

Original research article

To study the spectrum of obstetric referral and their outcome: a prospective observational study at a tertiary care centre in Bihar**Dr. Sonali¹, Dr. Priyanka Raj², Dr. Geeta Sinha³****¹Junior Resident, Obstetrics and Gynaecology, Patna Medical College and Hospital, Patna, Bihar, India.****²Junior Resident, Obstetrics and Gynaecology, Patna Medical College and Hospital, Patna, Bihar, India.****³ Professor, Obstetrics and Gynaecology, Patna Medical College and Hospital, Patna, Bihar, India.****Corresponding Author: Dr. Priyanka Raj****Abstract**

Aim: To observe the spectrum of obstetric patients and fetomaternal outcome in a tertiary care centre in Bihar, India.

Materials and methods: A prospective study was conducted in the Department of Obstetrics and Gynaecology, Patna Medical College and Hospital, Patna, Bihar, India, from January 2016 to January 2017. unbooked patients who were referred from different districts of Bihar—their clinical profile, clinical course, mode of delivery, both maternal and perinatal outcomes were documented.

Results: A total of 120 cases were referred to this higher centre due to various reasons. Maximum number of cases in present study were in the age group of 20-30 years comprising 76(63.33%) of total cases. Majority of the referral cases were primigravida 61 (50.83%). Out of 120 referred cases, 100(83.33%) delivered, 12 (10%) were treated conservatively. In 8 patients (6.67%) either abortion occurred or medical termination of pregnancy was done or there was ectopic pregnancy or perineal tear who were managed accordingly. Out of the 100 cases who delivered at our institute majority of the babies 68(68%) delivered normally, while 32 (32%) underwent caesarean section. Out of 100 deliveries, there were 24 NICU admissions and 76 were healthy babies. Reasons for admission were varied. In the present study, hypertensive disorder of pregnancy was the most common cause of referral (17.5%).

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 primary healthcare 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 could be managed at the primary healthcare centre through regular ANC's and timely intervention.

Key words: referred obstetric cases, Perinatal outcome, neonatal outcome.

Introduction

About 22% of the population are constituted by women of child bearing age of 15-45 years in India. They are a vulnerable risk group due to pregnancy and child bearing. Pregnancy and child birth are physiological processes and a woman is the only person who can come across a number of health related problems when pregnant and it can also lead to death.^{1,2} All these deaths occur in the developing countries where integrated health care system are not well organised. Developing countries of Asia and Africa have the highest mortality rate i.e. 99% of total maternal mortality. The key factors contributing the adverse maternal and perinatal

outcomes are lack of trained birth attendants, lack of education, low status of women in society, poor families, financial dependency of women, and delay in seeking medical treatment.³ A study showed that 92% of maternal deaths are due to delay in referral and case management, first delay in making decision to seek care, 2nd delay is due to delay in identifying and reaching a medical facility, 3rd delay is due to delay in receiving adequate and prompt treatment even after reaching a care institution.^{4,5} Emergency obstetric transfers should be carried out effectively and efficiently to avoid maternal and foetal morbidity and mortality. An institutional 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 With this background present study was undertaken to evaluate the maternal and perinatal outcome in referred cases at our hospital during January 2016 to January 2017

Material and methods

A prospective study was conducted in the Department of obstetrics and gynaecology, Patna medical college and Hospital, Patna, Bihar, India, for 1 year jan 2016 to jan 2017, 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 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 NICU admission was needed the 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 120 cases were referred to the higher centre due to various reasons. Copy of all referral slips had been preserved.

Maximum number of cases in present study were in the age group of 20-30 years comprising 76(63.33%) of total cases.

Table 1: Age Distribution

Age years	N=120	%
Below 20	2	1.67
20-30	76	63.33
30-40	33	27.5
Above 40	9	7.5

Majority of the referral cases were primigravida 61 (50.83%).

Table 2: Parity-Wise Distribution

Parity	N=120	%
Primigravida	61	50.83
Multigravida	50	41.67
Grand multigravida	9	7.5

Out of 120 referred cases, 100(83.33%) delivered, 12 (10%) were treated conservatively. In 8 patients (6.67%) 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	%
Delivered	100	83.33
Abortion /ectopic	8	6.67
Conservative	12	10
Total	120	100

Out of the 100 cases who delivered at our institute majority of the babies- 68(68%) delivered normally, while 32 (32%) underwent caesarean section.

Table 4: Mode of Delivery.

Mode of Delivery	N=100	%
Normal Delivery	68	68
LSCS	32	32

Out of 100 deliveries, there were 24 NICU admissions and 76 were healthy babies. Reasons for admission were varied.

Table 5: Reasons for NICU Admission.

Reason for admission	No. of cases=24	%
Preterm care	10	41.67
Meconium aspiration syndrome	6	25
Jaundice	2	8.33
Sepsis	2	8.33
Transient tachypnoea of newborn	1	4.17
Low birth weight	1	4.17
Asphyxia+ death	1	4.17
Hypoglycaemia	1	4.17

In the present study hypertensive disorders in pregnancy was the most common cause of referral (17.5%). This is followed by PROM (15.83%), and meconium stained liquor (10%). Previous caesarean sections were the cause of referral in 4.17% of cases. In the present study, 6.67% of cases were referred due to non availability of blood and doctors.

Table 6: Causes of referral.

Parameter	N=120
Preterm Labour	10
Hypertensive disorders in pregnancy	21
PROM	19
Cardiac disease	2
Crossed dates	7
Prev LSCS	5
Antepartum hemorrhage	7
Postpartum hemorrhage	6
	12
Malpresentation	2
Non availability of blood	5
Non availability of doctor	3
No details	5
Ectopic	1
Short stature	2
Anaemia	7
Fetal distress	6

Table 7: Most common period during which patients were referred

Period of pregnancy	No. of cases=120	%
Intrapartum	77	64.17
Antenatal	28	23.33
Postpartum	15	12.5

64.17%, 23.33%, 12.5% of the cases were referred to our hospital in their intapartum, antepartum and postpartum period respectively.(table.7).In the present study, 99.17% were live births. In the present study 4.17% had birth asphyxia and 20% had NICU admissions. 41.67% of the NICU admissions were for preterm care, 25 for meconium aspiration syndrome, followed by 8.33% 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 76(63.33%) 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 50.83% primigravida cases found in the present study. 64.17%, 23.33%, 12.5% of the cases were referred to our hospital in their intapartum, 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 100 cases who delivered at our institute majority of the babies were delivered 68% delivered normally, while 32% 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 meconiumstained 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 In the present study hypertensive disorders in pregnancy was the most common cause of referral (17.5%). This is followed by PROM (15.83%), and meconium stained liquor (10%). Previous caesarean sections were the cause of referral in 4.17% 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 the unavailability of operation theatre, gynaecologist, anaesthesiologists, trained staff or basic infrastructure deficit.¹⁵ In the present study, 6.67% 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 10% 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 births²⁴. In the present study, 99.17% were live births. In the present study 4.17% had birth asphyxia and 20% 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 41.67% of the NICU admissions were for preterm care, 25 for meconium aspiration syndrome, followed by 8.33% 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 4.17% 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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