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AN ANALYSIS OF THE MATERNAL & PERINATAL OUTCOME IN OBSTETRIC REFERRAL CASES TO A TERTIARY CARE CENTRE

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ABSTRACT **Background:** The term referral is often used to indicate an advice given by health worker to seek care at higher level facility whether followed or not .The objective of antenatal care is to detect high risk cases as early as possible from large group of antenatal patients and arrange skilled care for them. The primary aim is to achieve a healthy mother and a healthy child to every pregnant woman.

Aims And Objectives: To study the incidence, various reasons and maternal and perinatal outcomes of Obstetric referred cases to N.S.C.B. Medical College, Jabalpur.

Methods: It was a prospective and observational study done in the Department of Obstetrics and Gynaecology NSCB MCH, Jabalpur MP from 1st January 2019- 30th June 2020. . Selected referred obstetric cases were prospectively analyzed for causes of referral and delays at various levels and evaluated for maternal and perinatal outcome.

Results: The present study is a prospective and observational study. The proportion of referral cases in our tertiary care institute is 33%. In this study of 456 cases , 51.3 % cases were in age group 25-29 years, 30.7% in 20-24 years and 14% cases were in 30-35 years, 70.8% referred cases belongs to rural area. Our study showed 48.9% cases being un booked at referring centre. Majority of cases 167 [36.6%] were referred from District hospitals.

Hypertensive disorders of pregnancy 112 [24%] cases were the major cause of referral and 91 cases [46.4%] reached late at referred centre because of financial constraints. 250 [59.9%] cases were delivered vaginally and 167 [36.6%]cases required surgical interventions. 172 [37.7%] cases were shifted to ICU . Majority cases were discharged and there were 5% maternal mortality in our study. Out of 398 total birth 330 [82.9%] delivered live babies having good APGAR Score in 185 [56%] cases, while 17% cases delivered IUD/Still born baby.

Conclusion: This study emphasizes the crucial role of indicated and timely referral in ensuring favorable maternal and perinatal outcome .The referral policy for Primary and Community Health Centers, District and Private hospitals should be clearly outlined and strictly enacted, so that preventive and corrective action can be timely taken.

Clinical Significance- Timely evaluate high risk cases and refer to tertiary care center for proper management so that maternal and perinatal mortality can be reduced.

KEYWORDS : IUD- Intrauterine death, ICU- Intensive care unit, MMR- Maternal mortality rate ,Emoc- emergency obstetric care.

INTRODUCTION:

The term referral is often used to indicate an advice given by health worker to seek care at higher level facility whether followed or not .The objective of antenatal care is to detect high risk cases as early as possible . Obstetric referrals include cases like – Eclampsia, Pre-eclampsia, Anti partum haemorrhage, Post partum haemorrhage, Anaemia, Obstructed labour etc. The present study was carried out to evaluate the maternal -foetal outcomes of such cases.

A formalized maternity referral system is within the previous strategy of risk screening in antenatal period, in which front line health worker would attempts to identify those women at high risk of obstetric complications and refer them for specialized antenatal and delivery care to a higher level[1]. This study is planned to analyze the various factors limiting the timely referral inspite of various schemes (Yojanas) run by Government to reduce the maternal mortality. We use the referral chain model proposed by JAHN et al., the model conceptualized referral as composed of 3 main component i.e. Sender, Transport and Receiver[2].

The Prevention of Maternal Mortality (PMM) network study has proposed a three delays model for referrals in obstetric and gynaecological emergencies[3]. A Study showed that 92% of maternal deaths are due to delay in referral and case management, first delay in making decision to seek care, 2nd delay is due to delay in identifying and reaching to a medical facility, 3rd delay is due to delay in receiving adequate and prompt treatment even after reaching a care institution[4-5]. Although most obstetric complications cannot be predicted, the majority can be treated with timely provision of a package of evidence-based interventions known as emergency obstetric care (EmOC)[6-8]. Emergency obstetric care (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.

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.[9,10]

After the implementation of ' JANANI SURAKSHA YOJNA' ,there is a three-fold rise in institutional deliveries, but unfortunately Maternal Mortality Rate (MMR) has not declined appreciately.

Despite these interventions there is a high incidence of adverse maternal-perinatal outcomes reflecting the poor quality of referral services in India. Hence we must make utmost effort to utilize the existing resources for benefit of our rural population.

MATERIAL AND METHODS

The present study is prospective and observational study undertaken in the Department of Obstetrics and Gynaecology NSCB MCH ,JABALPUR (M.P.). for the period of 18 months with effect from 1st January 2019- 30th June 2020. , comprising the randomly selected 456 obstetrics cases which have been referred from Primary Health Centre, Community Health Centre, District Hospital, Private hospitals to the Department of Obstetrics & Gynaecology, N.S.C.B. Medical College, Jabalpur.

DATA COLLECTION

Thorough and careful history, basic and specific investigations as required were carried out for each case. Mode of delivery was documented, maternal complications if any, were managed and maternal –perinatal outcome was documented.

Inclusion Criteria -

All obstetric referrals while pregnant or within 42 completed days of termination of pregnancy irrespective of the duration and the site of pregnancy.

Exclusion Criteria

All patients who are booked at N.S.C.B. Medical College, Jabalpur were excluded from the study.

OBSERVATION & RESULTS

1 Distribution Of Cases According To Age

Age Group(Years)	Frequency (n)	Percent (%)
<20 yrs	7	1.5
20-24 yrs	140	30.7
25-29 yrs	234	51.3
30-35 yrs	64	14.0
>35 yrs	11	2.4
Total	456	100.0

·This table shows age wise distribution of studied group. Majority of cases (51.3%) were observed in age group 25-29 years comprising 51.3% of total cases , followed by 30.7% in age group 20-24 years and 14% in 30-35 years.

2. Distribution Of Cases According To Demography

In this study group, 323(70.8%) cases were of rural area while 133 (29.2%) of urban area ,reflecting major population referred to our tertiary centre is from rural area and majority cases [87.3%] have income belonging to low-socioeconomic class. 5.9% cases were graduate, 28.7% cases were educated up to high school and 6.6% cases were illiterate in this study.

3 Distribution Of Cases According To Number Of ANC Visits

	No. of ANC visits	Frequency(n)	Percent(%)
Unbooked	No ANC visit	49	10.7
	1 ANC visit	98	21.4
	2 ANC visits	76	16.6
Booked	3 ANC visits	94	20.6
	4 ANC visits	70	15.3
	5 or more ANC visits	69	15.1
	Total	456	100

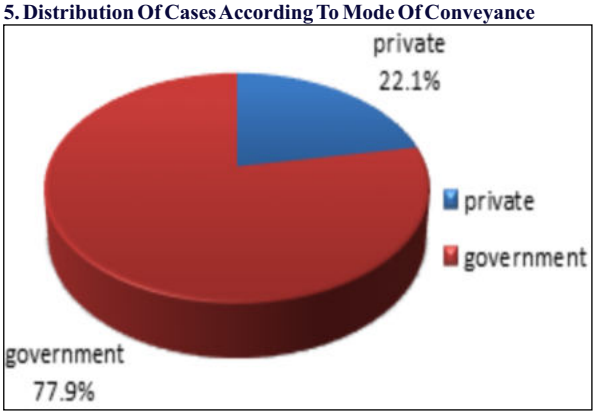
This table shows that out of total study cases 48.9% cases were un booked, majority have only 1 ANC visit.

4. Distribution Of Cases According To Referring Facility

Referring facility	Frequency(n)	Percent(%)
PHC	87	19.0
CHC	122	26.8
DH	167	36.6
PRIVATE HOSPITAL	28	6.1
OTHERS	52	11.5
TOTAL	456	100

This table shows majority of cases 167(36.6%) were referred from District hospitals followed by community health centre(CHC) (26.8%) and primary health centre(PHC) (19%).

5. Distribution Of Cases According To Mode Of Conveyance



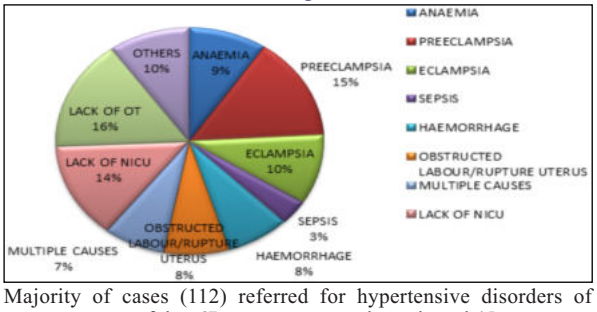
This pie chart shows mode of conveyance uses by study cases to reach NSCB, majority(77.9%) of cases reached by Government conveyance and only 22.1% reached by private conveyance.

6. Distribution Of Cases According To Cause Of Delay In Referral

Cause Of Delay	Frequency	Percent
Inadequate transport	36	18.3
Financial constraints	91	46.4
Man power constraints	42	21.4
Socio cultural superstitions	27	13.7
Total	196	100

This table shows majority of cases 91(46.4%) were late because of financial constraints followed by 42 (21.4%) cases were referred late because of man power constraints and late decision making.

7. Distribution Of Cases According To Indication Of Referral



Majority of cases (112) referred for hypertensive disorders of pregnancy ,out of that 67 cases were preeclampsia and 45 cases were eclampsia. Anaemia was the cause for referral for 43 cases indicating 9.4% reason for referral.

8. Distribution Of Cases According To Definitive Surgical Outcome

Procedure	Frequency(n)	Percent(%)
Vaginal delivery	250	59.9
LSCS	144	34.5
Repair of rupture uterus	6	1.4
Caesarean Hysterectomy	2	0.4
Exploratory laparotomy	3	0.7
Others	12	2.8
Total	417 (456)	(100)

This table shows , majority of referred cases (59.9%) were delivered vaginally and caesarean section rate was 34.5% in referred cases. Exploratory laparotomy was performed for 3 ectopic pregnancy cases and in 2 cases caesarean hysterectomy was performed to control haemorrhage.

9. Distribution Of Cases According To ICU Interventions

Interventions	Frequency(n)	Percent(%)
Dialysis	18	10.4
Ventilator support	89	51.7
Ionotropic support	34	19.7
Tracheostomy	4	2.3
Conservative	27	15.6
Total ICU admission	172	100

This table depicts 172 cases were shifted to ICU and majority of cases (51.7%) were put on ventilator as a life saving intervention and 34 cases also needed iaonotropic support . 18 cases underwent dialysis as a part of treatment and 4 cases underwent tracheostomy for prolonged ventilatory support.

10. Distribution Of Cases According To Maternal Outcome

Outcome	Frequency(N)	Percent(%)
Well on discharge	329	72.1
Discharge on request	48	10.5
LAMA	29	6.3
Absconded	27	5.9
Maternal Death	23	5
TOTAL	456	100

This table depicts majority cases were well on discharge and there were 5% maternal mortality in present study.

11. Distribution Of Cases According To Fetal Outcome & APGAR Score

Fetal Outcome	Frequency(N)	Percent(%)
Live [APGAR SCORE]	330	82.9

GOOD(>7) AVERAGE (4-6) POOR(<3)	185 98 47	56 29.6 14.2
IUD/Still born	68	17.1
Total birth	398	95.4
Abortus	19	4.5
Total	417(456)	90.3(100)

This table shows foetal outcome in referred cases. Majority of cases [330] delivered live having good [185 cases] APGAR Score, while 17% cases delivered IUD/Still born baby.

DISCUSSION

The proportion of referral cases in our tertiary care institute is 33% which is higher than other studies. A study done by Rekha Jakhar and Ankita Choudhary (11) et al., in 2016 at Jodhpur and by Gupta(12) et al., at a tertiary care centre in 2016 showed 9.96% and 15.37% of obstetric referrals respectively. Similarly, study by Sable and Patankar {13} at Nagpur in 2015, Pandya and Patel {14} in PHC of Gujrat and Sharma{15} at Indore in 2007 reported referral rate of 17.83%, 15.2% and 14.02% respectively.

In present study , maximum number of patients 51.3% were in the 25-29 years of age group which is comparable to study by Morsheda Banu[16] et al(2010)., in assessing the MANOSHI Referral system showed that overall age distribution in majority 74% of respondents were between age 20-35 years.

In our study, majority of cases 70.8% were referred from rural areas and 28.7% were educated up to high school , while 5.9% cases were graduate and 6.6 % were illiterate. Rathi C, Gajria K, Soni N. (17)., et al noted in their study that, 63% cases from rural areas were illiterate while only 9% of urban women were illiterate.

Our study showed 48.9% being un booked at referring centre. Contrary to this, Sable and Patankar{13} . in 2015 showed only 25% being un booked at referring centre.

In our institute maximum patients were referred from district hospitals 36.6% , followed by 26.7% of cases referred from community level health centre which is similar to study by Sable and Patankar {13}., in 2015.

In present study ,majority of cases 77.9% reached tertiary centre using government transport in contrast 38% government transport used in a study by Goswami P, Bindal J, Chug N. (18) et al in 2015. Similarly in a study conducted by Narwadkar Mangeshvinayak (19)et al , only 11% patients travelled by Government ambulance.

In present study 46.4 % cases were referred late because of financial constraints and socio cultural superstitions was the reason for delay in 13.7 % cases. Economic constraint was observed to be an important cause by Patel RV et al (20).

In present study , Majority of cases 24.5% were referred for hypertensive disorders of pregnancy ,Out of this 59.8% cases were preeclampsia and 40.1% cases were eclampsia.This was followed by lack of Operation theatre 15.8% & lack of NICU 13.8% .Goswami P, Bindal J, Chug N. (18) et al., in 2015 observed that Anaemia 27.86% followed by hypertensive disorders of pregnancy 17% were the major causes of referral to tertiary care hospital. Patel HC et al (21)., found that main causes of referral were preeclampsia 16% , followed by foetal distress 5%. Similarly Study by Goswami P, Bindal J, Chug N.(18) et al., in 2015 , found that 16.87 % of cases were referred for unavailability of operation theatre, Blood banks and incompetent human resources.Non availability of speciality services was found in 49 % of cases and non availability of blood transfusion facilities was reported in 60 % of patients in a study by Sharma CP et al, (22). In the present study anaemia was reason of referral in only 9.4 % cases whereas 27.86% cases were referred for anaemia in a study by Goswami P, Bindal J, Chug N.(18) et al., in 2015 and 18.05% by Gupta (12) et al ., which is threefold higher than our study.

In our study 11.6% cases were referred for previous caesarean section which is comparable to study by Khatoon A (23) et al ., where previous caesarean was reason for referral in 15 % cases . In a study by Gupta PR (12) et al., and Goswami P, Bindal J, Chug N.(18) et al; they have comparatively less cases i.e.6%.

The patients with previous caesarean section are referred to higher centres from PHC/CHC due to unavailability of operation theatre, Gynaecologist, Anaesthetist, trained staff or basic infrastructure deficits. Government should take measures to improve health infrastructure , make provisions for developing new blood banks and appoint trained gynaecologist in the peripheral health centre to reduce burden on tertiary care centre.

Distribution according to definitive /surgical outcome in present study ,59.9 % cases delivered vaginally (either spontaneous or induced) , 34.5 % cases had caesarean section and 5% cases have other surgical interventions(caesarean hysterectomy, exploratory laparotomy, haematoma drainage etc).

Caesarean section rate in our study is comparable to study by Goswami P, Bindal J, Chug N.(18) et al; i.e. 28% and study conducted by Gupta PR [12] et al. , while in the study conducted by Divya Goswami (24) et al ; on 154 cases referred to tertiary care hospital in Garhwal , Uttarakhand 67 patients needed surgical intervention contributing to 43% caesarean section rate which is higher than above study.

In present study, 37.7% cases admitted in Obstetric ICU. Amongst these, 7.2% cases were in stable condition and 30.4% were in poor general condition. According to a study by Sable & Patankar(13) et al., 75% cases were stable, 6.05% were irritable and 18.42% were critical on admission. In the present study , percentage of ICU admission is fourfold (8%) higher than Rathi C, Gajria K, Soni N.et al (17) and three fold higher than Goswami P, Bindal J, Chug N.(18) et al; i.e. 13.34% and two fold higher than study by Maskey S (25) , et al; i.e. 19% .

In our tertiary centre, total 5% maternal deaths were reported in referred cases during study period which is lower than a study by Rathi C, Gajria K, Soni N.et al (17) i.e. 7% from urban areas and 15% from rural areas. Similarly in Gadhiali (26) et al., reported 1.2% maternal mortality and D.K. Hospital, Raipur there was 6% and in Surabhi Sharma (15)et al .,1.55% maternal mortality was reported.

In this study we observed that , total no of births are 398 (95.4%) , while 19 (4.5%) were abortions. Of these, total no of live births were 82.9% and 17% were IUD/still births. Similarly Ayesha Khatoon (23) et al (2011)., had 204 (87%) total births where 177 (87%) were live and 27(13%) were still births. Sable and Patankar(13) et al., also found 89.51% live births and 10.23% were IUD/still births. In this study, APGAR Score at 1 minute was GOOD (>7) in 56% babies , AVERAGE (4-6) in 29.6% and it was POOR (<3) in 14.2% babies.

Where as a study by Sable and Patankar(13) et al., APGAR Score at 1 minute was (6 or <6) in 52.6% of babies and at 5 minutes APGAR Score was (6 or <6) in 9.83% babies. In present study, 72.8% babies were term at birth while 27.1% were preterm. Similarly Ayesha Khatoon(23) et al (2011) reported 26.5% preterm births and Sable and Patankar (13) et al., found 45.9% babies were preterm at birth.

CONCLUSION

The present study emphasizes the crucial role of indicated and timely referral in ensuring favorable maternal and perinatal outcome for Obstetric patients. The referral policy for Primary and Community Health Centre, District and Private hospitals should be clearly outlined and transfer to higher centre should be prompt. The Government should initiate training of existing staff and appointment of specialists at periphery, develop necessary infrastructure like Operation theatres & Newborn care units, create awareness about safe delivery practices in the rural population ,ensure safe, economic means of transportation and financial assistance for the needy patients. The socio-cultural impedences in decision making and delay in seeking appropriate care have to be eliminated by improving literacy and women empowerment in family matters. There should be a feedback system wherein the referring facility is apprised of their shortcomings, so that preventive and corrective action can be taken at grass root level. These practices will soon realize the mission to envisage equitable, affordable, timely and quality health care services to all sectors of society.

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