

An Observational Assessment of the Primary Reasons and Pattern of Obstetric Cases Referred to A Tertiary Care Center and Management of Its Complications

Anupama Kumari¹, Jayshree Shandilya², Meena Mehta³

¹Junior resident, Department of Obstetrics and Gynecology, RIMS, Ranchi, Jharkhand, India

²Junior resident, Department of Obstetrics and Gynecology, Pt Jawahar Lal Nehru Medical College and Bhim Rao Ambedkar Hospital, Raipur, India.

³Associate professor, Department of Obstetrics and Gynecology, RIMS, Ranchi, Jharkhand, India

Received: 04-01-2022 / Revised: 18-02-2022 / Accepted: 22-03-2022

Corresponding author: Dr. Jayshree Shandilya

Conflict of interest: Nil

Abstract

Aim: This study is aimed at reviewing the primary reasons and pattern of obstetric cases referred to a tertiary care center and management of its complications.

Material & Methods: The study was a prospective observational study conducted in the Department of Obstetrics and Gynecology, RIMS, Ranchi, Jharkhand, India. Study population of 100 obstetric cases over a period of one year was analyzed.

Results: The mean age of patients admitted was 25.22±2.47 years. 63% of the patients belonged to the agegroup between 20-25years. The Obstetric causes accounted for 81% of the admissions in ICU and non-obstetric causes was 19%. Amongst the medical causes rheumatic heart disease, cardiomyopathy and anemia leading to heart failure accounted for 12% of total admissions.

Conclusion: The multi-disciplinary team approach in intensive care units, close monitoring, symptomatic treatment, prompt surgical intervention and safe motherhood initiative would reduce the current Maternal Mortality Rate. Development of standard referral protocol, availability of tertiary care, proper training in this regard is much needed.

Keywords: Obstetric Cases, Perinatal Outcome, Neonatal Outcome.

This is an Open Access article that uses a fund-ing model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Women die every year in India [1-2] which contribute 20-25% of all maternal deaths in the world.[3] One estimate shows that with one maternal death, 15% pregnancies develop complication which necessitates tertiary obstetric care[3] and the vast majority of maternal deaths and injuries are

avoidable when women have access to health care before, during and after childbirth. Of course there is improvement in maternal and child healthcare after the millennium declaration 2000, but there are lacuna across different states, Kerala being the most outstanding and Uttar Pradesh the

worst performer.[4-5] Emergency obstetric transfers should be carried out effectively and efficiently to avoid maternal and foetal morbidity and mortality. An institution referral is when a pregnant woman seeks care at a lower-level health facility (basic emergency obstetric care) and is referred onwards to a higher-level health facility (comprehensive emergency obstetric care). Referral systems have been considered to be an important component of health systems in developing countries since the emergence of primary healthcare. Referral is especially important within obstetrics due to the high numbers of professionals who support a woman through pregnancy and birth, the speed with which action often needs to be taken and the global burden of maternal mortality.[6]

The study is aimed at reviewing the primary reasons and pattern of obstetric cases referred to an intensive care unit (ICU) in a tertiary care center.

Material & Methods:

The study was a prospective observational study conducted in the Department of Obstetrics and Gynecology, RIMS, Ranchi, Jharkhand, India. Study population of 100 obstetric cases over a period of one year was analyzed.

Methodology

Selection criteria was the data collected from referral slips of all pregnancy related cases that were referred due to maternal/fetal complications.

The data regarding the name of referral center, place of referral, date and time of referral, name and address of the patient, age of the patient, parity, chief complaints, vitals, indications of referral, pre-referral treatment was noted. Patients other than pregnancy related causes was excluded from the study. Basic demographic characteristics, obstetric/medical history and diagnosis at admission, ICU course and length of stay, and treatment given and

outcome were studied. The mode of delivery, maternal and fetal outcome were also studied and analyzed. Patients were admitted in ICU and were treated by a multidisciplinary team consisting of Anesthesiologist & Critical Care experts, Neurologists, Cardiologists, Nephrologists along with obstetricians providing a daily consultation.

Statistical analysis:

Data were analyzed using Microsoft office Excel 2013. The results were computed in the form of percentage.

Results:

The mean age of patients admitted was 25.22 ± 2.47 years. 63% of the patients belonged to the age group between 20-25 years. Out of 100 patients, 63 were primigravids (Table 1)

The antecedent causes for admission to ICU are grouped into two - Obstetric and non-obstetric causes. The Obstetric causes accounted for 81% of the admissions in ICU and non-obstetric causes was 19% (Table 2) Patients admitted in the ante-partum period were majorly for obstetric reasons.

Amongst the medical causes rheumatic heart disease, cardiomyopathy and anemia leading to heart failure accounted for 12% of total admissions. ARDS and pulmonary embolism were noted in one patient (Table 3).

Among 100 cases, 36 patients required hemodynamic support, 11 required ventilator support, 26 required inotropic support whereas 19 of them required both. Dialysis was done in four patients in conjunction with hemodynamic and ventilator support (Table 4).

Majority of them delivered by cesarean section (71%) and the rest vaginally (24%) (Table 5). The indications of LSCS were Severe Pre-eclampsia, CPD, malposition & eclampsia.

Among the total patients, MMR was 7%, 90% improved whereas 3% were discharged against medical advice. The main reasons for mortality were multi-

organ-failure, sepsis, congestive cardiac failure and hemorrhagic shock following massive obstetric hemorrhage (Table 6).

Table 1: Critical care in obstetrics

Gravida	Number (N%)
1	63
2	22
3	10
≥4	5
Total	100

Table 2: Critical care in obstetrics: Antecedent causes

Antecedent Cause	Number of Cases (N%)
Obstetric causes	81
Non-obstetric causes	19
Total	100

Table 3: Critical care in obstetrics: Analysis of antecedent causes

Antecedent cause		Diagnosis	Frequency	Total (N%)
Obstetric Causes	Hypertensive disorders of Pregnancy	Severe Preeclampsia with Hypertensive Crisis	26	37
		Eclampsia	8	
		Help	3	
	Obstetric Hemorrhage	Antepartum Hemorrhage	18	30
		Postpartum Hemorrhage	9	
		Ectopic pregnancy	3	
Medical Causes	Sepsis	Sepsis	15	15
	Heart Failure	Anemia	3	12
		Rhd/Cardiomyopathy	9	
	Respiratory disorder	Pulmonary Embolism	5	6
		ARDS	1	

Table 4: Critical care in obstetrics: Mode of intervention

Procedure	Frequency (N%)
Medical Management	
Anti-hypertensives	8
Anti-convulsants	7
Ventilatory support	11
Iotropic support	26
or both	19
Surgical management	
R/L Salpingectomy	5
Post- partum hysterectomy/ B/L Internal Iliac Artery Ligation	5
Blood or blood products	36
Dialysis	7

Table 5: Critical care in obstetrics: Mode of Delivery

Mode of delivery	Frequency (N%)
Vaginal	24
LSCS	71
Laparotomy	5
Total	100

Table 6: Critical care in obstetrics: Maternal mortality analysis

Antecedent cause	Death (N%)
Hemorrhagic shock	2
MODS, Sepsis	3
CCF	2
Total	7

Discussion:

Puri et al. [7] noted 24.16% of obstetrical referral. Similarly, study by Agarwal et al.,[8] Sabale and Patankar,[9]and Patel et al.[10] reported referral rate of 20.86%, 17.83%, and 15.2%, respectively.

Labour is a physiological process, but it carries an inherent risk of complications. Obstetrical care in the western world is at its peak. But in developing countries it is still at docks due to illiteracy, male dominant society and untrained birth attendants. Majority of the population living in the rural areas do not have accessibility to the maternity centres and may develop life threatening complications during labour.[11]The death of a woman in childbirth is a tragedy, an unnecessary and

wasteful event that carries with it the huge burden of grief and pain. Pregnancy is not a disease and pregnancy related morbidity and mortality are almost preventable.

Gupta PR et al found 52.17% patients were primigravida[12], Prakriti Goswami et al found 47% patients were primigravida[13], Morsheda Banu et al had found that 50% of women were primigravida[14], which is comparable to the 55% primigravida cases found in the present study.

The delivery of the baby and the placenta can lead to drastic improvement of underlying pathology hence clinical assessment of maternal and fetal well - being is more important than relying on prognostic criteria. qSOFA is a combination of respiratory rate, mental

status, and systolic blood pressure, named quick SOFA (qSOFA), had strong predictive validity for sepsis. The recently, obstetrically modified quick-SOFA score (omqSOFA) relies on clinical manifestations rather than biochemical and laboratory results,[15] and therefore may be particularly valuable in resource-limited settings.

Hypertensive disorders were also found to be major contributor of referral in other studies.[16-19] Referring the patient with the previous cesarean section was primarily due to an understanding that a third to half of cesarean are performed because of the history of prior cesarean delivery.[20-21] The previous two or three cesarean section surgeries are risky be performed at primary or most secondary care facilities due to lack of skilled staff, equipment, and blood bank facilities.

Conclusion:

The multi-disciplinary team approach in intensive care units, close monitoring, symptomatic treatment, prompt surgical intervention and safe motherhood initiative would reduce the current Maternal Mortality Rate. Development of standard referral protocol, availability of tertiary care, proper training in this regard is much needed.

References:

1. National Family Health Survey (NFHS-2) 1998-99. Vol. 196. Bombay: International Institute of Population Services. 2000;196: 247-51.
2. National Family Health Survey (NFHS-3) 2005-2006. Vol. 196. Bombay: International Institute of Population Services. 2006; 196:247-51.
3. Pal A, Ray P, Hazra S, Mondal TK. Review of changing trends in maternal mortality in a rural medical college in West Bengal. *J ObstetGynecol India*. 2005; 55:521-4.
4. Mohapatra A, Gomare M. A critical appraisal of the maternal and child health scenario in a metropolitan city in India with reference to achievements of millennium development goals. *J Family Med Prim Care*. 2019; 8:995-1001
5. Selected socioeconomic statistics of India 2017. 2017. Available from: www.mospi.gov.in in sept
6. World Health Organisation, UNICEF, UNFPA, World Bank, UN Population Division. Trends in maternal mortality: 1990 to 2013. Estimates by WHO, UNICEF, UNFPA, the World Bank and the United Nations Population Division. Geneva: World Health Organisation; 2014.
7. Puri A, Yadav I and Jain N. Maternal mortality in an urban tertiary care hospital of North India. *J Obstet Gynaecol India*. 2011;61(3):280-285.
8. Agarwal N, Singla R, Dhaliwal L and Suri V. Audit of emergency obstetric referrals-a pilot study from tertiary care center of North India Bangladesh. *J Obstet Gynaecol*. 2015;30(1):25-29.
9. Sabale U and Patankar MA. Study of maternal and perinatal outcome in referred obstetrics cases. *J Evol Med Dent Sci*. 2015;4(26):4448-4455.
10. Patel RV, Pandya VM, Patel DB and Shah HD. Multiparametric study of obstetric and gynaecological emergency cases referred to a tertiary care center. *Indian J Med Res Pharm Sci*. 2015;2(1):14-20.
11. Sumera S, Nuzhat R, Sadia A. Fetomaternal outcome in cases referred to tertiary care hospital after trial of labour. *JSZMC*. 4(2):444-447.
12. Gupta PR, Chaudhary SN, Gonnade NV. Maternal and fetal outcome in referred patients to tertiary care center Sch *J App Med Sci*. 2016;4(5C):1624-63.
13. Goswami P, Bindal J, Chug N. To study pattern of obstetric cases referred at tertiary care center in Central India. *Int J Reproduct Contracep, Obstet Gynecol*. 2017; 6(6): 2370-2374.

14. 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 no.10.2010; ManoshiWP 10:1-36 published by ICDDR, B, BRAC
15. Seymour CW, Liu VX, Iwashyna TJ. Assessment of clinical criteria for sepsis for the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA*. 2016;315(8):762-774.
16. Khatoun A, Hasny SF, Irshad S and Ansari J. An audit of obstetrics referrals to Abbasi Shaheed hospital. *Pak J Surg*. 2011;27(4):304-3089.
17. Charu R, Kamal G, Neelu S. Review of Referred Obstetric Cases-Maternal and Perinatal Outcome. *Bombay Hosp J*. 2010;52(1):52-56.
18. Jahn A and De Brouwere V. Referral in pregnancy and childbirth: Concept and strategies. *Stud Health Serv Organ Policy*. 2001; 17:229-246.
19. Dutta I, Roy P, Dasgupta S, Khan M and Saha P. Obstetrics referrals: Maternal and perinatal outcome in medical college hospital in eastern India. *Indian J Obstet Gynecol Res*. 2020;7(1):91-99.
20. Denham SH, Humphrey T, de Labrusse C and Dougall N. Mode of birth after a caesarean section: Individual prediction scores using Scottish population data. *BMC Pregnancy Childbirth*. 2019;19(1):84.
21. Wingert A, Johnson C, Featherstone R, Sebastianski M, Hartling L and Douglas WR. Adjunct clinical interventions that influence vaginal birth after caesarean rates: A systematic review. *BMC Pregnancy Childbirth*. 2018;18(1):452.