Section: Obstetrics & Gynaecology

Original Research Article

A STUDY OF MATERNAL AND FETAL OUTCOME IN REFERRED OBSTETRIC CASES TO A TERTIARY CARE TEACHING HOSPITAL IN GARHWAL REGION OF UTTARAKHAND

Deepti Sharma[1], Chandra Madhur Sharma[2], Ankita Giri[3]

[1]*Assistant Professor, Department of Obstetrics & Gynaecology, VCSG Govt Medical College, Srinagar, Uttarakhand, India.*
[2]*Professor & Head, Department of Paediatrics, VCSG Govt Medical College, Srinagar, Uttarakhand, India.*
[3]*Assistant Professor, Department of Paediatrics, VCSG Govt Medical College, Srinagar, Uttarakhand, India.*

Received *: 18/09/2025*
Received in revised form *: 10/10/2025*
Accepted *: 15/10/2025*

Corresponding Author:
Dr. Deepti Sharma,
Assistant Professor, Department of Obstetrics & Gynaecology, VCSG Govt Medical College, Srinagar, Uttarakhand, India.
Email: drdeeptisharma04@gmail.com

DOI: 10.70034/ijmedph.2025.4.144

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2025; 15 (4); 806-809

ABSTRACT

Background: Serious complications can occur throughout the pregnancy during antenatal, intranatal and postnatal period. Majority of these complications are unpredictable and can occur anytime without any warning. Comprehensive medical services such as blood products transfusion, caesarean scetion, expert obstetrician team, paediatrician etc. are required to prevent these complications. Timely referral is most important to avoid maternal and neonatal morbidity as well as mortality. We aimed to study the pattern of referral in tertiary care centre and fetomaternal outcome in referred cases.

Materials and Methods: This is a retrospective observational study conducted in the department of obstetrics and gynaecology and NICU, at a tertiary care hospital of Garhwal region, Uttarakhand. Patients were referred from PHCs, CHCs, SDHs and district hospitals. All referred obstetrics emergencies of >24 weeks of gestational age in antenatal as well as intranatal period were studied.

Results: In the present study 46% cases were of 24-29 year of age, 37% cases were of 18-23 year of age group. Out of 1470 delivered cases, 39.52% delivered by caesarean section and 55.44% were delivered by normal vaginal delivery. Postpartal hemorrhage seen in 5.66% cases, septicaemia 1.0%, wound gaping in 4.33%, puerperal pyrexia in 3.5% of patients, maternal deaths reported 0.01%. 78% neonates were shifted to mother-side, whereas 17% were admitted to NICU.

Conclusions: In high risk obstetrics cases early referral is an important part of management. We can reduce the maternal and neonatal morbidity as well as mortality by providing good antenatal, natal & postnatal care, availability of blood products, early identification and timely referral of high-risk patients at higher centre and paediatrician at time of child birth.

Keywords: Referral emergencies, PPH, Feto-maternal outcome, high risk pregnancy.

INTRODUCTION

Serious life threatening complications can occur throughout the gestation and during delivery as well in pregnant women. Majority of these complications are unpredictable and can occur in any pregnant women. They cannot be predicted with routine clinical examination. Expert team of skilled obstetrician and Paediatrician along with facility of blood components, ICU facility, NICU facility, emergency drugs etc. are required for the prevention as well as management of these complications.[1] Obstetric complications (such as sepsis, eclampsia, obstructed labour, antepartum hemorrhage etc) are life threatening and cannot be predicted. Most of these complications can be managed with timely intervention with a team of expert obstetrician, paediatrician and intensivist along with tertiary care

facility.[2,3] All women should be attended in antenatal period. The purpose of antenatal visits is to identify high risk patients and timely management by experts. The aim of antenatal care is to achieve is a healthy mother and baby at the end of pregnancy.[4] Timely referral is crucial and life saving for both mother as well neonates. By the use of Emergency obstetric referral we can reduce maternal and fetal morbidity and mortality. Thus, referral system is an important component of health system.

Aim and objectives

To study the pattern of referral in tertiary care center and fetomaternal outcome in referred cases.

MATERIALS AND METHODS

This was a retrospective observational study. Retrospective analysis of records of one year period from July, 2024 to June, 2025 was conducted in the Department of Obstetrics and Gynaecology, VCSG Government Medical College, Srinagar, Uttarakhand, a tertiary care hospital. It receives referred patients from PHCs, CHCs, SDHs and District hospitals of Pauri and nearby districts. All referred antenatal and intra-natal patients of more than 24 weeks gestational age were included in this study. Gynaecological referrals and postpartum referrals were not included in the present study. A total of 1470 cases were referred and admitted in the study period. All data regarding patient's status, indication for referral, socio-demographic details, any medical comorbidities, gestational age, mode of delivery, neonatal outcome, birth weight, stay in NICU, maternal outcome were noted. Data was entered in computer-based spreadsheet. Categorical variables such as age-category, maternal outcome, neonatal outcome, are presented as proportion and were analysed using statistical software SPSS v20.

RESULTS

In the present study 37 percent cases were of age group 18-23 years, 46 percent 24-30 years age group and 17 percent in 30 years of age group respectively (table 1). In present study 30 percent cases were primigravida, 62 percent cases were multigravida (table 1). Previous caesarean section (30%) followed by anaemia (12%) were the two major cause of referral in the present study. About 5 percent cases had hypertensive disorder of pregnancy, 6 percent had obstructed labour and 5 percent were referred for Preterm labour (table 2). Out of 1470 cases, 32 percent were referred from district hospital, 32 percent referred from Sub district hospital, 23 percent from CHC and 10 percent cases were from PHC respectively (table 3). Out of 1470 delivered cases, 55 percent underwent normal vaginal delivery and 39 percent were delivered by caesarean section (table 4). PPH were seen 5.66% of cases, maternal deaths were reported in 0.001%, septicaemia in 1.0%, wound gaping in 4.33%, puerperal pyrexia in 3.5% of cases (fig 1). In our study 78 percent neonates were shifted to mother-side, whereas 17 % were admitted to NICU (table 5). Out of NICU admissions, 30 % babies had neonatal jaundice, 26 % had neonatal sepsis and 19 % had perinatal asphyxia (fig 2). A total of about 5% babies had born IUD.

Table 1: Socio demographic factors of referred cases

Total cases	**N = 1470**	**Percentage**
Age in years		
18-23	546	37.14
24-29	678	46.12
>30	246	16.73
Educational status		
Illiterate	134	9.11
Primary	456	31.02
Secondary	548	37.27
College and above	332	22.58
Gravidity		
Primigravida	450	30.61
Multigravida	910	61.91
Grand multigravida	110	7.48

Table 2: Cause of referral

Causes	**N**	**Percentage**
Previous CS	442	30.06
Anaemia	179	12.17
Obstructed labour	98	6.66
Hypertensive disorder in pregnancy	72	4.89
Non availability of blood	132	8.97
Preterm labour	76	5.17
PROM	58	3.94
Post-dated	86	5.85
Antepartum haemorrhage	72	4.89
MSAF	72	4.89
FHS not localised	32	2.17

Malpresentation	36	2.44
Oligohydramnios	58	3.94
CPD	57	3.87

Table 3: Location of refer

Location of refer	N	%
PHC	157	10.68
CHC	352	23.94
Sub district Hospital	478	32.51
District Hospital	483	32.86

Table 4: Mode of delivery

Mode	N	%
Normal Vaginal delivery	815	55.44
LSCS	581	39.52
VBAC	42	2.85
Instrumental delivery	32	2.17

Table 5: Neonatal Outcome

Outcome	N	%
Motherside	1146	78
NICU admission	249	16.93
IUD	75	5.10
Total	1470	100

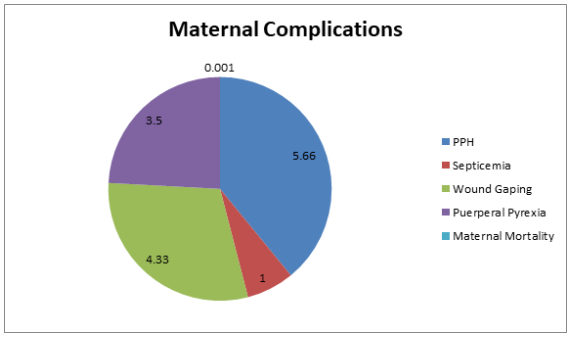

Figure 1: Maternal Complication

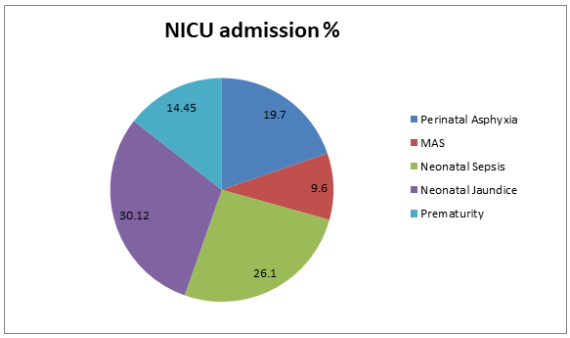

Figure 2: Causes of NICU admission

DISCUSSION

HNB base hospital is a tertiary care teaching hospital attached to VCSG Government Medical College, Srinagar, Uttarakhand, where complicated cases of obstetrics and gynecology are referred from PHC, CHC, SDH and district hospitals of surrounding districts. This institute caters to a total area of about 200 kilometres. In hilly areas of Garhwal region this is the biggest referral centre. The world health organization estimates that at least 88 - 98% of maternal deaths can be prevented with timely access to existing referrals systems. Timeliness and appropriateness of referral are a challenge to obstetricians since the delay in referral affects the maternal and fetal outcome adversely.[5]

In the present study maximum number of cases (46%) were from age group 24-29 years while Morsheda Banu et al reported majority of cases were between age group 20-35 years.[6]

In the present study 30% cases were primigravida, 61% of patients cases multigravida. In the study by Gupta PR et al, they reported 52.17% were primigravida.[7] Previous caesarean section (30%) followed by anemia (12%) were the major cause of referral to our hospital, 9% cases were referred in view of non availability of blood products in the present study. In the study by Prakriti et al found that Anaemia (27.86%), Hypertensive disorder of pregnancy (17%) and 6% referred due to previous caesarean section while Patel et al found that cause of referral was preeclampsia (16%).[8,9] In the present study most common reason of referral was previous caesarean section because in the Garhwal region our hospital is the biggest referral centre and maximum cases were referred from PHC, CHC and sub district and district hospital because of lack of team of expert obstetrician, paediatrician, ICU and NICU services at those centres.

In current study 55.44% cases were delivered by normal vaginal delivery and 39.52% were by caesarean section. Similar finding reported by Goswami et al 154 cases referred to tertiary care hospital, 67 (43%) patients needed surgical intervention. In study by Sorbye et al found that 55% needed caesarean section.[11,12] In our study 78% neonates were shifted to mother side, whereas 17% were admitted to NICU and 5% were IUD. Our findings were similar to the study by Latika et al they reported 15.74% of neonates were admitted to NICU.[13]

In the present study most common cause of NICU admission was neonatal jaundice 30% followed by neonatal sepsis 26 % and perinatal asphyxia 19%.

CONCLUSION

Maximum cases in our study referred from PHC, CHC, SDH and district hospital, so Peripheral health care system needs to be strengthened and early identification and timely referral of high-risk patients can reduce feto-maternal mortality and morbidity. Feto-maternal morbidity and mortality can be reduced by providing good antenatal care, availability of blood products, well organized referral centre, timely identification and referral of high risk patients, pediactrician/ skilled birth attendants at time of child birth.

REFERENCES

1. Prakash G, Meena P, Meena S, Bariya S. Study of feto-maternal outcome in referred obstetric cases in tertiary care center in Rajasthan: a cross sectional study. Int J Reprod Contracept Obstet Gynecol2022;11:1952-5.
2. Brun JL, Billeaud C, Elleav C, Guyon F, Roux D, Dallay D, et al. Maternal transport to the bardeaux university hospital: a retrospective study of 263 cases (1996-1998). J Gynecol Obstet Boil Reprod. 2009;29(14):414-22.
3. Swain S, Prakash A. utilisation of referral services by high-risk pregnant population in rural Varanasi. Indian J Matern Child Health. 1992;3(3):74-6.
4. Sabale U, Patanker AM. A Study of maternal and perinatal outcome in Referred Obstetrics cases. J Evol Med Dent Sci. 2015;4(26):4448-55.
5. The mother-baby package: WHO's guide to saving women's and infants' lives. Safe Mother. 1994;15:4-7.
6. 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.2010:10.
7. Gupta PR, Choudhary SN, Gonnade NV. Maternal and fetal outcome in referred patients of tertiary care center. Sch J App Med Sci. 2016:4(5c):1624-63.
8. Goswami P, Bindal J, Chug N. To study pattern of obstetric cases referred at tertiary care center in central India. Int J Reprod Contracept Obstet Gynecol. 2017;6(6):2370-4.
9. Patel HC, Singh BB, Moitra M, Kantharia SL: Obstetric referrals scenario at a primary health center in Gujarat. Natl J Community Med. 2012;3(4):711-4
10. Sakhare AP, Thakare P. Outcome of caesarean delivery in rural obstetric referrals, 51 conference. AICOG. 2008.
11. Goswami D, Makhija A. A study of high-risk obstetric referrals to tertiary care hospital in Garhwal, Uttarakhand. IJSR. 2015;4(10):1091-5.
12. Sorbye IK, Vangen S, Oneko O, Sundby J, Bergsjo P. Pregnancy and childbirth caesarean section among referred and self-referred birthing women: a cohort study from a tertiary hospital, north eastern Tanzania. BMC. 2011;11(55):1-10.
13. Nanda LS, Sirohiwal D, Singhal RS, Chauhan M, Sarika A. To study the pattern of maternal and perinatal outcome of referred obstetrics cases in a tertiary care hospital of Northern India. Int J Clin Obstet Gynecol. 2020;4(5):216-9.