

A Study of Obstetric Referral Patients in A Tertiary Health Care Center in South Gujarat

Jagruati Anavadia¹, Ekta Patel², Ragini Verma³, Dhvani Desai⁴

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^{1,2}Assistant Professor, ³Professor and Head, ⁴Associate Professor, Department of Obstetrics and Gynaecology, Government Medical College & New Civil Hospital, Surat, Gujarat, 395001, India.

Corresponding Author: Ekta Patel, Assistant Professor, Department of Obstetrics and Gynaecology, Government Medical College & New Civil Hospital, Surat, Gujarat, 395001, India.

E-mail: ektapatel107@yahoo.com

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Abstract

Objective: To study the baseline characteristics of referred obstetric patients, analyze the reason for referral and characteristics of the referring center to determine effectiveness of current referral system. To determine the fetomaternal outcome of the referred patients.

Materials and methods: This was a retrospective observational study carried out from January 2017 to June 2017 in department of obstetrics and gynecology at a tertiary health care institute in South Gujarat. Data related to baseline characteristics, reason for referral, type and distance of referring center, fetomaternal outcome were analyzed.

Result: The study included 343 subjects referred with obstetric complications during the period contributing to 8% of total admission. The mean period of gestation was 36 weeks during admission. The maximum patients (75.8%) were referred from government centers and minimum from the private hospitals (5.2%). The commonest indication for referral was labor abnormality like prolonged labor, PROM, previous cesarean section (29%) followed by medical disorders complicating pregnancy like hypertension, sickle cell disease (25%). Twenty-one percent patients were referred because of unavailability of doctors and resources, 12% due to obstetric hemorrhage and 11% due to severe anemia. 0.8% patients had abortion, 11% had preterm delivery and 0.5% had maternal deaths. 158 full-term patients delivered vaginally while 107 underwent CS. Out of

the referred subjects, 90% had livebirth while 9% had stillbirth.

Conclusion: To establish effective referral system, peripheral health care system needs to be strengthened by means of proper trained and skilled staff, essential equipment, blood banks, good transportation facility, etc.

Keywords: Referral centers; Causes of referral; Maternal outcomes; Tertiary health care; South Gujarat.

Introduction

The referral system is an integral component of any health care system especially in emergency situations where the survival and degree of morbidity are directly dependent on early recognition of a complication, its prompt initial management and appropriate care during transport.¹ This is especially important in the situation of complicated pregnancies where two lives are at stake and timely identification of high risk and complicated obstetric cases can reduce maternal morbidity, arrest maternal deaths and improve neonatal outcomes.

Referral services for identification and referral of high-risk pregnancies are an integral part of maternal and child health services.² The three-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 Prevention of Maternal Mortality (PMM) network study has proposed a three-delay model for referrals in obstetric and gynecological emergencies.³ Thus along with providing care at tertiary centers, it has become essential to assess the existing health service facilities in order to evaluate deficiencies and strategize interventions based on clinical evidence to curtail the delay time to treatment.

New Civil Hospital, Surat is a tertiary care referral center located in South Gujarat area (17500 sq km) which is divided into Surat, Bharuch, Navsari, Dang, Valsad, Narmada and Tapi districts and is adjacent to the union territory of Dadra Nagar Haveli. The population of Surat city was 44. Six lakhs as per 2011 census. NCH, Surat has around 8600 deliveries annually of which 8% are referral subject. This study was planned to analyze the detail of referred subjects to strengthen the referral care in South Gujarat.

The objectives of this study were to study the baseline characteristics of the referred subjects, to analyze the reasons for referral, to study the characteristics of the referring center and to analyze the outcome of these patients.

Materials and Methods

This is a retrospective observational study carried out from 1st January 2017 to 30th June 2017. The case records of referred obstetric patients managed by department of obstetrics and gynecology in the antenatal ward, labor room and postnatal ward of

New civil hospital, Surat (NCHS) were included.

The medical case record review included mentioning detail of name, hospital identity number, age of patient, address, presenting complaints, history of events during current pregnancy including antenatal care, obstetric history, past history, menstrual history, general, systemic, abdominal, vaginal examination finding at admission, details noted in reference slip, i.e. referring center reason for referral, treatment given, mode of transportation, investigation at NCHS, need for interventions (LSCS, blood transfusion, obstetric hysterectomy, laparotomy, OBICU admission, assisted ventilation), details of delivery (vaginal/LSCS), maternal outcome (ongoing pregnancy, abortion, preterm delivery, full-term delivery, mortality) and fetal outcome (live birth, Stillbirth, NICU admission, abortion).

Results

New Civil Hospital, Surat received and managed 343 women with obstetric complications during the study period which contributed to 8% of total admission.

The mean age of the patient was 24 years while the age ranged from 18 to 35 years. The mean period of gestation was 36 weeks. Figure 1 determine the period of gestation of the referred patients at the time of admission while Table 1 describes the gravida status of the referred patients. 134 (40.23%) patients were antepartum, 144 (42%) were intrapartum while 65 (18%) were postpartum out of which 170 (49.6%) were primigravida while 173 (50.4%) were multigravida.

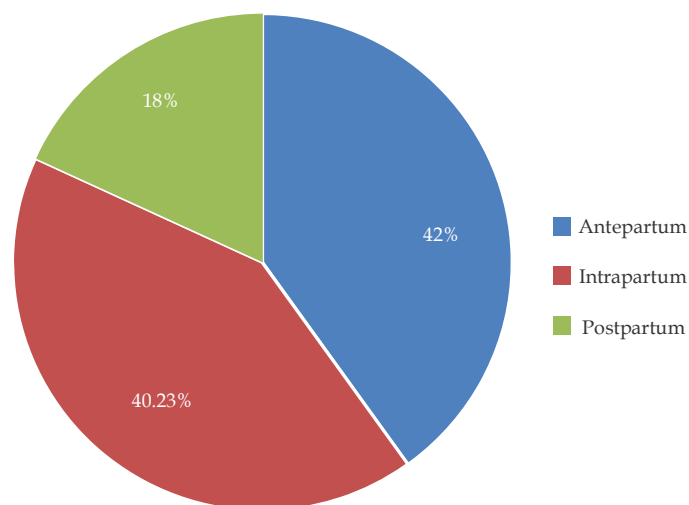


Fig. 1: The period of gestation at the time of admission.

Table 1: The gravida status of the referred patient

Gravida status of the referred patient	Number of patients (%)
Primigravida	170 (49.6%)
Multigravida	173 (50.4%)

Two hundred sixty (75.8%) were referred from government centers (PHC, CHC, UHC, district hospitals, Medical College), 65 (19%) from trust hospitals and 18 (5.2%) came from private hospitals of the city. 334 (97.4%) were from Gujarat, 8 (2.3%) from Maharashtra and 1 (0.3%) from Dadra Nagar Haveli.

Table 2 describes the patients referred from various districts of Gujarat. The maximum referrals were from Surat district 215 (62%) followed by Navsari 47 (14%), Tapi 34 (10%), Valsad 20 (6%), Bharuch 10 (3%), Dang 9 (3%), other districts 6 (1.7%) and minimum referrals were from Narmada district 1 (0.3%).

Table 2: District wise referral of patients to tertiary health care institute of South Gujarat

Districts of South Gujarat	Number of patients	Percentage (%)
Surat	215	62
Tapi	34	10
Valsad	20	6
Navsari	47	14
Dang	9	3
Bharuch	10	3
Narmada	01	0.3
Other districts	06	1.7

Table 3 shows the distance of the referring center to the tertiary health care institute. 23 (33%) referring centers were within the radius of 20 km from the tertiary health care institute, 11 (17%) and 12 (18%) centers were 20–40 km and 40–60 km away from the tertiary health care institute, 7(11%) and 4

(6%) referring centers were 60–80 km and 80–100 kms away from the tertiary health care institute, 2 (3%) and 1 (1%) centers were within 100–120 km & 120–140 km away from the tertiary health care institute. Seven (11%) referring centers were 140 kms away from the tertiary health care institute.

Table 3: Distance of the referring center to the tertiary health care institute

Distance of referring center	No of referring center (total 67 referring centers)	Percentage (%)
0–20 km	23	33
21–40 km	11	17
41–60 km	12	18
61–80 km	7	11
81–100 km	4	6
101–120 km	2	3
121–140 km	1	1
>140 km	7	11

Figure 2 shows the various indications of referral to the tertiary health care institute. The commonest indication for referral was labor abnormality 101 (29%) like prolonged labor/cephalopelvic disproportion, Previous cesarean section, PROM, IUFD/anomalous baby, breech, multiple pregnancy, preterm labor, meconium stained liquor, uterine inversion, obstructed labor. The Second most common indication for referral

was medical disorders complicating pregnancy 87 (25%) like hypertensive disorders 52 (15%), sickle cell disease, cardiac disease, infective hepatitis, epilepsy, encephalopathy, acute renal failure, etc. The other common indications were unavailability of doctors, resources, facilities (21%), obstetric hemorrhage (12%) followed by severe anemia (11%).

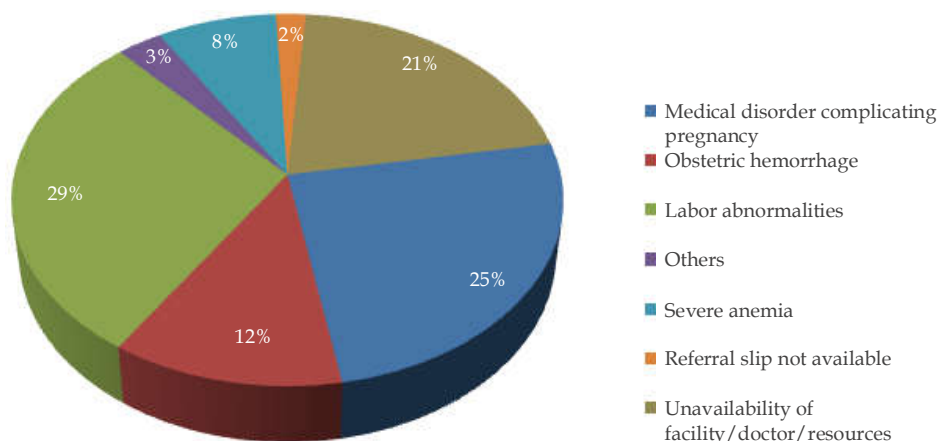


Fig. 2: Causes of referral of patients to tertiary health care institute of western India.

Of the 343 subjects, 38 (11%) had ongoing pregnancy at the time of discharge, 3 (0.8%) had abortion, 37 (11%) had preterm delivery and there were 2 maternal deaths (0.5%). 158 full-term patients delivered vaginally while 107 (40%) had cesarean section (Table 4).

Figure 3 shows the mode of management

of referred cases. The mode of management of referred subjects was surgical intervention (119) in the form of LSCS (107), obstetric hysterectomy (2), laparotomy (7) and evacuation of abortion (3). ICU care was required in 65 subjects out of which ventilation was needed in 13 subjects while blood transfusion was needed in 66 subjects.

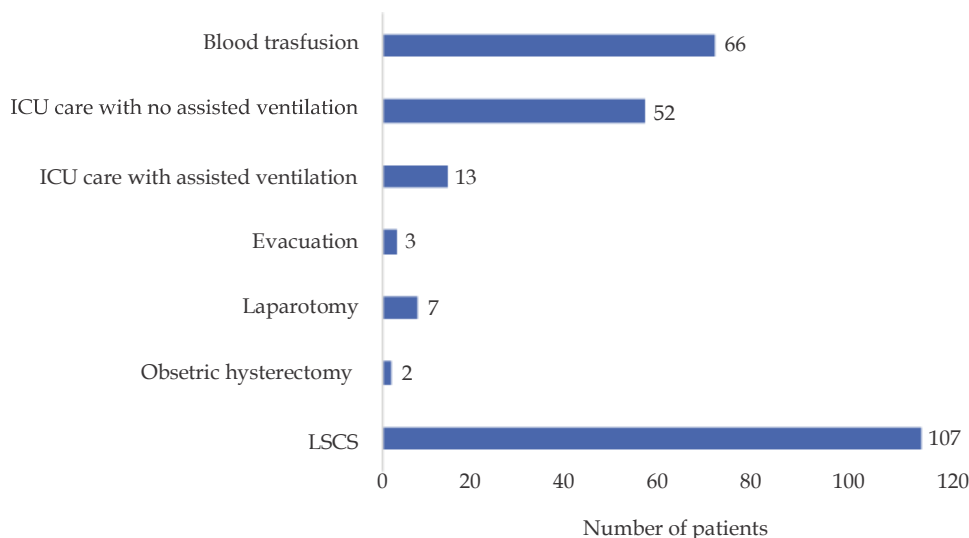


Fig 3: Mode of management of referred patients

Table 4: Causes of referral of patients to tertiary health care institute of western India

Causes of referral	No. of patients
Medical disorder complicating pregnancy	87 (25%)
Hypertensive disorder	52 (15%)
A. Severe PET	26
B. Eclampsia	26
Cardiac disease	7
Sickle cell disease	20
Infective hepatitis	2
Others (Epilepsy, encephalopathy, ARF, HbsAg, HIV, etc.)	6

(Contd.)

Causes of referral	No. of patients
Obstetric hemorrhage	27 (12%)
APH	18
PPH	9
Labor abnormalities	101 (29%)
Prolonged labor/CPD	34
Obstructed labor	2
Preterm labor	5
Breech	8
MSL	5
IUFD/Anomalous baby	10
PROM	12
Uterine inversion	2
Previous cesarean section	18
Multiple pregnancy	5
Miscellaneous (abortion, poor patient, non-cooperative patient, chylous ascites, obstructive uropathy)	10
Severe anemia	39 (8%)
Referral slip not available	7
Unavailability of facility/doctor/resources	72 (21%)
For baby	18
Doctor or facility not available	36
Blood not available	18

The maternal deaths in this study were reported in Table 5. The cause of death, the referring center and the distance of the referring center from the tertiary health care institute were mentioned. The perinatal outcome of pregnancy is described in

Table 6. The fetal outcome of pregnancy was live birth in the form of preterm and full-term 251 (93%) and stillbirth 24 (9%). The NICU admission rate of newborn was 21 (8%). The abortion rate was 0.8%.

Table 5: Discussion of details regarding maternal mortality

No.	Center of referral	Distance of the referring center	Cause of death
1.	Jhagadiya, Bharuch	61-80 km	Antepartum eclampsia with multiorgan failure
2.	Nandurbar, Maharashtra	>140 km	Hepatic encephalopathy with multiorgan failure

Table 6: Perinatal outcome of referred patients

Perinatal outcome	No. of patients
Live birth (Preterm & full-term)	241
Stillbirth	24
NICU admission	21
Abortion	3

Discussion

In the present study the obstetric referral accounts for 8% of the total admission admitted in department of obstetrics and gynecology at NCHS which was consistent with the study conducted by Ohn et al. and maskey et al.^{4,5}

Seventy-five percent were referred from Govt. Center, 19% from trust hospitals, 6% from private hospitals. The common indication for referrals was hypertensive disorders in pregnancy (15%) followed by anemia (11%) which is comparable to results by Ohn et al.⁴ where hypertension was commonest reason for referral. Hypertension was

also a common reason for referral in studies by Rathi et al. and Shilpa et al.^{6,8} The commonest reason for referral from govt. center was labor abnormalities while the common reason for referral from trust hospitals was anemia and hypertensive disorders.

Non availability of treating doctor (obstetrician) was the reason in 36 (10%) patient which could be addressed by alternative arrangements at level of administration. Seven (3%) were referred without a referral slip indicating that the communication channel between referring and referral center is sub optimal and also that the referral pathway need to be strengthened.

Ten referrals from distance of more than 100 kilometers indicated the need to develop intermediary care center in periphery to improve the maternal outcome.

Intranatal referrals account for 42% of our patients stressing the need for improving intranatal management at referring center as problem during transportation of these subjects could have far reaching implications. Intranatal referral noted in 28.57% patient in Maskey et al.⁵ study, 64.5% in Patel et al study.⁷

Severe anemia was the reason of referral in 39 (11%) patient emphasizing the need for recognition of anemia during pregnancy, availability of parental iron and blood products at district hospitals and medical college level.

In this study 19.25% needed blood products transfusion, the need for the same was 25.89% in Maskey et al.⁵ study and 42% in Rathi et al. study.⁸

The perinatal outcome in total 275 patients who delivered was 21 (8%) neonates were admitted in NICU while 24 (9%) delivered stillborn babies.

There were two maternal deaths accounted in this study which could be mostly due to morbid condition of the patient at the time of referral.

Conclusion

To establish effective referral system, peripheral health care system needs to be strengthen by means of proper trained and skilled staff (manpower), provision of expertise personnel, essential equipment, blood banks, good transportation

facility and many more. Various training programmes can also be conducted to make more effective manpower to be used. These are the integral part of chain of referral system by implementing these factors we can improve the fetomaternal outcome. Timely referrals with detailed referral slips or prior information of referred cases might help in early and optimal intervention so that both major morbidities and mortalities can be avoided. A structured referral system would help both patient and doctor in providing essential life-saving care.

Disclosure

The outdoors repores no conflict of interest in this work.

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