that with one maternal death, 15% pregnancies develop complication which necessitates tertiary obstetric care³ and the vast majority of maternal deaths and injuries are avoidable when women have access to health care before, during and after childbirth. Of course there is improvement in maternal and child healthcare after the

millennium declaration 2000, but there are lacuna across different states, Kerala being the most outstanding and Uttar Pradesh the worst performer.^{4,5} Emergency obstetric transfers should be carried out effectively and efficiently to avoid maternal and foetal morbidity and mortality. An institution referral is when a pregnant woman seeks care at a lower level health facility (basic emergency obstetric care) and is referred onwards to a higher level health facility (comprehensive emergency obstetric care). Referral systems have been considered to be an important component of health systems in developing countries since the emergence of primary healthcare. Referral is especially important within obstetrics due to the high numbers of professionals who support a woman through pregnancy and birth, the speed with which action often needs to be taken and the global burden of maternal mortality.⁶ 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. A good and well sustained referral system needs referral- protocols, improved support (especially transportation), community awareness, and feedback system.⁷ Due to lack of awareness and absence of regular antenatal care, the critically ill patients are referred late and sometimes in moribund conditions with multiple organ damage. Timeliness and appropriateness of referral is an important factor in the ultimate outcome of the patients.⁸ Referral services for identification and referral of high risk pregnancies are an integral part of maternal and child health services. For a large majority of developing countries this aspect of health system remains weak.⁹ Although most obstetric complications (defined as acute conditions such as postpartum haemorrhage, sepsis, eclampsia, and obstructed labor that can cause maternal death cannot be predicted, the majority can be treated with timely provision of a package of evidence-based interventions known as emergency obstetric care (EmOC).¹⁰⁻¹² The availability of EmOC is considered to be an indicator of how well a health system is prepared to manage conditions leading to acute maternal morbidity and mortality.^{13,14} Em OC refers to elements of obstetric care needed for management of complications during pregnancy, delivery and postpartum period, skilled personnel, equipment and support services. EmOC services are of paramount importance in reducing maternal mortality and morbidity.¹⁵ It is still recommended to electively refer pregnant woman with previous caesarean section, breech presentation, transverse lie, multiple gestation, hypertension and severe anaemia for delivery before any complication arise to a health care centre where all the facilities to deal with the complications are available.¹⁵ The aim of the present study was undertaken to evaluate the maternal and perinatal outcome in referred cases.

Material and methods

A prospective study was conducted in the Department of Obstetrics & Gynaecology, Government medical college Bettiah, West Champaran, Bihar, India, for 1 year, after taking the approval of the protocol review committee and institutional ethics committee. Using a pre structured designed questionnaire, socio demographic details, medical co-morbidities, indications for referral maternal and foetal were obtained. Referral slips were analysed and source of referral, distance travelled and mode of transport and referral-arrival interval, documentation patterns were sought. Patient referred while in labour were noted. Gestational age at referral and mode of delivery was highlighted. Intra partum variables and surgical morbidities were evaluated. To know perinatal outcome, APGAR score was noted, if needed NICU admission cause for it was noted.

Results

Secondary data analysis of referral slips to our hospital was done. After thorough analysis of data following observations are put forward. A total of 110 cases were referred to the higher

centre due to various reasons. Copy of all referral slips had been preserved. These referral slips have been studied retrospectively

Maximum number of cases in present study were in the age group of 20-30 years comprising 70(63.64%) of total cases.

Table 1: Age Distribution

Age years	N=110	%
Below 20	2	1.82
20-30	70	63.64
30-40	30	27.27
Above 40	8	7.27

Majority of the referral cases were primigravida 55 (50%).

Table 2: Parity-Wise Distribution

Parity	N=110	%
Primigravida	55	50
Multigravida	47	42.27
Grand multigravida	8	7.27

Out of 110 referred cases, 94(85.45%) delivered, 9 (8.18%) were treated conservatively. In 7 patients (6.36%) either abortion occurred or medical termination of pregnancy was done or there was ectopic pregnancy or tears which were managed according to set protocol depending upon the gestational age at diagnosis.

Table 3: Outcome of the Antenatal Cases

Outcome of ANC	No. of cases=110	%
Delivered	94	85.45
Abortion /ectopic	7	6.36
Conservative	9	8.18

Out of the 94 cases who delivered at our institute majority of the babies were delivered 64(68.09%) delivered normally, while 30 (31.91%) underwent caesarean section.

Table 4: Mode of Delivery.

Mode of Delivery	N=94	%
Normal Delivery	64	68.09
LSCS	30	31.91

Out of 94 deliveries, there were 22 NICU admissions and 72 were healthy babies. Reasons for admission were varied.

Table 5: Reasons for NICU Admission.

Reason for admission	No. of cases=22	%
Preterm care	8	36.36
Meconium aspiration syndrome	4	18.18
Jaundice	3	13.63
Sepsis	3	13.63
Transient tachypnoea of newborn	1	4.54
Low birth weight	1	4.54
Asphyxia+ death	1	4.54
Hypoglycaemia	1	4.54

In the present study, premature rupture of membranes was the most common cause of referral (17.27%). This is followed by pre-eclampsia and related conditions (15.45%), and meconium stained liquor (9.09%). Previous caesarean sections were the cause of referral in 4.54% of cases. In the present study, 7.27% of cases were referred due to non availability of blood and doctors.

Table 6: Causes of referral

Parameter	N=110	Percentage
Preterm Labour	9	8.18
PROM	19	17.27
Pre-eclampsia and related condition	17	15.45
Cardiac disease	2	1.81
Crossed dates	6	5.45
Prev LSCS	5	4.54
Antepartum hemorrhage	6	5.45
Postpartum hemorrhage	5	4.54
MSAF	10	9.09
Malpresentation	3	2.73
Non availability of blood	4	3.64
Non availability of doctor	4	3.64
No details	4	3.64
Ectopic	1	0.9
Short stature	2	1.81
Anaemia	6	5.45
Fetal distress	7	6.36

Table 7: Most common period during which patients were referred

Period of pregnancy	No. of cases=110	%
Intrapartum	72	65.45
Antenatal	25	22.72
Postpartum	13	11.81

65.45%, 22.72%, 11.81% of the cases were referred to our hospital in their intrapartum, antepartum and postpartum period respectively.(table.7).In the present study, 99.10% were live births. In the present study 4.51% had birth asphyxia and 23.40% had NICU admissions. 36.36% of the NICU admissions were for preterm care, 18.18% for meconium aspiration syndrome, followed by 13.63% for neonatal jaundice.

Discussion

Labour is a physiological process, but it carries an inherent risk of complications. Obstetrical care in the western world is at its peak. But in developing countries it is still at docks due to illiteracy, male dominant society and untrained birth attendants. Majority of the population living in the rural areas do not have accessibility to the maternity centres and may develop life threatening complications during labour.¹⁶ The death of a woman in childbirth is a tragedy, an unnecessary and wasteful event that carries with it the huge burden of grief and

pain. Pregnancy is not a disease and pregnancy related morbidity and mortality are almost preventable. Identification of at-risk patients and obstetrics emergencies and timely referral is of immense importance.¹⁵ Morsheda Banu et al on assessing the overall age distribution found that the majority (74%) of the respondents were between 20-35 years.¹⁷ In the study conducted by Prakriti Goswami et al, the maximum number of patients were in the age group of 20-30 years (78%).¹⁵ In the present study maximum number of cases were in the age group of 20-30 years comprising 70(63.64%) of total cases. Gupta PR et al found 52.17% patients were primigravida¹⁸, Prakriti Goswami et al found 47% patients were primigravida¹⁵, Morsheda Banu et al had found that 50% of women were primigravida¹⁷, which is comparable to the 55% primigravida cases found in the present study. In this study 65.45%, 22.72%, 11.81% of the cases were referred to our hospital in their intrapartum, antepartum and postpartum period respectively. Similar results are found by Prakriti Goswami et al where 56%, 30% and 14% of cases were referred in intrapartum, antepartum, postpartum period respectively¹⁵ and also by Devinneni K et al in their "Study of spectrum of referral pattern at a tertiary teaching hospital toward better obstetric care".¹⁹ Out of the 94 cases who delivered at our institute majority of the babies were delivered 64(68.09%) delivered normally, while 30 (31.91%) underwent caesarean section. Similar results were obtained by Gupta PR et al where 69.48% of the patients underwent vaginal delivery and 22.75% of the patients had LSCS.¹⁸ The caesarean section rates in the present study was found to be similar to the study conducted by Goswami et al (28%).¹⁵ In the present study, it can be concluded that the rate of caesarean section is substantially high in referred cases. Patel HC et al in their study found that causes of referral were pre-eclampsia (16%) and meconium-stained liquor (5%).²⁰ Sabale et al in their study found that preeclampsia and related conditions were a major indication for referral (25.79%).²¹ Rathi Charu et al noted that a majority of the cases were referred for preeclampsia and related conditions (26%), preterm labour (26%) and medical disorders complicating pregnancy (21%).²² Premature rupture of membranes was the most common cause of referral (17.27%). This is followed by pre-eclampsia and related conditions (15.45%), and meconium stained liquor (9.09%). Previous caesarean sections were the cause of referral in 4.54% of cases in the present study which is similar to the study conducted by Goswami P et al (6%)¹⁵, Khatoon A et al (15%)²³ and Gupta PR et al (7.62%).¹⁸ The patients with previous caesarean section are referred to higher centres from PHC/CHC due to the unavailability of operation theatre, gynaecologist, anaesthesiologists, trained staff or basic infrastructure deficit.¹⁵ In the present study, 7.27% of cases were referred due to non-availability of blood and doctors; this can be compared to the study conducted by Goswami P et al where 16.87% of the cases were referred for the same reason. Government should take measures to improve health infrastructure facilities, make provisions for developing new blood banks and appoint trained gynaecologists in the peripheries to reduce the burden on tertiary centres.¹⁵ 8.18% of the total referred cases were managed conservatively and discharged. This rate is similar to the study conducted by Gupta PR et al (7.76%)¹⁸, Poornima M et al (11%)²⁴, Goswami P et al (24%).¹⁵ Here arises the concept of day care management of referral cases at tertiary care institute which might be helpful in reduction of burden of tertiary care institute.¹⁸ Khatoon A et al had in their study reported 87% live births, 13% still births, 26.5% preterm births.²³ Rathi Charu et al in her study found that 90% were live births and 9% were still births.²² Poornima M et al in her study reported 91% live births and 9% still births.²⁴ In the present study, 99.17% were live births. In the present study, 99.10% were live births. In the present study 4.51% had birth asphyxia and 23.40% had NICU admissions, which is comparable to the study conducted by Poornima M et al where 27% of the babies needed NICU admissions.²⁴ In the present study 36.36% of the NICU admissions were for preterm care, 18.18% for meconium aspiration syndrome, followed by 13.63% for neonatal jaundice. These results are similar to the findings found in the study conducted by Poornima

M et al where 47% of NICU admissions were for preterm care, 28% for respiratory distress.²⁴ The high rate of NICU admission is due to preterm delivery. The neonatal death rate is 4.51% which is similar to the neonatal death rate in study conducted by Poornima M et al (8%)²⁴, Sabale U et al (10.23%)²¹, Gupta PR et al (4.43%).¹⁸ In contrast to this, the study conducted by Rathi Charu et al had a neonatal mortality rate of 28.23%.²²

Conclusion

Childbirth is a normal physiologic process, but emergencies can arise anytime. The present study has shown that improper antenatal and intranatal care at the periphery level is responsible for poor maternal and perinatal outcome. Hypertensive disorders of pregnancy have been one of the commonest causes of referral among high risk obstetric patients which can be better dealt at the tertiary care centre. Health care workers should be provided with the checklist; also administration of a dose of magnesium sulphate must be done in all cases of eclampsia and severe pre-eclampsia prior to referral.

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