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Assessment of maternal and fetal outcome in obstetric patients referred to tertiary care hospital

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Abstract
The study was conducted to know the maternal and fetal outcomes in women referred to a tertiary care centre. Data was collected for 150 cases referred to the tertiary health Centre in 2021-2022, which included the demographic characteristics, reasons for referral, high risk factors, intervention done and the maternal and fetal outcomes. It was found that the majority of the cases were referred from Dewas district followed by Ujjain and Mhow. Most of the patients were referred in the ante-partum and intrapartum period. Sixty seven patients needed surgical intervention. The average hospital stay was 7.37 days. Nineteen patients needed ICU admission with an average stay was 4.26 days. There was no maternal mortality, however out of 115 total births, there were 23 still births and 27 births with 1 minute Apgar score <7.

Keywords: Pregnancy, live birth, tertiary care, high risk, laprotomy

1. Introduction
Obstetrics patients are usually healthy and free from co- morbidities. Most of them can be managed at the primary health care centre. However, pregnancy and childbirth is not free from complications, some of which may prove to be life-threatening. Timely identification of high risk cases prone to land up in such complications as well as identification of patients with such complications and their prompt referral to a centre well equipped to tackle such cases may improve the feto-maternal outcome.
High risk obstetrics has evolved into a specialty and involves multidisciplinary management and ICU/HDU level of care. Studies have been done evaluate critical obstetric patients and to find the reasons for ICU/HDU admission [1, 2]. The outcomes of such patients have been studied [3]. The management of such high risk cases in tertiary level hospitals with such facilities has led a decrease in maternal and fetal morbidity and mortality [3].
Studies have been done to study the trends of referrals of high risk obstetric patients [5, 6] and the maternal and perinatal outcomes [7, 8, 9, 10]. The present study was carried out to know the maternal and fetal outcomes of such high risk referrals to a tertiary care centre. A total of 150 cases referred to the tertiary health centre in 2021-2022 were studied and the reasons for referrals, the intervention done and the maternal and fetal outcomes were evaluated. The average hospital stay and need of ICU/HDU was also studied. The demographic profiles of such patients were also reviewed.

2. Methodology
Analysis of high risk obstetrics referrals from peripheral hospital to the tertiary centre, SAMC and PGI, Indore was done and all the cases referred in the year 2021 October to 2022 March were included in the study. Data was collected for 150 cases and it was studied retrospectively.
In this study the data was collected from the case sheets of the patients referred and managed at the tertiary centre. The study made a note of the demographic characteristics of the patients and the reasons for referral and whether the referral was ante-partum/intra-partum or post-partum. Management of the patients were noted, whether conservative or any intervention done. The hospital stay was noted and the need of ICU/HDU was documented. The maternal outcome was studied in the terms of mortality and need for blood transfusion and post-partum complications. The neonatal outcome was studied as live birth/ still births, and one minute APGAR scores.

3. Results

In the present study a total of 150 cases were studied. It was found that the majority of the cases were referred from Dewas district (99, 64.28%) followed by Ujjain region (15, 9.74%). 112 (74.66%) patients were Hindus and 38 (25.34%) were Muslims. The average age of the patient was 26.80±4.91. One patient was ≤18 years of age and 17 patients were ≥ 35 years of age. Parity of the patients was also noted and in the present study there were 3 grand multiparas (with 4 or more previous births).

Out of the 150 referrals, 136 (90.67%) were referred in the antenatal/intranatal period and 14 (9.33%) referrals in the post-partum period. The most common reason for referral among the antenatal/intranatal referrals was Pregnancy induced hypertension (30 patients, 22.05%) followed by Previous one or more LSCS (21 patients, 15.44%) and Ante- partum haemorrhage (15 patients, 11.03%).

Out of 21 patients referred for previous one or more LSCS, 9 were referred for previous one LSCS, 8 were referred for previous two LSCS and 4 were referred for previous three LSCS. There were 7 referrals for ectopic pregnancy and 2 for molar pregnancy.

Table 1: Indication for referral in the ante-natal/Intranatal period

Indication	Frequency (n=136) (%)
Obstetrical complications	
PIH	30 (22.05)
Previous one or more LSCS	21 (15.44)
APH	15 (11.03)
Oligo/IUGR	9 (6.62)
Pre-term labour	4 (2.94)
Twins	5 (3.67)
Obstructed labour	5 (3.67)
Post-dated pregnancy	3 (2.20)
CPD	3 (2.20)
Fetal distress	2 (1.47)
Rh Negative Pregnancy	2 (1.47)
Hydrocephalous	2 (1.47)
IUD	2 (1.47)
Malpresentation	2 (1.47)
Ectopic pregnancy	7 (5.15)
Molar pregnancy	2 (1.47)
Medial disorders	22 (16.18)

22 patients were referred for medical disorders complicating pregnancy of which the most common was anaemia (7 patients, 31.82%). The average hospital stay was 7.37 days. 19 patients (12.66%) needed ICU admission with an average stay of 4.26 days. Out of the 150 patients referred to the centre 30 patients (20%) needed blood transfusion with PRBC. Of these 30 patients, 7 patients also needed FFP transfusion. The post-partum morbidity was also studied. The most common post-partum complications were wound sepsis in two patients and ARF also in two patients, of which one needed dialysis and Peripartum cardiomyopathy in two patients.

Table 2: Medical complications

Medical complication	Frequency (n=22) (%)
Anaemia	7 (31.82)
Diabetes mellitus	4 (18.18)
Heart disease	4 (18.18)
Jaundice	3 (13.64)
Epilepsy	2 (9.09)
Chicken pox	1 (4.54)
ITP	1 (4.54)

Of the 14 patients referred in the post-partum period, the most common reason for referral was PPH (6 patients, 42.85%) followed by retained placenta (4 patients, 28.57%).

Table 3: Indication for referral in the post-partum period

Indication	Frequency (n=14) (%)
PPH	6 (42.85)
Retained Placenta	4 (28.57)
Sepsis	2 (14.28)
Pulmonary oedema/PIH	2 (14.28)
Peritonitis	1 (7.14)
Wound hematoma	1 (5.55)
Seizures	1 (5.55)

A total of 67 patients (43.51%) needed surgical management, of which the most common surgery was LSCS in 55 patients followed by laparotomy and salpingectomy in 6 patients. Two patients needed suction evacuation for molar pregnancy.

Table 4: Surgical Intervention

Surgery	Frequency (n=67) (%)
LSCS	55 (82.09)
Laparotomy and Salpingectomy	6 (8.95)
Caesarean Hysterectomy	1 (1.49)
Laparotomy for uterine rupture	1 (1.49)
Manual removal of placenta	1 (1.49)
Suction Evacuation for molar pregnancy	2 (2.98)
Hematoma drainage	1 (1.49)

A total of 54 patients (35.06%) had vaginal deliveries of which 7 were instrumental. Of the total 54 vaginal births 8 were VBAC.

Table 5: Vaginal Births

Vaginal birth	Frequency (n=54)(%)
With or without Episiotomy	39 (72.22)
Instrumental	7 (12.96)
VBAC	8 (14.81)

Table 6: Post-partum complications

Complication	Frequency (n=10)(%)
Wound Sepsis	2 (20)
ARF	2 (20)
Peripartum cardiomyopathy	2 (20)
UTI	1 (10)
Retention of urine	1 (10)
Stitch line hematoma	1 (10)
Post-partum Psychosis	1 (10)

There was no maternal mortality. There were a total of 115 births. Out of the 115 births, 92 were live and 23 were still births. Of the 92 live birth, 27 had 1 minute Apgar score <7. Two neonates had hydrocephalous, one neonate had MAS. Dandy Walker Syndrome and Anencephaly were present in one neonate each.

4. Discussion

4.1 Demographic Characteristics

Out of the total of 150 cases studied, it was found that the majority of the cases were referred from Dewas district (99, 64.28%) followed by Ujjain region (15, 9.74%). Most of the patients were Hindus (112, 74.6%). The average age of the patient was 26.80±4.91. There were 18 patients (11.69%) in the high risk age group (1 patient ≤18 years, and 17 patients ≥ 35 years). Similar rate was reported in the study by Patel HC *et al.*

in the year 2016 (12.2%). There were three patients (1.95%) who were grand multiparas (with 4 or more previous births). Slightly higher rate was reported in the study by Patel HC *et al*. (5.8%).

A total of 67 patients (43.51%) needed surgical management, of which the most common surgery was LSCS in 55 patients followed by laparotomy and salpingectomy in 6 patients. Two patients needed suction evacuation for molar pregnancy.

Table 7: Surgical Intervention

Surgery	Frequency (n=67) (%)
LSCS	55 (82.09)
Laparotomy and Salpingectomy	6 (8.95)
Caesarean Hysterectomy	1 (1.49)
Laparotomy for uterine rupture	1 (1.49)
Manual removal of placenta	1 (1.49)
Suction Evacuation for molar pregnancy	2 (2.98)
Hematoma drainage	1 (1.49)

4.2 Reason for referral

Most of the patients were referred in the antenatal/intra-natal period (136 patients, 90.67%). Only 14 (9.33%) patients were referred in the post-partum period. Similar rate was reported for post-prtum patients in the study by Patel HC *et al*. in the year 2016 (11.6%). Overall the most common reason for referral was Pregnancy induced hypertension (19.48%) followed by Previous one or more LSCS (13.64%). This was followed by APH (9.74%), oligo/IUGR (5.84%), twins (3.25%), obstructed labour (3.25%) and malpresentation (1.30%). 22 patients were referred for medical disorders complicating pregnancy of which the most common was anaemia (4.54%). The most common reason for referral in the post-partum period was PPH (3.90%) and retained placenta (2.60%). There were 7 referrals for ectopic pregnancy (4.54%) and 2 for molar pregnancy (1.30%). In the study by Patel HC *et al*., pre-eclampsia was noted in 10.3%, malpresentation in 9.7%, PPH in 9.7% and severe anaemia in 7.7%.

4.3 Management

A total of 67 patients (43.51%) needed surgical management, 54 (35.06%) patients had vaginal deliveries and the rest were managed conservatively (33, 21.43%). The most common surgery was LSCS in 55 patients followed by laparotomy and salpingectomy in 6 patients. Two patients needed suction evacuation for molar pregnancy.

4.4 Maternal Complications

Post-partum complications were observed in 10 patients. Most common complications were wound sepsis in two patients, Peripartum cardiomyopathy in two patients and ARF also in two patients. One patinet needed dialysis. 30 patients (19.48%) needed blood transfusion. 23 patients needed only PRBC and 7 patients needed PRBC and FFP transfusion. Rathi Charu *et al*. in their study in 2010 reported 42% patients needing blood transfusion. In the present study, nineteen patients (12.34%) needed ICU admission with an average stay of 4.26 days. Rathi Charu *et al*. in their study reported ICU care in 8% cases. In the present study the overall average hospital stay was 7.37 days. No maternal mortality was found.

5. Conclusion

There were a total of 115 births. 92 were live births (80%) and 23 were still births (20.00%) and 27 had 1 minute Apgar score <7. Rathi Charu *et al*. in their study reported 90% live birth rates. In the present study two neonates had hydrocephalous, one neonate had MAS, one had Dandy Walker Syndrome and one had Anencephaly.

6. Conflict of Interest

Not available

7. Financial Support

Not available

8. References

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