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Original Research Article

A cross-sectional study on referred obstretric patients to a tertiary care centre

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ABSTRACT

Background: Most of the obstetric patients can be managed at primary health center. Identifying high risk obstetric cases, severe maternal complications and timely referring them to a centre equipped with basic emergency obstetric and newborn care helps to reduce feto-maternal mortality and morbidity. This study was aimed to study the clinical profile of referred obstetric patients to SSIMS & RC and made to assess the feto- maternal outcome.
Methods: A prospective observational study was conducted from June 2023 to May 2024 in the department of Obstetrics and Gynecology at SS institute of medical sciences and Research Centre, Davanagere. The study included all women referred while pregnant (irrespective of gestational age) during labor and within immediate postpartum (1 week following delivery). Sociodemographic profile, cause for referral and maternal and perinatal outcome was studied.
Results: In the present study 276 obstetrics patients were included. The main causes for referral were previous LSCS 76 (27.5%), pre-eclampsia 20 (7.24%), Rh negative pregnancy 20 (7.24%), preterm labor 16 (5.79%) and postpartum referral 4 (1.44%). Among them 228 (91.9%) underwent emergency LSCS and 20 (8.06%) delivered vaginally. Main maternal complications observed were acute renal failure 8 (40%), wound sepsis 4 (20%), peripartum cardiomyopathy 2 (10%), postpartum psychosis 2(10%). Out of 248 deliveries;158 babies were healthy (63.7%) and 90 (36.2%) babies had NICU admission.
Conclusions: Ours being a tertiary care hospital, wide spectrum of complicated obstetric cases is referred to us. Referral system is an important part of health care system. Identification of high-risk women and timely referral to an equipped center will help in reducing feta-maternal morbidity and mortality.

Keywords: Feto-Maternal outcome, High risk pregnancy, MMR, Obstetrics emergency, Tertiary health care centre

INTRODUCTION

Pregnancy and childbirth are physiological processes. Most of them can be managed at primary health centers. Some pregnant women are at high risk for life threatening complications throughout pregnancy and during delivery as well. At one level of health care system with limited resources may refer a patient to a facility at a higher level. A referral is a process in which a health worker at one level of the health system, having insufficient resources to manage a clinical condition (drugs, equipment, skilled personnel) seeks the help of a better or differently resourced facility at the same or higher level (World Health Organization).[1]

Hence, identification and timely referral of high-risk pregnancies and obstetric emergencies are an integral part of maternal and child health services to reduce maternal and perinatal morbidity and mortality. The referral system plays a pivotal role in developing country like India, where most of the population lives in rural areas lacking access to essential obstetric services.[2]

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. EmOC refers to elements of obstetric care needed for management of complications during pregnancy, delivery and postpartum period, skilled personnel, equipment and support services. EmOC services are of paramount importance in reducing maternal mortality and morbidity.[3]

The 3-tier health care delivery system was conceived in such a manner that the patients in need of a higher level of expertise and care could be referred accordingly from primary to secondary directly to tertiary level center. The World Health Organization estimates that at least 88-98% of maternal deaths can be averted with timely access to emergency obstetric care services using an efficient referral system.[4] With this background, we conducted this study to analyze the patterns of obstetric referrals and maternal and perinatal outcome in referred patients to our center.

METHODS

This was a cross-sectional observational study conducted from June 2023 to May 2024 at SS institute of medical sciences and Research Centre, Davangere, a tertiary care hospital. It receives referred patients from nearby PHC's, CHC's, SDH's and private hospitals.

The detailed history regarding sociodemographic profile, obstetric history, details of referred hospital, indication of referral, condition of patient on admission were noted. Complete general physical examination, obstetric examination and relevant investigations were done. Management of patients was recorded whether conservative or interventional. Mode of delivery (vaginal or instrumental or caesarean) was noted. Clinical course of the patient, maternal morbidity and mortality was noted. Fetal outcome (abortion) and Perinatal outcome (live birth, still birth, NICU admission, birth weight) were documented. Referral slips were studied.

Inclusion criteria

All referred antenatal and intranatal patients [singleton, twins, abortion, ectopic, molar] irrespective of gestational age and postnatal patients up to 1 week after delivery were included. Also, antenatal patients of age 18 - 35 yrs and patients who are willing to participate in the study were included.

Exclusion criteria

Patients with gynecological disorders, and patients who are not willing to give consent for this study were excluded.

Data analysis

Descriptive data analysis statistics like percentages was done using statistical package for social sciences (SPSS) software version 23. A written consent was taken before enrolling patients into our study.

Outcome measures are age distribution, parity-wise distribution, indication for referral, peroid of pregnancy during referral, outcome of the antenatal cases, mode of delivery, blood & blood products transfusion, surgical intervention, maternal morbidity, reasons for NICU admission.

RESULTS

After thorough analysis of data, the following observations are put forward. A total of 276 obstetric cases were referred to our centre due to various reasons. After thorough analysis of data, the following observations were made.

Table 1: Age distribution.

Age group (years)	No. of cases	Percentage
<20	6	2.17
20-30	220	79.7
>30	50	18.1

Table 1 shows the age distribution of participants. The maximum number of cases in our study were in the age group of 20-30 years (79.7%). Table 2 shows the parity wise distribution of participants. Majority of the patients were multigravida (62.3 %) and 37.6 % were primigravida.

Table 2: Parity -wise distribution.

Parity group	No. of cases	Percentage
Primigravida	104	37.6%
Multigravida	172	62.3%

Table 3 shows the indication for referral to our center. majority of the patient's referral were due to previous LSCS (27.5 %). Other indications were PE and related complications (7.24 %), Rh negative pregnancy (7.24 %), oligohydramnios (7.24 %), ectopic pregnancy (7.24%), preterm labor (5.79 %), anemia (4.34%), twins (2.17%), non-availability of bloods (2.17%), cardiac disease (1.44%). Out of this, 4 (1.44%) patients were referred for management of PPH.

Table 4 shows the period of pregnancy during referral. Out 276 patients, 216 (78.2%) were referred in intrapartum, 56 (22.2%) were in antenatal and 4 (1.44%) were in postpartum period. Table 5 shows outcome of antenatal cases. Out of 276 patients, 248 (89.8 %) delivered, 10 (3.62%) patients had ectopic pregnancy; which were managed according to protocol depending upon the

gestational age at diagnosis, 10 (3.62%) patients underwent MTP, 8 (2.89%) were managed conservatively.

Table 3: Parity -wise distribution.

Referral causes	No. of cases	Percentage
Previous LSCS	76	27.5
PE and related complications	20	7.24
Rh negative pregnancy	20	7.24
Oligo hydramnios	20	7.24
Preterm labor	16	5.79
PROM	14	5.07
Anemia	12	4.34
Abortion	10	3.62
Ectopic pregnancy	10	3.62
IUGR	10	3.62
GDM	10	3.62
Fetal distress	8	2.89
Polyhydramnios	8	2.89
Twins	6	2.17
Non availability of blood	6	2.17
Short stature	6	2.17
Cardiac disease	4	1.44
IUD	4	1.44
Malpresentation	4	1.44
Anomalous fetus	4	1.44
Threatened scar rupture	4	1.44
PPH	4	1.44

Table 4: Period of pregnancy during referral.

Period of pregnancy	No. of cases	Percentage
Intrapartum	216	78.2
Antenatal	56	20.2
Postpartum	4	1.44
Total	276	100

Table 5: Period of pregnancy during referral.

Outcome of ANC	No. of cases	Percentage
Delivered	248	89.8
Ectopic	10	3.62
Abortion	10	3.62
Conservative	8	2.89
Total	276	100

Table 6 shows mode of delivery. Out of 248 cases, 228 (91.9%) underwent caesarean section, while 20 (8.06%) delivered vaginally. A total of 20 (8.06 %) patients had vaginal deliveries of which 4 (20%) were instrumental and 4 (20%) were VBAC. Table 7 shows the blood and blood products transfusion in referred cases. Out of the 276 patients referred to the center, 76 patients (27.5%) needed a blood transfusion with PRBC. Of these 76 patients, 16 patients also needed an FFP transfusion, 12 patients needed RDP transfusion.

Table 6: Mode of delivery.

Mode of delivery	No. of cases	Percentage
LSCS	228	91.9
Normal delivery	20	8.06
With or without Episiotomy	12	60
Instrumental	4	20
VBAC	4	20

Table 7: Blood and blood products transfusion.

Blood and blood products	No. of cases	Percentage
PRBC	76	27.5
FFP	16	5.79
RDP	12	4.34

Table 8: Surgical intervention.

Surgical intervention	No. of cases	Percentage
LSCS	228	89
Laparotomy and salphingectomy	20	7.8
Cesarean hysterectomy	2	0.7
Laparotomy for uterine rupture	2	0.7
Suction evacuation for molar pregnancy	2	0.7
Hematoma drainage	2	0.7

Table 8 shows the surgical intervention in referred cases. A total of 256 patients needed surgical management, of which the most common surgery was LSCS in 228 (89%) patients followed by laparotomy and salpingectomy in 20 (7.8%) patients, 2 (0.7%) patients underwent cesarean hysterectomy.

Table 9: Maternal morbidity.

Complication	No. of cases	Percentage
ARF	8	40
Wound sepsis	4	20
Dialysis	4	20
Peripartum cardiomyopathy	2	10
Post partum psychosis	2	10

Post-partum morbidity was also studied. Table 9 shows maternal complications. The most common post-partum complications were ARF, occurred in 8 (40%) patients of which 4 (20%) needed dialysis. Wound sepsis occurred in

4 (20%) patients and peripartum cardiomyopathy in 2 (10%) patients. No maternal mortality occurred.

Table 10: Reasons for NICU admission.

Reason for admission	No. of cases	Percentage
Observation	26	28.8
Low birth weight	18	20
Asphyxia/RDS	14	15.5
Prematurity	8	8.8
MSAF	6	6.6
Sepsis	6	6.6
Transient tachypnea of newborn	4	4.4
Death	4	4.4
Hypoglycemia	2	2.2
Jaundice	2	2.2
Total	90	100

Out of 248 deliveries, 158 (63.7%) babies were healthy and were on mother side, 90 (36.2%) babies had NICU admission. Table 10 shows the cause of NICU admission of babies. 26 (28.8%) were admitted for observation, 18 (20%) babies had low birth weight, 14 (15.5%) babies had RDS, reasons for admission were varied. There were 4 (4.4%) neonatal deaths. One neonate had anencephaly, one neonate had Dandy Walker syndrome, one neonate had spina bifida, one neonate had tetralogy of fallot.

DISCUSSION

Pregnancy is not a disease. Pregnancy related morbidity and mortality is mostly preventable, if proper antenatal, intranatal and postnatal care is taken. Majority of the population living in the rural areas do not have accessibility to the maternity centers and may develop life threatening complications during pregnancy or delivery.[5] Identification of at-risk pregnant patients and obstetric emergencies is of immense importance.[3]

Timeliness and appropriateness of referral of such patients is crucial for optimum maternal and perinatal outcome. SS Institute of Medical Sciences and Research Center is a Tertiary care center, where complicated Obstetrics and Gynaecology cases are referred from various primary health centers and private hospitals from surrounding places. Referral systems have been an important component of health systems in developing countries since the emergence of primary health care.

A cross-sectional study was carried out for a period of one year among patients who are referred for obstetric emergencies in the department of OBG in our institute. During the study period, 276 cases were referred. Total number of obstetric admissions during that period is 552; referral rate is 50%

In the present study, most of the cases, 220 (79.7%) were in the age group of 20-30 years. This is similar to the study by Gupta et al in 2016 which reported that 86.98% were in this age group.[6] Majority of patients referred were multigravida 172 (62.3%). This is similar to the study done by Jagruti et al in 2020 where 50.4% of patients were multigravida.[7]

In our study the major cause for referral was previous LSCS 76 (27.5%) followed by pre-eclampsia and related complications 20 (7.24%). Other indications were Rh negative pregnancy 20 (7.24%), oligohydramnios 20 (7.24%), preterm labor 16 (5.79%), ectopic pregnancy accounting for 10 (3.62%), IUGR 10 (3.62%), GDM 10 (3.62%), fetal distress 8(2.89%), polyhydramnios 8 (2.89%) and non-availability of blood 6 (2.17 %). Patel et al in their study found that causes of referral were pre-eclampsia (16%) and meconium-stained liquor (5%).[8] Sabale et al found that pre-eclampsia and related conditions were a major indication for referral (25.79%).[9]

In the study done by Patel et al the major reason for referral was hypertensive disorder of pregnancy (39.54%) and previous LSCS (14.84%).[10]

In the present study 216 (78.2%) were referred in intrapartum period, 56 (20.2%) in antenatal period and 4 (1.44%) in postpartum period. Similar results are found by Goswami et al where 56%, 30% and 14% of cases were referred in intrapartum, antepartum, postpartum period respectively.[3]

Among the referred patients 20 (8.06%) cases delivered vaginally; among whom 4 (20%) required instrumental vaginal delivery. 228 (91.9%) underwent LSCS, Exploratory laparotomy was done for cases like ectopic pregnancy 20 (7.8%) and uterine scar rupture 2(0.7%); conservative management was done for 8 (2.86%), other studies have shown different results regarding mode of delivery. In the study done by Goswami et al, 61% of referred cases had vaginal delivery, 39% had LSCS and 13% cases were managed conservatively.[3] However, in the study done by Vandhana et al, main modes of delivery for referred patients was LSCS which correlates to our study.[11] Most common indications for referral in our study was previous LSCS, probably because of that rate of caesarean section is high in our study.

In our study 76 (27.5%) patients required transfusion of blood and blood products. To reduce maternal morbidity and mortality, availability of blood and blood products is also crucial. Majority of patients 248 (89%) in our study required surgical intervention; LSCS in 228 (89%), laparotomy and salpingectomy in 20 (7.8%), caesarean hysterectomy 2 (0.7%), suction and evacuation for molar pregnancy 2 (0.7%) and hematoma drainage 2 (0.7%). Remaining 11% were managed conservatively. These observations are similar to the study done by Mahendra et al where 86% required surgical intervention.[12] In the study

done by Poornima et al and Goswami et al 89% and 76% required surgical intervention respectively.[13,8]

In the present study, among 248 deliveries ,158 (63.7%) babies were healthy and did not require NICU admission; 90 (36.2%) babies were admitted in NICU for various reasons. Commonest being for observation 26 (33.3%); other reasons are LBW 18 (15.3%), RDS 14 (15.3%), MSAF 6 (5.12%), sepsis 6 (5.12%). This is similar to study done by Vasundhara et al where 26.5% babies required NICU admission.[14]

The neonatal death is 4(4.4%) in our study similar to the study conducted by Poornima et al (8%) and Mahendra et al (4%).[12,13]

In our study maternal complications were observed in 20 (7.2%) of cases, ARF was seen in 8 (40%) of which 4 (20%) needed dialysis, wound sepsis in 4 (20%), and peripartum cardiomyopathy in 2 (10%), postpartum psychosis in 2 (10%). This is similar to results of Goswami et al study. Here maternal complications were seen in 10 (6.4%) patients; wound sepsis in 2 (20%), ARF in 2 (20%), peripartum cardiomyopathy in 2 (20%).[15]

No maternal death was seen among referred women during the study period. Similar results were reported in the study done by Ghardallou et al.

CONCLUSION

With the implementation of the referral system an increasing proportion of patients are being referred to our hospital. Ours being a tertiary care hospital, wide spectrum of complicated obstetric cases is referred to us. The presence of a well-equipped NICU of our institute also contributed to the referral pattern. The reasons included both maternal and fetal causes.

Timely referrals with detailed referral slip or prior information of referred cases might help in optimal management so that both morbidity and mortality can be avoided. Child birth is a normal physiological process, but emergencies can arise anytime. Every woman has right to get good quality health care. Lack of availability of blood and blood products is a hurdle in ensuring a satisfactory maternal outcome. We must give emphasis on correction of anemia in ANC care, so that women can bear the blood loss during delivery.

A referral system is an important part of health care system. By providing good antenatal care, availability of blood and blood products, well organized referral center, skilled birth attendants at the time of child birth, timely identification and referral of high-risk patients all will help in reducing Feto-Maternal morbidity and mortality.

Health education to pregnant women also plays an important role. It is still recommended to electively refer pregnant women with high risk factors such as previous cesarean section, breech presentation, transverse lie, multiple gestation, hypertension and severe anemia for delivery before any complication arise to a health care center where all the facilities are available.

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REFERENCES

1. Gupta AK, Talati S, Bhattacharya S, Singh A. Health system strengthening–focusing on referrals: An analysis from India. JOJ Nurs Healthc. 2017;2(4):1-3.
2. Majella MG, Sarveswaran G, Krishnamoorthy Y, Sivaranjini K, Arikrishnan K, Kumar SG. A longitudinal study on high-risk pregnancy and its outcome among antenatal women attending rural primary health centre in Puducherry, South India. J Educ Health Promot. 2019;8:29.
3. Goswami P, Bindal J, Chug N. To study pattern of obstetric cases referred at tertiary care centre in Central India. Int J Reprod Contracept Obstet Gynecol. 2017;6(6):2370–4.
4. Stefanini A. District hospitals and strengthening referral systems in developing countries. World Hosp Health Serv. 1994;30(2):14–9.
5. Sumera S, Nuzhat R, Sadia A. Feto-maternal outcome in cases referred to tertiary care hospital after trial of labour. J Sheikh Zayed Med Coll. 2013;4(2):444-7.
6. Gupta PR, Chaudhary SN, Gonnade NV. Maternal and fetal outcome in referred patients to tertiary care centre. Sch J App Med Sci. 2016;4(5C):1624-63.
7. Anavadia J, Patel E, Verma R, Desai D. A study of obstetric referral patients in a tertiary health care center in South Gujarat. Indian J Obstet Gynecol. 2020;8(1):15-20.
8. Patel HC, Singh BB, Moitra M, Kantharia SL. Obstetric referrals: scenario at a primary health centre in Gujarat. Natl J Community Med. 2012;3(4):711–4.
9. Sabale U, Patankar AM. A study of maternal and perinatal outcome in referred obstetrics cases. J Evol Med Dent Sci. 2015;4(26):4448–55.
10. Patel P, Jain S, Banga SK. An analytical study on obstetrics referral causes and their outcome at a tertiary care centre of northern Madhya Pradesh. Indian J Sci Res. 2023;12(11):8-13.
11. Vandhana PM, Zahir F, Das DN, Deori RK. Fetomaternal outcome of referred obstetric patients in a tertiary centre in North East India: A cross-sectional study. J Clin Diagn Res. 2023;17(10):QC06-9.
12. Mahendra G, Kavya BS, Pukale RS. Study of maternal and perinatal outcome in referred obstetric cases. Obs Gyne Rev J Obstet Gynecol. 2019;5(2):106-11.
13. Poornima M, Daver RG. Maternal and fetal outcome in obstetric referred cases. Glob J Res Anal. 2018;7(2):544-7.

14. Monika, Verma K, Panwar B, Hooja N, Kaswan PP, Yadav S. Maternal and neonatal outcome among referred women. Int J Reprod Contracept Obstet Gynecol. 2024;14(1):143-5.
15. Goswami D, Makhija A. A study of high-risk obstetric referrals to tertiary care hospital in Garhwal, Uttarakhand. Int J Sci Res. 2015;4(10):1091-5.
16. Ghardallou M, Limam M, Khelifi A, Khairi O, Khairi H, Mtiraoui A, NabliAjmi T. Obstetric referrals to a tertiary care maternity: a descriptive study. Pan Afr Med J. 2019;33:306.

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