

PATTERN OF OBSTETRIC REFERRALS IN A TERTIARY HOSPITAL IN SOUTH KERALAHeera Shenoy T¹, Kitty Elizabeth Mammen²¹Assistant Professor, Department of Obstetrics and Gynaecology, Travancore Medical College, Kollam, Kerala.²Assistant Professor, Department of Obstetrics and Gynaecology, Travancore Medical College, Kollam, Kerala.**ABSTRACT****BACKGROUND**

Referral of high risk mother plays a pivotal role especially in developing country like India to reduce foetomaternal mortality. Timely and prompt obstetric referral is one of the effective strategies to avoid adverse pregnancy outcome. The objective of this study was to evaluate the obstetric referrals and their outcome in a tertiary care center in South Kerala.

Aims and objectives of the study are- 1) To review the primary reasons for obstetric referral and place of referral. 2) To evaluate the maternal morbidity, neonatal course and care during NICU stay and perinatal outcomes

MATERIALS AND METHODS

Design- A retrospective study setting: Travancore Medical College Hospital, a tertiary health care facility in South Kerala.

Subjects- 124 obstetrical referrals from nearby private and public health care settings over a period from June 2013 to February 2016.

Study Variables- Age, demographic data on income, source of referral, distance from the referred centre, reasons for referral, co-morbidities, gestational age, parity, neonatal outcome.

RESULTS

73.4% were in the age group 20 – 30 years with a mean age of 26 years. 82.3 % were in the rural set up. 48.3% were nullipara and 50% were multipara. Maternofoetal issues were the main reasons for obstetric referrals (58.1%). 103 referrals (83.1 %) were from Private sector. 64 were in-labour referrals. 48 Hours of delay was noted for emergency decision in 64.5% cases. 47.6% referrals were noted in the 33-36.6 weeks gestation. Previous caesarean in labour comprised 29 cases. Caesarean section was the mode of delivery in 83%. Anaemia was the most common medical disorder (34%) followed by hypertensive disorders of pregnancy (30.5%). Gestational diabetes mellitus was noted in 14.2% and hypothyroidism in 17.7%. There was 1 maternal death and 4 near miss mortality. 104 of 135 neonates were singletons and 31 (23%) were multiples. 96 neonates needed NICU admissions. 72% were preterm babies and 84% neonates survived.

CONCLUSION

Maternofoetal causes were the main reason for obstetric referrals. Maternal comorbidities like anaemia, hypertensive disorders, preterm labour, infections and foetal risk factors have to be diagnosed and referred at the earliest to a tertiary hospital to avert maternal and perinatal morbidities. This can ascertain better maternal and foetal health in a country like India.

KEYWORDS

Referrals, Obstetric, Maternal, Foetal, Perinatal, Morbidity.

HOW TO CITE THIS ARTICLE: Heera Shenoy T, Mammen KE. Pattern of obstetric referrals in a tertiary hospital in South Kerala. J. Evid. Based Med. Healthc. 2018; 5(29), 2180-2183. DOI: 10.18410/jebmh/2018/451

BACKGROUND

Identification of high risk cases as early as possible from antenatal mothers and timely referral to a centre with appropriate skilled care plays a pivotal role in the referral system in a developing country like India where majority of the population live in rural area lacking access to essential obstetric services, timely and prompt referral.¹ Intervention

of high risk obstetric cases can significantly reduce foetomaternal morbidity and mortality. Safe motherhood initiative acknowledges the fact of antenatal referrals by stating that a minimum of 15% of all pregnant women should deliver in obstetric referral facilities.² Referral institutions should provide a reasonable level of quality care. Well-established operational referral system is an essential component of health care system. Obstetric emergencies are most of the times life threatening both for the patient and her unborn. Prompt and appropriate care reflects the actual status of maternal health services in the region. Unmet obstetric needs can be better monitored if primary, secondary and tertiary levels of health care are linked through an established communication transport system. Even though state of Kerala has state of art health care, limited studies have been conducted to analyse referral patterns and morbidities in both mother and foetus.

Financial or Other, Competing Interest: None.

Submission 24-06-2018, Peer Review 01-07-2018,

Acceptance 14-07-2018, Published 16-07-2018.

Corresponding Author:

Dr. Heera Shenoy T,

Assistant Professor,

Department of Obstetrics and Gynaecology,

Travancore Medical College, Mylapore,

Kollam- 691589, Kerala.

E-mail: heerarprabhu@gmail.com

DOI: 10.18410/jebmh/2018/451



With this background, the present study was undertaken to evaluate the causes of obstetric referrals, the socio demographic patterns, the ante partum and intra partum variables, maternal and foetal outcomes in referred mothers and also to evaluate the near miss mortality cases.

Aims and Objectives

1. To review the primary reasons for obstetric referral and place of referral.
2. To evaluate the maternal morbidity, neonatal course and care during NICU stay and perinatal outcomes.

MATERIALS AND METHODS

A retrospective study was conducted at a tertiary care center in Kerala. The sample population consisted of 124 obstetric referrals of gestation 24 weeks or more. All booked cases and obstetric referrals of less than 24 weeks and 6 out referrals were excluded from the study. Study protocol was approved by the ethical committee. Sampling frame was the labour register maintained in the medical records section of our institution where in all the deliveries was entered. Using a pre-structured designed questionnaire, socio demographic details, medical co morbidities, place of referral, indications for referral were obtained. Patients referred while in labour were noted. Gestational age at referral and gestational age at delivery were analysed. Emergency and elective case referrals were sorted. Intra partum variables and surgical morbidities were evaluated. Need for ventilation and multi-disciplinary team work, neonatal survivors versus non-survivors, term versus preterm birth, weight of babies, need for NICU admission, period of NICU stay, management in NICU and neonatal morbidities were noted. Near misses were compared and maternal mortality was studied for preventive strategies. Data was analysed for descriptive statistics such as mean, standard deviation and percentages were computed using SPSS for Windows version 20.

RESULTS

Socio-demographic profile obstetric referrals, Mode of delivery, conditions associated with obstetric referrals is shown in table 1-4.

Variable	n=124	Percentage
Age (years)		
<20	8	6.5
20 – 30	91	73.4
>30	25	20.2
Parity		
Nulliparous	60	48.4
Multiparous	62	50.0
Grand multi	2	1.6
Education		
Primary	1	0.8
Secondary	6	4.8
Graduate	117	94.4
Domicile		
Rural	102	82.3
Urban	22	17.7

Type of Family		
Nuclear	7	5.8
Ext-Nuclear	85	68.5
Joint	32	25.7
Treated for Infertility		
Yes	20	16.1
No	104	73.9

Table 1. Socio-Demographic Profile

Variable	n=124	Percentage
Type of Referral Hospital		
Private	103	83.1
Government	21	16.9
Decision Taken		
Emergency	90	72.6
Elective	34	27.4
Period of Pregnancy when Referred		
Antepartum	60	48.3
Intrapartum	64	51.7
Distance Travelled in km		
<15	90	72.6
15-30	14	11.3
>30	20	16.1

Table 2. Characteristics of Obstetric Referral

Emergency obstetric referrals made up 72.6% and 83.1% were from the private sector.

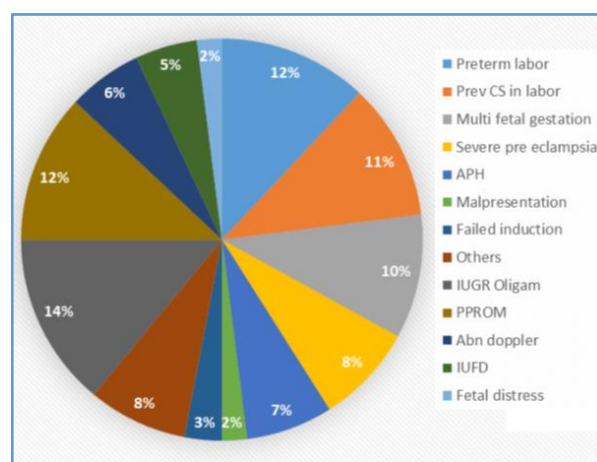


Figure 1. Reasons for Referral

Variable	Frequency (n=124)	Percentage
Caesarean Section		
LSCS	83	66.90
Classical CS	1	0.8
LSCS+ Sterilisation	18	15.51
Caesarean Hysterectomy	1	0.8
Vaginal Delivery		
preterm	9	7.2
Full term	4	3.2
Forceps Delivery	1	0.8
Breech	3	2.4
IUD Expulsion	4	3.2

Table 3. Mode of Delivery in the Obstetric Referrals

Condition	Frequency (n=70)	%
Need for Blood transfusion	10	14.28
Need for Magsulph regime	10	14.28
Puerperal fever	29	41.43
Urinary tract infections	8	11.43
Need for ventilation	7	10
Papilledema	2	2.86
Dialysis for renal failure	2	2.86
Pneumonia	1	1.43
Surgical site infection	1	1.43

Table 4. Conditions Associated with Referrals

Neonates	Frequency (n= 135)	Percentage
Babies		
Singleton	105	77.7
Twin	18	13.3
Triplets	12	9.0
Term/Preterm		
Term	37	27.4
Preterm	98	72.6

Table 5. Status of Neonates

There were 9 sets of twins and 4 sets of triplets in our study.

NICU Status	Number	Percentage
Admission (n=135)		
Yes	96	71.1
No	39	28.9
Management (n=96)		
Ventilator	66	68.7
CPAP	20	20.8
Phototherapy	10	10.5
Days of Stay (n=96)		
< 2 days	16	16.6
3 – 6 days	24	25.0
>6 days	56	58.4

Table 6. Management of Neonates

WHO Criteria of Near Misses	Primi - 33w	Primi - 32.3w	Primi - 34.3w	G2A1- 35.1w
Status Epilepticus	✓	✓	✓	✓
Severe Metabolic Acidosis	✓	✓	✓	✓
Intubation and ventilation not to anaesthesia	✓	✓	✓	✓
Coma > 12hrs	x	x	x	✓
Oliguria not responsive to fluid/diuretics	x	✓	x	✓
Shock	x	✓	✓	✓
RR>40	✓	✓	✓	x
Hypovolemia ≥ 5 units of PRBC	✓	✓	x	x
O2 saturation <90% for >60 min	✓	✓	✓	✓
Plasmapheresis for Renal Shutdown	x	✓	x	✓
Thrombocytopenia	x	✓	x	✓

Table 7. Maternal Near Misses Among Obstetric Referrals

DISCUSSION

In the present study of maternal referrals, 73.4% were in the age group of 20-30 years. Morsheda et al³ reported 74% in the age group 20-35 years. 82.3% were from the rural

area in our study, similar to the study by Vinayak et al⁴ wherein they had 80.5%; Wahane et al⁵ reported 77% from the rural set up. This high proportion of rural population may be due to delay in access to health care and lack of awareness and poor transport facilities. 117 (94.4%) were mothers who had Grade 12 or more education as compared to 98% graduates reported by Patel et al.⁶ Puri et al⁷ had 24.4% of referred cases compared to 7.3 % in our study. 48.38% were primigravida and 50% were of multigravida and 1.6% were grand multi, similar to the report of Bindal et al.⁸

70% travelled less than 15 kilometres to reach their high-risk antenatal care centre while 16.2 % had to travel more than 30 Km. Goswami et al⁹ reported that 64.75% travelled less than 50 kms. to reach hospital and 11.85% had to travel 150 Km or more to reach their centre. 80% of inter hospital transfers in Brunei¹⁰ were from the hospital which was half an hour from land transport. Intra partum referrals (n=64) and antepartum referrals (n= 60) were similar in our series. In labour referrals were 56% in the study by Goswami et al⁹ while 30% were antepartum referrals. Results were similar in the study by Devineni et al.¹¹ Private sector referrals comprised 83.1% and 16.9 %) were from Government sector. Of government referrals, majority were from District hospital which was 7 Km from the referred centre. Those referred from government setups were either in labour or required Emergency Obstetric Care or Level III Neonatal care. Major reasons were either maternal (62%) or foetal (38%). Common causes of maternal referrals included previous Caesarean in labour, preterm labour, severe preeclampsia, multi foetal gestation. Preterm premature rupture of membranes, foetal growth restriction, oligoamnios and abnormal doppler on Ultrasonography were the common foetal causes. 27.6% referrals were for hypertensive disorders and 34.5% were for preterm labour in the study by Agarwal et al.¹² There were 2 chronic HBV infections in our study similar to the one by Agarwal et al.¹² Four mothers who had severe preeclampsia / impending eclampsia and foetal growth restriction with Doppler abnormality were given Magsulph regimen and ended in Emergency Caesarean section. Emergency intervention was needed for severe preeclampsia, eclampsia, previous caesarean in labour, antepartum haemorrhage, preterm labour and higher order pregnancies remote from term. Agarwal et al,¹² reported 16 patients with eclampsia, a major preventable cause of maternal mortality. Foetal causes such as PPRM, IUGR, oligoamnios, prematurity, doppler abnormality had to be managed with emergency caesareans. Emergency Classical caesarean was done in a case of intestinal obstruction was due to an endometriotic band. 64.5% of our obstetric referrals received antenatal corticosteroid prophylaxis before emergency decisions.

Anaemia was prevalent in 38.7%. Rathi et al¹ reported anaemia in 46%. Hypertensive disorders of pregnancy was seen in 33.06%. Patel et al⁶ noted that one of the causes of referrals were pre-eclampsia (16%). Hypothyroidism was seen in 20.16% and 16.12% had diabetes complicating

pregnancy. Caesarean section accounted for 83% of referrals. Previous caesareans (obstetric historical risk) and high-risk obstetric referrals accounted for the bulk. Ambreen et al¹³ had 61% caesarean deliveries. Goswami et al⁹ had 43.5% caesarean deliveries.

A maternal death in a gravid 5 had overt diabetes and hypertension and previous two abortions and 2 caesarean section presented with rupture uterus and shock. Caesarean hysterectomy and five units of Packed RBCs were transfused and maternal death could not be averted. Goswami et al⁹ reported hypertensive disorders and their complications as a leading cause of maternal mortality.

There were 4 near misses which were due to severe pre-eclampsia and HELLP syndrome. Ten cases needed blood transfusion. 10 cases were given Magsulph regime for impending eclampsia /eclampsia /severe preeclampsia. There were 2 cases of Posterior Reversible Encephalopathy Syndrome. 7 mothers needed ventilator support not related to anaesthesia, there were 2 cases of papilledema and 2 patient needed plasmapheresis for acute renal failure. Shorter ICU stay was noted in 80% of private sector patients compared to 18% of Government referrals. 10 cases had prolonged stay in the hospital.¹⁴ Mean hospital stay in private sector referrals was 10.17 days and it was 7.62 days in government referrals. Goswami et al⁹ reported 8.02% needed obstetric ICU admissions. Shelat et al¹⁵ concluded that emergency obstetric referrals were exposed to highest risk of maternal and perinatal complications.

Neonatal Outcomes

104 (77%) singletons and 30 (22%) were multifetal gestation babies. Majority of babies of obstetric referrals were preterm (72%) while 28% were term. Survival rate of babies in our study was 84.5% due to the state-of-the-art Neonatal care facilities. 77.3% were low birth weight babies of less than 2500 g in contrast to 56% LBW babies in Rathi et al.¹ 51% were male babies and 48% female. 68% of our babies needed NICU admissions similar to the report of 62.3% by Rathi et al.¹ 68.6% of our NICU admissions were ventilated and this was 63% in the study.

CONCLUSION

Maternofoetal causes were the main reason for obstetric referrals. Maternal comorbidities like anaemia, hypertensive disorders, preterm labour, infections and foetal risk factors have to be diagnosed and referred at the earliest to a tertiary hospital to avert maternal and perinatal morbidities. This can ascertain better maternal and foetal health in a country like India.

REFERENCES

- [1] Rathi C, Gajria K, Soni N. Review of referred obstetric cases-maternal and perinatal outcome. *Bombay Hospital Journal* 2010;52(1):52-56.
- [2] Jahn A, de Brouwere V. Referral in pregnancy and childbirth: concepts and strategies. 2001. <http://www.jsieurope.org/safem/collect/safem/pdf/s2940e/s2940e.pdf>
- [3] Morsheda B, Shamsun N, Hashima EN. Assessing the MANOSHI referral system addressing delays in seeking emergency obstetric care in Dhaka's slums. MANOSHI working paper series Manoshi-WP10:1-36. Published by ICDDR, B, BRAC 2010: p. 10.
- [4] Vinayak NM, Panditrao SK, Ramkrishna MA. Critical study of referrals in obstetric emergencies. *J Obstet Gynaecol India* 2004;54:258-259.
- [5] Wahane AR, Koranna PS. An analysis of maternal deaths in a tertiary care centre. *Journal of Evolution of Medical and Dental Sciences* 2014;3(31):8646-8652.
- [6] Patel HC, Singh BB, Moitra M, et al. Obstetric referrals: scenario at a primary health centre in Gujarat. *Natl J Community Med* 2012;3(4):711-714.
- [7] Puri A, Yadav I, Jain N. Maternal mortality in an urban tertiary care hospital of North India. *J Obstet Gynaecol India* 2011;61:280-285.
- [8] Bindal J, Agrawal N, Sharma DC. Overview of referred obstetric patients and their outcome in tertiary care Hospital. *JMSCR* 2017;5(5):22485-22491.
- [9] Goswami D, Makhija A. A study of high risk obstetric referrals to a tertiary care hospital in Garhwal, Uttarakhand. *IJSR* 2015;4(10):1091-1093.
- [10] Ohn HT, Patrick DC, Zaw W, et al. Inter-hospital emergency obstetric referrals to the labour ward of RIPAS Hospital, Brunei Int Med J 2011;7(1):22-33.
- [11] Devineni K, Sodumu N. A study of spectrum of referral pattern at a tertiary teaching hospital towards better obstetric care. *IAIM* 2016;3(8):193-198.
- [12] Agarwal N, Singla R, Dhaliwal L, et al. Audit of emergency obstetric referrals - a pilot study from tertiary care centre of north India. *Bangladesh J Obstet Gynaecol* 2015;30(1):25-29.
- [13] Ambreen A, Khurshid S, Khurshid M, et al. Obstetric outcome of cases referred to a tertiary care hospital after trial of labour. *Annals* 2012;18(1):71-80.
- [14] Verma D, Thakur R, Mishra S, et al. Study of referred cases in obstetrics and gynaecological practice at a tertiary care hospital in central India. *IJOGR* 2016;3(2):140-142.
- [15] Shelat NR, Mehta AA, Jassawala MJ, et al. Emergency, referred, and late admission for delivery. *J Obstet Gynecol Ind* 1984;34:676-683.