

Maternal Referral to a Tertiary Health Centre: Lags and Loopholes

Humaeel Abbas Ali¹, Rinku Kushwaha², Ishita Sharma², K. Mahadik³

¹Senior Resident, Department of Obstetrics and Gynecology, C.R Gardi Hospital, Ujjain, Madhya Pradesh, India

²Junior Residents, Department of Obstetrics and Gynecology, C.R Gardi Hospital, Ujjain, Madhya Pradesh, India

³Professor and Department Head, Department of Obstetrics and Gynecology, C.R Gardi Hospital, Ujjain, Madhya Pradesh, India

Original Research Article

*Corresponding author

Humaeel Abbas Ali

Article History

Received: 02.10.2018

Accepted: 10.10.2018

Published: 30.10.2018



Abstract: Despite achievements in antenatal health care, the incidence of maternal mortality and morbidity remains high in India. Lack of efficient obstetric services at primary level lead to more referrals. This study addresses scenario of obstetric care in women referred to a Rural Medical College Hospital located in Central India. This was a prospective observational study conducted in a tertiary care Institute in Ujjain, Madhya Pradesh over a period of 1 year from July 2016 to June 2017. Various parameters studied include distance of referral center, time from referral decision to hospital admission, causes for referral, mode of delivery; and maternal and perinatal outcome. Total number of referred cases in study period was 100 which were 6.68% of total deliveries in the hospital. Fifty percent cases were referred from the city District hospital and travelled less than 10 kilometers reaching within 6 hours of referral. Most common cause of referral was preeclampsia (16%) followed by previous cesarean delivery and fetal distress (13%). Fifty two underwent emergency cesarean delivery, 43 had a vaginal delivery and 4 cases were managed conservatively. Perinatal mortality was 13 and 24 required NICU admission. In spite of financial aids provided by Government of India majority of referrals were from city District hospital indicating lack of efficient operative facilities and emergency obstetric care. Strengthening of infrastructure, qualified medical and paramedical staff of Civil Hospital may help in improving maternal care. Triage at primary centers might help in lessening burden on tertiary centers and also facilitate specific referral.

Keywords: Referred case, emergency obstetric care, maternal and perinatal outcome.

INTRODUCTION

Acute obstetric emergencies like Eclampsia, Postpartum Hemorrhage, Antepartum Hemorrhage and obstructed labor still account for a significant number of maternal deaths and morbidity. The tragedy lies in the fact that many of the adverse outcomes are preventable. Maternal mortality is 174 per 100 000 live births in India and globally 216 in 2015 [1, 2]. As per Annual Health Survey 2012-2013 MMR in Ujjain is 176. Eighty four percent women had an institutional delivery among which all availed financial assistance under JSY scheme [3]. The Prevention of Maternal Mortality has a proposed three delay model with a purpose to link primary and secondary centers with tertiary health care units. Establishment of 24 hour First referral units (FRUs) has potential to overcome roadblocks in emergency obstetric care. A strong, quick and functioning referral system offers women with a potentially longer interval for interventions and adequate emergency obstetric care. In 2000 at the Millennium Summit, Safe Motherhood was viewed as a top priority with an aim to reduce maternal mortality

rate by 75% by 2015. United Nations Population Fund (UNFPA) programming focuses on three pronged strategy – 1) Family planning for wanted births, 2) skilled attendance at birth, 3) Emergency Obstetric care (EmOC) to ensure timely access to care for all mothers developing complications. Availability of EmOC is considered to be an indicator of how well a health system is prepared to manage conditions leading to maternal mortality and morbidity. EmOC has been divided on basis of functions performed as Basic EmOC (non surgical obstetric interventions) and Comprehensive EmOC (cesarean facilities and blood transfusion) [4, 5]. A timely referral in an adequately equipped health facility is of prime value. This study aims at identifying character of referral with special emphasis on reasons for referral; authorities who are referring the women; and time delay if there is any.

METHODOLOGY

This is a prospective observational study over a period of one year from July 2016 to June 2017 of referred obstetric patients delivering in C.R. Gardi

Hospital, Ujjain (M.P.). This is a Medical College Hospital mostly catering to rural areas situated in outskirts of Ujjain city. On each admission day all women referred by any person or center were included in the study. After admission to labor room, information regarding referral was documented including the source of referral, distance of referring center from the tertiary health unit, and the reason for referral. Patients already registered at tertiary center were not included in this study. A detailed history and thorough clinical examination was done and relevant investigations were carried out. Clinical signs of morbidity were noted as patients having tachycardia (pulse>90/minute), dehydration (dry mucous membranes and renal output <30ml/hour) and anemia (hemoglobin<8gms%). Patients were assigned an obstetric diagnosis. After detailed obstetric examination subsequent management was done. Special management modalities like operative delivery, blood and component transfusions, use of infusion pumps, ventilator management, and requirement of intensive care, multiple frequently required investigations like coagulation profiles,

Arterial Blood Gas analysis (ABG), multipara monitor care was assessed. Outcome of pregnancy was documented in terms of mode of delivery as vaginal delivery, instrumental delivery, cesarean delivery or any other medical management. Maternal outcome in terms of mortality and ICU admission was noted. Perinatal outcome was documented as APGAR score, NICU admissions and perinatal death.

RESULTS

The Hospital is situated in close proximity to the local Civil Hospital from where a large number of patients are referred. Total number of deliveries in the study period was 1495 out of which 100 were referred cases, 6.68% were referred from either PHC and CHC or private institutes. Majority of the patients were in the age group of 20 – 30 years comprising 71% of total cases. Only 9% were > 30years (Table-1). Number of primigravida and multigravida was almost similar being 42 and 54 respectively. Four cases were grandmultipara with more than 4 live births (Table-1).

Table-1: Age and parity wise distribution of referred women

Age (years)	No. of cases	Percentage
< 20	20	20
20 – 30	71	71
>30	9	9
Parity		
Primi	42	42
Multi	54	54
Grand Multipara	4	4

Half the cases were referred from a distance of less than 10 kilometers mostly from the city District Hospital. Out of the total cases 18 had a referral distance of more than 50 kilometers (Table 2). Thirteen

percent referred from primary health center, 29% from Community health center and 8% from private practitioners (Table-2).

Table-2: Distribution of cases according to distance and source of referral

Distance(kilometer)	No. of cases	Percentage
< 10	50	50
10 – 50	32	32
>50	18	18
Source		
Primary health center	13	13
Community health center	29	29
District Hospital	50	50
Private clinic	8	8

Thirty six cases had tachycardia and 32 were dehydrated and 12 had anemia (Table-3). Six patients

had scar tenderness, 7 had caput more than ++ and 5 had severe bleeding per vaginum.

Table-3: Clinical signs of morbidity at the time of admission

Clinical signs	No. of cases	Percentage
Tachycardia (pulse >90/min)	36	36
Dehydration	32	32
Anemia (hemoglobin < 8 gm%)	12	12
Scar tenderness	6	6
Caput (> ++)	7	7
Excessive bleeding P/V	5	5

In the present study, cesarean delivery rate was 52% in the referred cases. Forty three cases had a vaginal delivery out of which 3 were instrumental.

There was only 1 elective cesarean delivery and 4% cases were managed conservatively and discharged (Table-4).

Table-4: Distribution of cases according to outcome of pregnancy

Outcome of pregnancy	No. of cases	Percentage
Spontaneous Vaginal delivery	40	40
Instrumental delivery	3	3
Emergency Cesarean delivery	52	52
Elective Cesarean delivery	1	1
Undelivered (non surgical management)	4	4
Total	100	100

Pre-eclampsia accounted for the major reason for referral which was 16% of the total followed by previous cesarean delivery and fetal distress comprising 13% each. Obstructed labor contributed to 6% of total. One case was referred due to non - availability of anesthetist at the District hospital (Table-5). Seven cases were referred for prolonged labor. There were no maternal deaths in the present study, however 22 cases

required ICU care with 12 cases requiring blood and component transfusion (Table-6). Seven cases required ventilator support which was gradually weaned off. Frequent coagulation studies were required in 19 cases and 7 required ABG analysis. Total number of perinatal deaths in our study was 13 and NICU admissions were 24 and number of healthy babies was 63 (Table-6).

Table-5: Distribution of cases according to cause of referral

Cause of referral	No. of cases	Percentage
Pre eclampsia	16	16
Eclampsia	3	3
Malpresentation	6	6
Previous Cesarean Delivery	13	13
Antepartum Hemorrhage	5	5
Premature Rupture of Membranes	5	5
Prolonged labor	7	7
Oligohydramnios	10	10
Twin gestation	2	2
Fetal distress	13	13
Intra Uterine Fetal Death	2	2
Anemia of pregnancy	7	7
Medical disorders	4	4
Cephalopelvic Disproportion	6	6
Miscellaneous	1	1

Table-6: Management modalities and maternal and perinatal outcome

Management modalities	No. of cases	Percentage
Ventilator Support	7	7
Blood and component transfusion	12	12
Special investigations		
Coagulation profile	19	19
ABG analysis	7	7
Maternal Outcome		
ICU admission	22	22
Healthy Mother	78	78
Perinatal Outcome		
APGAR>6	63	63
NICU admission	24	24
Perinatal death	13	13

ABG – Arterial Blood Gas

DISCUSSION

The biggest tragedy in the field of emergency obstetrics is the untimely death of the woman and her baby due to causes which are primarily preventable. Identification of high risk cases and referral for need to treat basis forms the cornerstone of modern day emergency obstetric practice. The need for referral; causes and the consequent maternal and perinatal outcome is presented in this study.

Incidence of referral

In our study total number of deliveries in the study period was 1495 out of which 100 cases were referred bearing a referral slip which is 6.68% of the total cases. This is much less than that noted by Goswami P *et al.*, [6] (20.86%), Puri Alka *et al.*, [7] (24.16%) and Gupta PR *et al.*, [8] (15.37%). Majority of the referred cases belonged to the age group of 20 – 30 years (71%) and only 9 cases were > 30 years. This finding is quite similar to studies conducted by Morsheda Banu *et al.*, [9] who found 74% cases being referred to belong to the age group of 20 – 35 years. Goswami P and Gupta PR also had similar results with 86.98% and 78% cases belonging to 20 – 30 year age group respectively. In our study 42% cases were primigravida and 54% were multigravida with only 4 grandmultipara which was comparable to study by Goswami *et al.*, with 47% primigravida. Morsheda Banu *et al.*, found 50% primigravidas among referred cases.

Distance from tertiary care

A distance of <10 kilometers (kms) was traveled by 50% cases in our study and 18 cases traveled >50kms to reach the tertiary health center. Gupta PR *et al.*, showed 59.60% cases traveling 50 – 100 kilometer distance to reach tertiary health care unit. Availability of vehicle either private or ambulance plays a major role in transport delay from home to first referral center and further. This finding also suggests that those women traveling a longer distance either reside in areas devoid of effective medical health care

facility or lack of trained gynecologists and blood bank facilities as in our case, since 50% cases traveled only <10 kilometer from the city District Hospital. Those referred from the District hospital, Ujjain reached within 6 hours of referral, some reaching within 1 hour. This finding is comparable to Rathi *et al.*, [10] where 49% cases reached within 8 hours of referral. Vinayak NM *et al.*, [11] in their study showed 42.6% cases reaching after > 6 hours from referral and majority (75%) traveling a distance of 15 – 60 kilometer.

Obstetric conditions requiring referral

The highest number of cases in our study were referred for pre eclampsia (16%) followed by previous cesarean delivery and fetal distress (13% each). Gupta PR *et al.*, also had maximum cases being referred for hypertensive disorders of pregnancy (22.27%) and an almost similar result of 16% was observed by Patel HC *et al.*, [12]. Meconium stained liquor was the most common reason for referral in another study [13] accounting for 78% whereas in our study fetal distress referrals were 13%. The second common cause of referral was previous cesarean delivery. Possible reasons of referral are unavailability of functioning operation theaters, blood bank facilities and trained obstetricians. It is in this context that the concept of EmOC plays an important role wherein specialized training in cesarean delivery, obstetric anesthesia and blood transfusion can be provided to improve skills and better management of cases at primary or community health levels. The incidence of scar dehiscence is 0.8 - 5%. To prevent this, awareness for a subsequent delivery after previous cesarean delivery has to be increased. This 13% contribution of women with previous cesarean section is low and should increase by better health education to lower the rate of scar dehiscence.

Contribution of most referrals

District hospital accounted for 50% of maximum referrals. Khatoun *et al.* had a similar result of 40% cases referred from secondary care hospitals. In

present study 52% referred cases underwent an emergency cesarean indicating that these cases were mostly referred due to lack of operative facilities from referring center. Similar results were shown by Gupta PR *et al* with a cesarean rate of 22.75%. Other studies with similar findings are Goswami D *et al.*, [14] (67 cases), Sorbye *et al.*, [15] (55%) and Goswami P *et al.*, [6] (28%). Four cases in our study required medical management and discharged. These patients had anemia or pre - term labor with no immediate risk to mother and fetus. Gupta PR *et al* elaborated the importance of Day care management in this context as the incidence of cases managed conservatively in their study was 7.76%.

Although no maternal death occurred in the present study 22 cases required ICU management with 12 cases receiving blood transfusion in lieu of severe anemia, antepartum hemorrhage due to placenta previa or abruption. This number was quite less than other studies [10]. Khatoun *et al* reported maternal mortality in 6 cases due to PPH, eclampsia and amniotic fluid embolism. Hypertensive disorder was the most common cause of death in study by Gupta PR *et al* (35%) and Begum S *et al.* In contrast Borchert M *et al.*, [16] found obstetric hemorrhage (32.2%) and infection (31.6%) were the leading causes of maternal death. Dilpreet *et al* [17] found in their study hemorrhage as leading cause of death. In present study 24 babies required NICU admission and there were 13 perinatal deaths. This indicates delay in referral either due to lack of awareness of signs and symptoms of maternal distress beginning at the woman's home or insufficient obstetric services like availability of electronic fetal monitoring at the primary health center. Several studies noted a stillbirth rate of 13% and 28.23% [11, 14]. The overall neonatal mortality in Ujjain in 2012-13 was 31 per 1000 live births [3].

The main implication of this study is to improve the perception of knowledge and attitude for delivery of a woman. Basic services at the primary health level and triage for referral could help in reducing the number of referrals as well as improve on the reduction of emergency services such as emergency cesarean and blood transfusions which would otherwise be not required had the woman been referred after thorough management at primary level. The JSY scheme providing financial aids to mothers for delivering in institution is not enough for safe and healthy delivery and good perinatal outcome since the provision of skilled attendance at birth is superior to monetary assistance alone. One patient in our study was referred due to unavailability of anesthetist in emergency hours indicating a dire need of more health professionals providing services in secondary and primary health centers as and when required. Up-gradation of Civil Hospitals and Community Health

Centers in form of better and adequate equipments, blood bank facilities and an expert manpower is the need of hour in our scenario.

LIMITATIONS OF STUDY

Owing to short period of observation resulting in small numbers, it is difficult to establish guidelines for referral. This is an attempt to study scenario of a single teaching institute over study period of one year.

CONCLUSION

Reducing number of referrals can never be possible since the resources at every health level differs. However, categorizing pregnant women on basis of requirement of emergency facilities, urgency of referral and availability of resources at referring facility could help regulate the morbidity of mother and fetus. Provision of trained health care workers, improvement in drug availability and blood banks can also reduce the rampant referral for unnecessary indications. Lastly, ongoing improvement in health care protocols and training of health care givers remains the cornerstone for reduction in mortality and morbidity which will have a direct impact on the Health Goals of any Nation.

REFERENCES

1. World Bank, UNICEF obtained from data.unicef.org
2. WHO, U. (2015). UNFPA, World Bank Group and the United Nations Population Division. Trends in maternal mortality: 1990 to 2015. Estimates by WHO, UNICEF.
3. Annual Health Survey 2012-13 Fact Sheet Madhya Pradesh. www.censusindia.gov.in
4. Lee, A. C., Lawn, J. E., Cousens, S., Kumar, V., Osrin, D., Bhutta, Z. A., ... & Darmstadt, G. L. (2009). Linking families and facilities for care at birth: what works to avert intrapartum-related deaths?. *International Journal of Gynecology & Obstetrics*, 107(Supplement).
5. World Health Organization. (2010). Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies. World Health Organization.
6. Goswami, P., Bindal, J., & Chug, N. (2017). To study pattern of obstetric cases referred at tertiary care centre in Central India. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 6(6), 2370-2374.
7. Puri, A., Yadav, I., & Jain, N. (2011). Maternal mortality in an urban tertiary care hospital of North India. *The Journal of Obstetrics and Gynecology of India*, 61(3), 280.
8. Gupta, P. R., Chaudhary, S. N., & Gonnade, N. V. (2016). Maternal and fetal outcome in referred patients to tertiary care center. *Sch. J. App. Med. Sci*, 4(5C), 1624-63.

9. Banu, M., & Nahar, S. (2010). Assessing the MANOSHI Referral System Addressing Delays in Seeking Emergency Obstetric Care in Dhaka's Slums.
10. Charu, R., Kamal, G., & Neelu, S. (2010). Review of referred obstetric cases–Maternal and Perinatal Outcome. *Bombay Hospital Journal*, 52(1), 53.
11. Vinayak, N. M., Panditrao, S. K., & Ramkrishna, M. A. (2004). Critical study of referrals in Obstetric Emergencies. *J Obstet Gynaecol India*, 54(3), 258-9.
12. Patel, H. C., Singh, B. B., Moitra, M., & Kantharia, S. L. (2012). Obstetric referrals: scenario at a primary health centre in Gujarat. *Natl J Community Med*, 3(4), 711-4.
13. Khatoun, A., Hasny, S. F., Irshad, S., & Ansari, J. (2011). An audit of obstetrics referrals to Abbasi Shaheed Hospital. *Pak J Surg*, 27(4), 304-8.
14. Goswami, D., & Makhija, A. (2015). A study of high risk obstetric referrals to tertiary care hospital in Garhwal. *Uttarakhand. IJSR. October*, 4(10).
15. Sørbye, I. K., Vangen, S., Oneko, O., Sundby, J., & Bergsjø, P. (2011). Caesarean section among referred and self-referred birthing women: a cohort study from a tertiary hospital, northeastern Tanzania. *BMC pregnancy and childbirth*, 11(1), 55.
16. Borchert, M., Goufodji, S., Alihonou, E., Delvaux, T., Saizonou, J., Kanhonou, L., & Filippi, V. (2012). Can hospital audit teams identify case management problems, analyse their causes, identify and implement improvements? A cross-sectional process evaluation of obstetric near-miss case reviews in Benin. *BMC pregnancy and childbirth*, 12(1), 109.
17. Dilpreet, K., Vaneet, K., & Veronica, I. Y. (2007). Alarming High mortality in 21st Century. *JK Science*, 9(3):123-6.