Original Article

Overview of Referred Obstetric Cases with Their Outcome in Rangpur Medical College and Hospital

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Abstract

Background:
Maternal morbidity and mortality remain a major challenge in the health sector worldwide, referral services for the management of high-risk obstetric cases are an integral part of maternal and perinatal health services. The maternal mortality rate in Bangladesh is high. An effective emergency obstetric strategy has been identified as a priority-based to reduce maternal and perinatal deaths. Since the capacity at different levels of public health facilities to provide EmOC (emergency obstetric care) is varied, an effective timely referral system is crucial. However, few studies have evaluated the functional status and quality of the referral system in Bangladesh.

Objectives:
To evaluate the primary causes, their referral pattern, clinical course and management strategy of referred patients, and the maternal and perinatal outcomes.

Methods:
The present study was a prospective observational study on referred obstetric cases conducted in the department of Obstetrics and Gynecology of Rangpur medical college & hospital during the period January 2021-June 2021.

Results:
Out of, 2842 admitted patients, referred cases were 1719(60.4%). The majority of cases were in the age group of 20-30 years (82%), multigravida (55.8%), and had no antenatal care (74.1%). History of previous Caesarion section (16.8%), postpartum (15.5%), antepartum (5.06%) hemorrhage, and eclampsia (12.1%) were the major cause of referral. Among the referred patients, vaginal delivery had 51.7%, caesarian section 37.9%, and 30.4% were conservatively managed. 26(1.5%) patients died mostly due to hypertensive (30.7%) and hemorrhagic disorders (46.1%). 440(26.39%) babies required NICU support, preterm, IUFD, and stillbirth were 14.1%, 5.05%, and 4.07% respectively.

Conclusion: The peripheral health care system needs to be strengthened and the practice of early referral to high-risk cases needs to be implemented for a better outcomes.

Keywords: Referral obstetric case, Maternal outcome, Perinatal outcome

Introduction:

A referred system offers women some degree of Health Care at every level of the healthcare system, while linking the different levels through an established communication transport system.[1] For providing access to essential obstetric care, the referral system, is an essential component of any health system which is important in pregnancy and childbirth.[2] Prevention of maternal mortality network study has proposed a three delays model

for referrals in obstetric and gynecological emergencies.[3] Although most obstetric complications (defined as acute conditions such as postpartum hemorrhage, sepsis, eclampsia, and obstructed labour) 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).[4-6] 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.[7,8] It is still recommended to electively refer the pregnant women with previous caesarean section, breech presentation, transverse lie, multiple gestations, hypertension, and severe anaemia for delivery before any complication arises to a health care center where all facilities to deal with the complications are available.[9]

In Bangladesh, health care facility is provided at six levels with the ward level at the bottom and the national level at the apex.[10]

Rangpur medical college hospital is a teaching hospital and national tertiary referral institution located in the Centre of the Rangpur division. The main responsibility of this hospital is to provide tertiary medical services for the whole country. Local care includes secondary care for patients referred from any public or private health unit. According to the WHO maternal health and safe motherhood program, estimated obstetric references account for more than 20% of pregnancy-related morbidity.[11] One estimate shows that with one maternal death, 15% of pregnancies develop complications which necessities tertiary obstetric care.[12] With this background, present study was undertaken to examine the current nature of referrals, to evaluate the major cause of referral, incidence of obstetric referrals in Rangpur medical college and hospital, and maternal and fetal outcomes among the referred patient.

Methods:

The present study was a prospective study. We reviewed those obstetric cases who were referred from various centers during the covid-19 situation from January 2021 to June 2021 at Rangpur medical college hospital with prior consent from the Director, of Rangpur medical hospital & clearance from the ethical committee of Rangpur medical college. Proper counseling & consent of patients or their legal guardian was done during the study period. Through history, complete physical and obstetrical examination and relevant investigation were done. Patients' management, clinical course, mode of delivery, both maternal and perinatal outcomes were documented. All referred antenatal case > 20 weeks of pregnancy with intrapartum and postpartum complications were included. All the relevant papers of the patients were documented in a pre-designated data collection sheet and analyzed with the help of SSPS 23 version.

Results:

Total admissions were 4277 patients in the department of Obstetrics and Gynecology (Rangpur medical college & hospital). Among them, Gynecological cases were 1435(35%) and Obstetric cases were 2842(65%). Out of 2842 patient Obstetrics cases, 1719 were referred from outside hospitals, private clinics, and health complexes to this hospital. The referred case was 60.4%. A majority number of cases were in the age group of 20-30 years (82%). According to gravidity and parity; multigravida patients were maximum (55.8%). In the present study, a maximum number of patients (74.1%) had no antenatal care. 51% of cases were referred during intrapartum period followed by antepartum (35%) and postpartum (14%) (Table-I).

Table-I: Age, parity, status of antenatal care and gestational period at admission among the study patients (n =1719)

Variable	Number	Percentage
Age (Years)		
<20	35	2.0
21-30	1410	82
31- 40	274	15.9
Parity		
Primigravida	647	37.6
Multigravida	960	55.8
Grand multigravida	112	6.5
Status of antenatal care		
Booked	445	25.8
Unbooked	1274	74.2
Period of gestation		
Antepartum	599	35
Intrapartum	876	51
Postpartum	240	14

Table-II showed the majority of patients were referred for the history of previous caesarian section (16.8%) postpartum (15.5%), antepartum (5.06%) hemorrhage, eclampsia (12.1%) and severe PE (10.6%).

Table-II: Pattern of different presentation among referred patients

Patients with complicating pregnancy	Number	Percentage
Previous C/S	290	16.8
PPH	268	15.5
Eclampsia	221	12.1
Severe PE	183	10.6
Medical disorder complicating pregnancy	178	10.3
APH	87	5.06
PROM	54	3.1
PTL	36	2.09
Prolonged labour	29	1.69
Malpresentation	22	1.2

Among the referred case, 1542 (89.7%) patients need delivery either normal vaginal delivery (52%) or cesarean section (38%). And rest of 177 (10.3%) patients were managed conservatively (n=120) followed by laparotomy (n=38) and peripartum hysterectomy (n=19) (Figure-1).

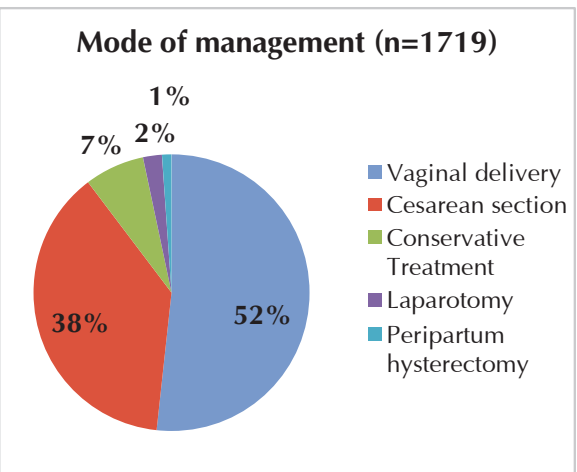


Figure-1: Distribution of patients according to mode of management (n=1719)

During the study period maternal mortality was 1.5%(26), among them hypertensive (30.7%) and hemorrhagic disorders (46.1%) are the major cause of maternal death (Table-III).

Table-III: Causes of maternal death (n=26)

Causes of death	Number	Percentage
Direct cause (n=23)		
Hypertensive disorder	08	30.7
Hemorrhagic cause (APH, PPH)	12	46.1
Pulmonary embolism	02	7.6
Sepsis	01	3.8
Indirect cause (n=03)		
Jaundice	01	3.8
Heart disease	01	3.8
Burn	01	3.8

A total of 1667 babies were delivered within six months. Among them 1248(74.26%) were live term births, preterm 14.1%, IUFD was 5.05% stillbirth 4.07%. Congenital anomalies were found in 23(1.07%) cases (Table-IV).

Table IV: Neonatal outcome (n=1667)

Neonatal outcome	Number	Percentage
live birth	1248	74.26
Preterm	208	14.1
IUFD	95	5.05
Still birth	68	4.07
Neonatal death within 1st 7 days	25	1.9
Congenital anomaly	23	1.07

Figure-2 showed that out of 1667 delivered babies 440 cases (26.39%) were admitted to NICU, the majority due to preterm birth (54.3%) and birth asphyxia (21.1%).

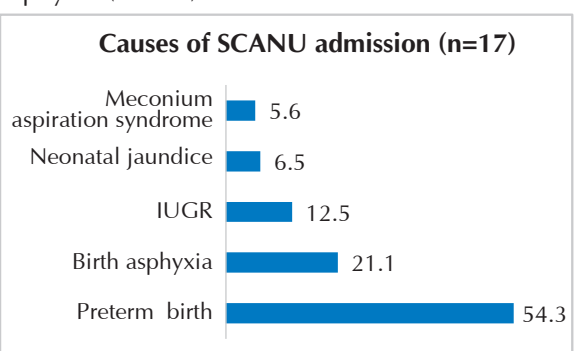


Figure-2: Cause of SCANU (special care unit of newborn) admission (n=17)

Out of 1719 cases, 17 (0.98%) patients were admitted to ICU mostly due to irreversible hemorrhagic shock (29%) & exploratory laparotomy (29%) (Figure-3).

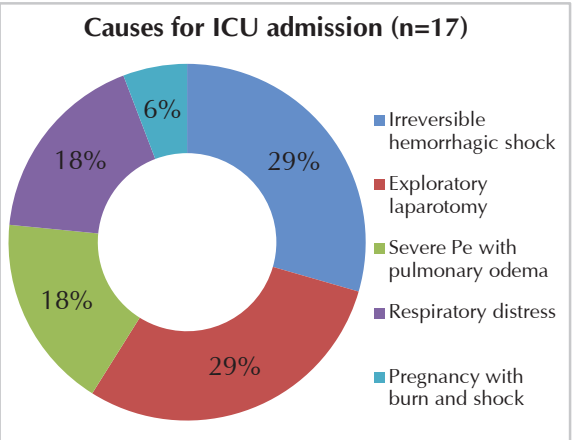


Figure-3: Distribution of causes for ICU admission (n=17)

In this study 86.2% were discharged,3.8% shifted to other departments including ICU, 1.5% expired, absconded & DORB was 5.4%, 2.9% respectively (Table-V).

Table V: Distribution of maternal outcome (n=1719)

Maternal Outcome	Number	Percentage
Discharge	1483	86.2
Shift to other specialty (including ICU)	67	3.8
Expired	26	1.5
Absconded	93	5.4
DORB	50	2.9

Discussion:

Rangpur medical college hospital is a tertiary care hospital situated in the northern part of Bangladesh where complicated obstetric and gynecological cases are referred from various peripheral primary health centers, Upazila health complex, district hospitals, and private hospitals in surrounding districts. The WHO estimates that at least 88-98% of maternal deaths can be averted with timely access to existing, emergency obstetric care using effective efficient referral systems.[13] In early and appropriate time are a challenge to obstetricians since the delay in referral affects the maternal perinatal outcome adversely, hence identification of at-risk patients and obstetric emergencies and timely referral is of immense importance. This study includes 1719 referral obstetric cases during the period of six months, with total obstetric admissions being 2842 during this period. Hence, referredd cases account for 60.4% of total admission in our tertiary care hospital, this is so much higher than in another study like Puri A et al in which the study noted 24.16% of cases were referred.[14] This is high but this can be prevented by adequate facilities for ANC (Antenatal Care), early detection of high-risk pregnancy, facility improvement by trained manpower, logistic support, safe blood transfusion, Improving neonatal facilities, increase awareness trained of physicians & nurses regarding the emergency obstetric cases. In our study, the maximum number was between 21-30 years of age (82%) which was correlated with a study conducted by Morsheda B et al on assessing the overall age distribution found that the majority (74%) cases were between 20- 35 years.[15] Morsheda B et al found 50% of patients were primigravida,[15] Goswami P et al found 47% women were primigravida[16] which was not comparable with our study, we found 37.6% primigravida cases. In our study, the majority of cases were multigravida 55.8%, which was comparable with Jyoti B et al[17] found that multigravida were 50% . This may be due to privilege being given in primigravida mother is a social norm. In this present study, 25.8% were booked patients whereas 74.2% were unbooked cases. This may be due to the covid-19 pandemic condition when the patients were unable to go to ANC visits. Due to lacking of proper ANC and lack of education regarding signs of pregnancy and birth plans, they were reluctant to appropriate time for taking early management. In our study majority of the referral was due to postpartum hemorrhage 268(15.5%) followed by eclampsia 221(12.8%), severe preeclampsia 183(10.6%) , medical disorder complicating pregnancy 178(10.3%), premature rupture of membrane 87(5.06%). In a study done by Patel HC et al[18] causes of referral were preeclampsia (16%) and MSL (5%). Rahi et al[19] noted that the majority of cases were referred for the hypertensive disorder of pregnancy (26%), preterm labour (26%), and medical disorder of pregnancy (21%). Maskey S et al[20] showed in a study that the most common diagnosis at referral was medical disorder complicating pregnancy (38%) among which cardiac disease accounted for 20% followed by hypertensive disorder (17%). Previous cesarean

section was the cause of referral in 16.8% cases in our study, which was comparable to a study conducted by Khatun A et al. The previous cesarean section was the cause of referral in 15% of cases.[21] But a study by Goswami P et al[16] found that previous cesarean section was the cause of reference in 6% was not correlate with our study. It was due to the lack of a Caesarion section and blood transfusion facility in many centers. In the present study, out of total referred cases, 38% underwent cesarean section, and 52% were delivered vaginally. Sorebye KI et al[22] found that referral status contributed substantially to the increased cesarean section rate, which was 55%, which is not correlated with our study 37%. In a study, Goswami P et al[16] found 48% of referred cases had vaginal delivery which was correlated to our study 52% had a vaginal delivery. In our study 17 cases(.98%) were admitted to ICU. Goswami D et al[23] studied 154 cases referred to tertiary health centers in 2014.They found that 19 patients (8.02%) needed ICU admission. In our study, the majority of cases for ICU admission were irreversible hemorrhagic shock & exploratory laparotomy, followed by pulmonary oedema and respiratory distress. In the present study total maternal death was 26 (1.5%) which correlates with the study conducted by Maskey et al[22] (1.8% death). In the presents study the majority cause of maternal death was hemorrhagic disorder (46.1%) and hypertensive disorder (30.7%). Begum et al[24] found the leading cause of death were hypertensive disorder 35% which was correlate our study and obstetric hemorrhagic 20% was not comparable our present study. Obstetric hemorrhage may be preventable. So that TBA (trained birth attendant) & volunteer health workers should be aware of the importance of the hemoglobin status of a woman during pregnancy. The iron tablet must be given to all women during pregnancy and even after delivery in the lactating period, to make their sufficient hemoglobin status that can cope with the situation for herself so that they could bear the blood loss of delivery, and we could reduce the maternal mortality due to haemorrhage. With the period of six months total baby was delivered in 1667 out of 1719 referred cases, among them live birth 76.26%, preterm birth 14.1%, stillbirth 4.05%, and neonatal death within 1st 7 days 1.48% during the hospital stay. In the present study, NICU admission was 440 cases out of 1679 delivered cases that were 26.39%. Bharati et al[25] showed that 23.40% had NICU admission which correlated with our study. For preterm care, 36.3% was not correlated with the present study which was 54.3%.[25] Birth asphyxia was high at 21.1% in our study.[25] This may be due to untrained birth attendants during delivery at home and lack of knowledge about neonatal referral signs and early referral. In this study, 86.2% of patients were discharged which was correlated to a study Jakhar K et al[26] showed that 98.3% . Shift to other specialty departments was 78%, but in our study it was 3.8%. It is due to all critically ill Obstetric patients which require a multidisciplinary team approach to get treatment on time, with good intensive care monitoring and got facilities for further interventions if required.

Conclusion:

Overall referral rate was high in our study, which was worse in pandemic situations. In order to decrease the number of unnecessary referrals and to reduce the burden on tertiary care hospitals, healthcare workers should be trained in essential and emergency obstetric care, which will help in reducing morbidity and mortality. The causes of referral were high due to hemorrhagic disorder. Treatment of anemia in the antenatal period and primary treatment of hemorrhage including administration of fluids, uterotonic drugs, and suturing of tears at primary and secondary centers help in reducing mortality due to hemorrhage. The hypertensive disorder was another cause of referral. Cheek lists should be available in all Obstetric emergency centers and should be provided as per our national guidelines as a prescribed protocol. It is evident that most of the cause of mortality was preventable. This is our recommendation to reduce maternal & perinatal mortality & morbidity, also the first dose of MgSo4 should be given in case of eclampsia and preeclampsia. The health care worker of the primary care center should be trained properly, update their knowledge from time to time, early detection, identification of risk obstetric patients, blood transfusion facility at all secondary health centers for 24 hours, and trained midwives available 24/7 hours. Health education

and awareness by mass media and non-government organizations can improve the health and social status of women in our country.

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