Original Article

J Nepal Health Res Counc 2025 April-June; 23 (67): 282-287

Outcome of Referred Obstetric Patients in Paropakar Maternity and Womens Hospital

Pritee Yadav,[1] Sashi Silwal,[2] Prashant Sagar Yadav[3]

[1]Paropakar Maternity and Womens Hospital, Kathmandu, Nepal, [2]Nepal Health Research Council, Kathmandu, Nepal, [3]Universal College of Medical Sciences, Bhairahawa, Nepal.

ABSTRACT

Background: Lack of a structured referral system is a challenging hurdle in developing countries like Nepal that delays in management. Identification causes of delays and their timely management is of immense importance. The study aimed to assess the maternal and fetal outcome of referred-in obstetric patients and to identify various maternal determinants of referrals inParopakar Maternity and Women's Hospital.

Methods: A prospective study was conducted during 3 months duration from May to June 2021 among undelivered obstetric cases who were referred to Paropakar Maternity and Women's Hospital. Study excluded self-referrals, without referral slips and postpartum patients. Maternal determinants, mode of management, maternal and fetal outcomes were noted.

Results: Out of 47 cases enrolled, most common diagnosis of referral was hypertensive disorder accounting for 19.14% followed by intrauterine growth restriction comprising 10.6%. Of total, 55.3% of referred patients were from the district hospitals. Ambulances rescued 78.7% of cases and 10.6% were rescued by helicopter. About 12.7% of the referred cases required intensive care management. Live birth were 86.3%, still birth 4.5% and 9.1% of Intrauterine Fetal Death.

Conclusions: Among the varied high risk cases, most common diagnosis at the time of referral was hypertensive disorders followed by cases requiring critical care and surgical management. This highlights need and scope of strengthening emergency obstetric care centres and early identification and treatment of high risk cases antenatally at every level of health centres.

Keywords: High Risks; obstetrics; referrals.

INTRODUCTION

The referral system involves 3-tier health care delivery system that ensures access to emergency obstetric care from primary to secondary or tertiary centers.[1] Timely and appropriate referral are the key factors in preventing maternal death and disability of a woman.[2] With an aim to address Three D's including - delay in decision to seek care, reaching care and receiving care, Nepal adopted National Safe Motherhood Programme in 1998 which involves interventions like training skilled birth attendants (SBAs) and birthing facilities, free maternity care, monetary incentive schemes for antenatal care (ANC) visits and delivery at a health facility ,birth preparedness and complication readiness programme.[3,4] Emergency obstetric care still remains a concern in rural areas.

Paropakar Maternity and Women's Hospital (PMWH) has been managing complicated obstetric cases referred from across Nepal.This study aimed to analyze patterns of obstetric referrals, focusing on maternal and fetal outcomes and identifying maternal determinants of referral.

METHODS

This was an observational study conducted at Paropakar Maternity and Women's Hospital, Thapathali, Kathmandu. Study duration was of three months conducted from May to July 2021 using a questionnaire in pre-designed proforma. All undelivered obstetric cases referred to and admitted in Paropakar Maternity and Women's Hospital through other centres of the country were included. Post-partum patients and self-referrals were excluded. Sample size was calculated using $n = z^2pq / d^2$; With reference to the study by Maskey et al in 'Obstetric Referrals to a Tertiary Teaching Hospital

Correspondence: Dr Pritee Yadav, Paropakar Maternity and Womens Hospital.
Email: cutepritee99@gmail.com, Phone: +9779841632875.

of Nepal' conducted at Tribhuvan University Teaching Hospital (TUTH) in the year September 2012, which has the similar population as actual population at our setting.[5] After considering 20% of drop outs, the sample size is 47 for this study.

Total 47 cases were admitted within 3 months of time frame. Detailed history in pre-designed proforma were taken. Management of the patient and mode of deliveries were noted. Patients have been followed till discharge. Still birth or live birth, intrauterine fetal death or any neonatal admission were noted. Any patient who had been discharged without being delivered was noted, lost to follow up, refusal to give consent or have left against medical advice or self- referred were excluded from the study. The obtained data have been encoded by Inpatient number instead oclient's name and the collected proforma will be accessed only to the researcher in order to maintain privacy policy.

For the statistical analysis, we employed software such as SPSS (Statistical Package for the Social Sciences). The data were subjected to appropriate statistical tests based on the nature of the variables. Continuous variables are presented as mean ± standard deviation, while categorical variables are reported as numbers and percentages.

Ethical approval was obtained from the Institutional Review Board of National Academy of Medical Sciences (IRB, NAMS) with reference number 1033/2077/78 and informed written consent was obtained from every participants.

RESULTS

Table 1. Characterstics of Participants.

Characterstics	Frequency(n=47)	Percent%
Age		
16-20	7	14.8
21-25	14	29.8
26-30	18	38.2
30-35	2	4.2
35 above	6	12.7
Total	47	100
Parity		
Primigravida	20	42.5
Multigravida	24	51.1
Grand multigravida	3	6.4
Total	47	100

There were total of 47 obstetric cases referred to our centre in 3 months, 2021. The mean age of the patients was 26.68years while age ranged from 15years to 42years. Among the referred cases, 24(51.1%) were multigravida, 20(42.5%) were primigravida and 3(6.4%) were grand multigravida.

Table 2. Distribution according to the level of health centres.

Referred from	Frequency (n=47)	Percent%
Health post	5	10.6
Primary health center	10	21.2
District hospital	26	55.3
Medical college	1	2.1
Private hospital	5	10.6
Total	47	100

Above illustrated table showed most commonly cases were referred from district hospitals accounting 26 (55.3%), followed by Primary health centres accounting 10cases (21.2%),5 (10.6%) from Health posts and private hospitals and 1 (2.1%)was referred from medical college

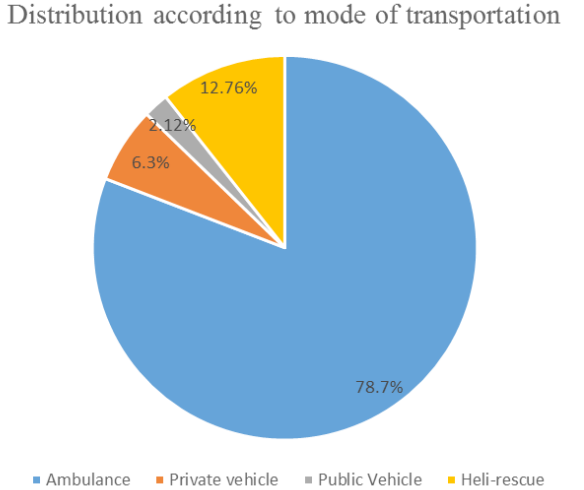

Figure 1. Distribution according to mode of transportation

Ambulances provided service for 78.7% cases via the respective centres, 6(12.76%)were rescued by helicopter, 3 (6.3%)used private vehicle and 1(2.12%) managed with public mode of transport.Majority of cases, 26(55.3%) were referred from district hospital followed by 10 (21.2%) from Primary health care centre and 1 (2.1%) from Medical colleges accounting 2.1%.

Table 3. Causes of referral.		
Causes of referral	**Frequency(n=47)**	**Percent%**
Intrauterine growth restriction	5	10.6
MICU Unavailable for Severe Preeclampisa	1	2.1
Preterm labor	2	4.2
Antepartum hemorrhage	1	2.1
Cephalopelvic disproportion	4	8.5
Failed spinal anesthesia	1	2.1
Fetal distress	2	4.2
Hepatitis positive status	1	2.1
Hypertensive disorders	9	19.14
Intrauterine fetal death with Failed induction of labor	1	2.1
Malpresentation	1	2.1
COVID	2	4.2
NICU Unavailable	4	8.5
Non-progress of labor	4	8.5
Obstructed labor	2	4.2
Unavailability of operation theatre	1	2.1
Postdated pregnancy	1	2.1
Prolonged labor	1	2.1
Severe oligohydramnios, with need of NICU	1	2.1
Twins with Co-morbidity	3	6.3

The above table illustrated most common diagnosis for referral was hypertensive disorder in pregnancy accounted for 9 cases (19.14%) followed by 5 (10.6%) of Intrauterine growth restriction , then 4 (8.5%)each accounted for Cephalopelvic disproportion, Non progress of labor and unavailability of NICU followed by 3 cases (6.3%) for Twin pregnancy with co-morbidity followed by 2 each (4.2%) for Preterm labor, COVID positive status, fetal distress and obstructed labor and least number of cases 1(2.1%) in number for unavailability of ICU, failed anesthesia, Antepartum hemorrhage, Intrauterine Fetal death with failed induction of labor, malpresentation, unavailability of operation theatre, postdated pregnancy, prolonged labor ,Seropositive status(HbsAg positive) and severe oligohydramnios accounted each with 2.1%.

Table 4. Maternal and perinatal outcome of referred cases.			
Maternal and Perinatal outcome		**Delivered frequency (n=44)**	**Undelivered frequency(n=3)**
Maternal outcome	Caesarean	29(65.9%)	3
	Normal delivery	13(29.54%)	-
	Instrumental delivery	2(4.54%)	-
	Total	44 (93.6%)	3 (6.38%)
Pregnancy outcome	Live birth	38 (86.36%)	3
	Still birth	2 (4.54%)	-
	IUFD	4 (9.09%)	-
	Total	44 (93.6%)	3 (6.38%)
Maternal ICU	Admitted	6(12.76%)	-
	Not admitted	41(87.23%)	-
	Total	47	-
Blood transfusion	No	37(78.72%)	-
	Yes	10(21.27%)	-
	Total	47	-

Among 47cases, 44 (93.6%) have delivered of which 29 (65.9%) had underwent Caeserean section, 13 (29.54%) had normal vaginal delivery and 2 (4.2%) had instrumental delivery of which 1 case underwent vacuum and 1 had forceps delivery. Among all, 10 cases accounting 21.2% required blood and blood products transfusion as a consequence of postpartum hemorrhage.

DISCUSSION

Maternal age is a key determinant of choice of delivery facility among pregnant women. The mean age of the patients was 26.68 years while age ranged from 15 years to 42 years. The maximum number of cases accounting to 66.7% were from age group 21-30 years ,which is comparable with the study conducted by Gupta et al [6] where maximum numbers of cases were in the age group 20-30 years comprising 86.98% of total cases.

In the study by Bindal et al[7] found 50% of referred cases were multigravida, 40.7% were primigravida and 9.3% were grand-multigravida which is comparable to our study where 51.1% of them were multigravida, 42.5% were primigravida and 3 cases accounting 6.4% were grand multipara.

Among the 7 provinces of our country, referred cases were from 3 provinces. Referred cases accounting 93.6% of the total cases were from province 3(Bagmati) ,2.1% was from province 2 (Madhesh) and 4.2% cases were from province 1 (Koshi). This demographic variations couldn't be compared to other studies as it is specific according to the country. As most of the cases were referred from Province 3 where our hospital is situated shows that the centre has been the major referral centre for obstetric cases. Strengthening district hospital or establishing Federal level hospital would be beneficial for the patients seeking service at Primary Health Care full level.

Education influences choice of the delivery facility by pregnant women. The pregnant women who were less educated contributed to those who ended up not delivering at a health facility. In our study, majority of the cases were illiterate accounting 42.5%. This data is closely resembling to the study done by Rekha Jakhar and Ankita Choudhary,[7,8] which showed 47.4% of cases were illiterate.

This indicates the need of advocating education in female regarding maternal health services, high risk pregnancy screening, promoting institutional deliveries to enhance timely health care seeking attitude and behavior.

Among the various level of health facilities, 26 (55.3%) were referred from district hospitals, 10(21.2%) were from Primary health centres ,5 (10.6%) each from Health posts and private hospitals and 1(2.1%) was referred from Medical College. Majority of the cases were referred from government hospitals that is above 90%, contrary to the Maskey[5] reported 42.86% were referred from government hospitals.

The most common indication at the time of referral from district hospital were abnormal labor accounting 26.9% followed by 23.07% of hypertensive disorder and 19.23% were referred due to lack of various OT facilities, unavailability of Neonatal Intensive Care Unit (NICU) and Maternal Intensive Care Unit (MICU)facilities. Referrals were due to health personnel and facilities to conduct caesarean section, MICU/NICU facility and blood bank services availability issues. Despite various strategies like Comprehensive and Basic Obstetric care services, Aama surakshya programme carried out by the government as a plan to strengthen the Safe Motherhood programme even at primary level of health centres like District Hospitals still study shows inability to provide care and increasing referrals.

Transport from home to the delivery facility of choice plays an important role in safe motherhood initiatives. Jyotsana et al[9] in her study reported 75% of the referred cases had utilized vehicles from referral facility and 25% used private vehicle which is comparable with our study where 37 (78.7%) were referred by ambulances provided by the respective centres, 6(12.76%)were rescued by helicopter , 3 (6.3%) used private vehicle and 1 (2.12%) managed with public mode of transport.

Development of the Nepal Ambulance Service was established in Nepal in 2011; with a mission 'to provide rapid ambulance transport to hospitals along with life-saving medical care by trained emergency medical technician for sick and injured people regardless of ability to pay in 2011'.[10] This study shows the increasing utilization and availability of ambulance services; accounting 78.7% of the total referred in cases.

Since 2018, the provincial government has launched a helicopter rescue program for pregnant women in 48 remote districts without road access. This initiative, along with improved transportation options at government helath centers, has significantly enhanced referral case transportation.

Most common diagnosis for referral was hypertensive disorder in pregnancy accounted for 19.14%, consistent with the study conducted by the Maskey et al[5] where it was reported 16%. Similar result was reported by Ohn et al[11] in which Gestational hypertension was most common indication for referral accounting to 18.5%. Similarly in the study, by Kumari et. al[12], the major reason for transferring patient was hypertensive disorders of pregnancy (16.7%). Hypertensive disorders were also found to be major contributor for referral in other studies.

Routine antenatal service delivery emphasizes that pregnant women are made aware of obstetric danger signs so that they are able to recognize when they need to return to the health facility for urgent attention. General obstetric danger signs like swollen hands, face and feet, blurred vision, per vaginal bleeding and discharge, convulsions, premature rupture of the membranes and decreased fetal movement .[13] This shows proper antenatal care at a health facility is required to pick up high risk cases especially early identification and treatment of hypertension during pregnancy can improve maternal and fetal outcome.

Intensive care management was required in 6 (12.7 %) cases in the present study, of which 3 were managed without ventilator and 3 cases with ventilator. Similarly in a study by S Maskey[5], 18.75% of cases required intensive care management. However, in a study done by Sabale[14] ,only 0.79% patients required intensive care. Probable explanation could be the 6 (12.7%) cases arrived at a critical state.

In the present study, 10 (21.2%) required blood and blood products transfusion as a consequence of postpartum hemorrhage. This is comparable to the study done by Sabale et al [14]that reported 31.84% of referred cases had required blood transfusion. Similarly, Maskey[5] showed 25.89% required blood transfusion. Higher incidence of postpartum hemorrhage might be the cause behind the need of blood transfusion like in present study. However, only 2.2% of the patients required transfusion in a study done by Ohn et al.[11]

Among the 47cases, 7 landed up requiring surgical management of which 3 cases underwent exploration followed by Manual removal of placenta for retained placenta, 1 case was explored along with cervical tear was repaired and 1 case was explored for primary postpartum hemorrhage. Resuturing was done for 1 case surgical site infection and bilateral vaginal wall tear was repaired under anesthesia for 1case.

In the present study, 43 cases had delivered and eventually discharged, 3 were discharged undelivered and 1 was referred out for further management after obstetric management for the diagnosis of Schizophrenia. Among 47cases, 44 (93.6%) had delivered of which 29 (65.9%) had underwent Caesarean section, 13 (29.5%) had normal vaginal delivery and 4.2% had instrumental delivery of which 1 case underwent vacuum and 1 case had forceps delivery.

Among the 29 cases who underwent Caesarean section,10 (34.48%) were for indication of abnormal labor, 8 (27.58%) for hypertensive disorder (features suggestive of impending eclampsia), 5 (17.24%) for fetal distress, 2(6.8%) each for previous caesarean section and mal-presentation- both breech , and 1 (3.4%) each for antepartum hemorrhage and advanced maternal age. Abnormal labor was the most common indication for Caesarean section followed by complicated hypertensive disorders.

In a study by obi et.alS.N.OBI[15] showed 37.5% cases delivered via caesarean section and 2.3% similar to the present study had instrumental delivery. In contrast, study conducted by Vaishali Jain[16] showed 43.5% of vaginal delivery and 33.6% underwent caesarean section. This shows need of strengthening operative facility at primary and district level to reduce the number of referrals.

Among the delivered cases, 38 (86.3%)were live birth, 2 (4.5%) were still birth and 4 (9.1%) were Intrauterine fetal death. Among the 38 delivered live babies, 13 cases were admitted in neonatal unit of which 4 were preterm babues,2 were discordant twins, 1cases each of Covid positive status, small for gestational age under observation, Intrauterine growth restriction, neonatal jaundice, respiratory distress syndrome, neonatal sepsis and respiratory distress syndrome. This shows need of neonatal intensive care unit at primary and district level hospitals.

The limitations of the study includes small sample size limiting generalizability. A larger sample or longer duration at Paropakar Maternity and Women's Hospital could enhance impact. This serves as an insight for a broader study.

CONCLUSIONS

Lack of trained birth attendants, women's education and delaying seeking medical treatment were contributing factors. Timely and appropriate referrals is crucial

factor in the ultimate outcome of the patients linking the primary, secondary and tertiary levels of care is and essential element of primary health care. Hypertensive disorders was main cause for referral. Early high-risk identification and treatment, prompt referrals is vital for success of any maternal health. Accessible emergency obstetric services can save lives. It is essential to educate all healthcare workers for early treatment and timely referrals . Therefore, it is imperative to impart the knowledge and skills for early treatment to all the health functionaries of the state.

ACKNOWLEDGEMENTS

We would like to express my special thanks of gratitude to my respected teachers, my guide and co-guide for their enduring grace and guidance. We would like to thank all our helpful and kind patients.

CONFLICT OF INTEREST

None.

REFERENCES

1. Goswami D, Makhija A. A study of high risk obstretic referrals to tertiary care hospital in Garhwal, Uttarakhand. IJSR. 2015;4(10):1091-3. doi: 10.4103/jfmpc.jfmpc_402_19
2. Park K. Text book of preventive and social medicine, Fourth edition, M/S Banarasidas Bhanol Publisher, 1168, Prem Nagar, Jabalpur, India, 1994.
3. Rath AD, Basnett I, Cole M, Subedi HN, Thomas D, Murray SF. Improving emergency obstetric care in a context of very high maternal mortality: the Nepal Safer Motherhood Project 1997–2004. Reproductive Health Matters.2007;15(30):72-80.doi:10.1016/S0968-8080(07)30329-7
4. Brun J, Billeaud C, Elleau C, Guyon F, Roux D, Dallay D, et al. Maternal transport to the Bordeaux University Hospital: a retrospective study of 263 cases (1996-1998). Journal de Gynecologie, Obstetrique et Biologie de la Reproduction. 2000;29(4):414-22. [PMID: 10844330]
5. Maskey S. Obstetric referrals to a tertiary teaching hospital of Nepal. Nepal Journal of Obstetrics and Gynaecology. 2015;10(1):52-6. doi:10.3126/njog.v10i1.13197
6. Gupta P, Chaudhari S, Gonnade N. Maternal and fetal outcome in referred patients to tertiary care center. Sch J App Med Sci. 2016;4(5C):1624-63. [Google Scholar]
7. Bindal J, Agrawal N, Sharma DC. Overview of referred obstetric patients and their outcome in tertiary care Hospital. JMSCR. 2017;5(5):22485-91. doi: https://dx.doi.org/10.18535/jmscr/v5i5.196
8. Jakhar R, Choudhary A. Study of maternal outcome in referral obstetric cases in a tertiary care centre. Journal of Family Medicine and Primary Care. 2019;8(9):2814. doi: 10.4103/jfmpc.jfmpc_402_19
9. Kapadia LD, Vohra H. Study of maternal and perinatal outcome of referred patients in tertiary health centre. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2017;6(12):5363-8. doi: http://dx.doi.org/10.18203/2320-1770.ijrcog20175243
10. Walker R, Auerbach PS, Kelley BV, Gongal R, Amsalem D, Mahadevan S. Implementing an emergency medical services system in Kathmandu, Nepal: a model for “white coat diplomacy”. Wilderness & Environmental Medicine. 2014;25(3):311-8. doi: 10.1016/j.wem.2014.04.006.
11. Htwe O, Coates PD, Wint Z, Krasu M, Khin HY, Bidin H. Inter-hospital emergency obstetric referrals to the labour ward of RIPAS Hospital. Brunei International Medical Journal. 2011;7(1):22-33. [Article]
12. Kumari A, Mitra S, Aditya V. Spectrum of obstetric referral and their outcome at a Tertiary Care Center of Eastern Uttar Pradesh: An insight. Asian Journal of Medical Sciences. 2022;13(4):123-8. doi: https://doi.org/10.3126/ajms.v13i4.43375
13. Maseresha N, Woldemichael K, Dube L. Knowledge of obstetric danger signs and associated factors among pregnant women in Erer district, Somali region, Ethiopia. BMC women's health. 2016;16(1):1-8. doi: **10.1186/s12905-016-0309-3**
14. Sabale U, Patankar AM. Study of maternal and perinatal outcome in referred obstetrics cases. Journal of Evolution of Medical and Dental Sciences.2015;4(26):4448-56. doi:10.14260/jemds/2015/643
15. Obi S, Ozumba B, Okaro J. Emergency obstetric referrals at a university teaching hospital, Nigeria. East African medical journal. 2001;78(5):262-4. doi: 10.4314/eamj.v78i5.9051
16. Jain V, Jain S. A study on referred obstetric cases in a tertiary care hospital in central India. Heart disease.11:0.5. doi: https://doi.org/10.33545/gynae.2020.v4.i6b.740