Outcome of Obstetric Referrals to a Tertiary Referral Hospital in Northern Uganda

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Abstract

Abstract: Objectives: To review the obstetric referrals, source of referrals, and document the maternal and perinatal outcomes. **Method:** A Prospective Observational study reviewed 780 eligible obstetric referrals, ≥28 week's gestation, referred to the hospital for a period of 12 months were analyzed with SPSS version 23. The inclusion criteria were referred cases in the study period. **Results:** Obstetric referrals accounted for 16.3% (780/4799) of the total admissions, 43.8% were from CEMNOC sites and 32.3% from HC IVs while 57% from without Lira District, showing lacunae in the emergency obstetric care given at the HC IV levels and the districts hospital in the region. The majority or 93.5% (729) were intrapartum admissions and 98.1% (715) of these had labour outcome recorded, showing the nature of referrals. Most common diagnosis at referral was labour or complications of labour and only 4.6% had other diagnoses. The diagnoses at the time of admission were normal labour (31.0%); obstructed labour (25.1%); prolonged labour (7.1%). About 29.9% presented with more than one medical/obstetric complications, and the most common one was obstructed labour, preeclampsia, IUFD and previous caesarean section scars. The outcome of the referred cases included: 45.1% (327) vaginal delivery (either spontaneous or augmented), 54.4% (396) caesarean section, 0.5% (4) Caesarean hysterectomy, 3.1% (24) were transferred out undelivered, 1.2% (09) missing outcome while the 3.6% (28) had medical conditions were managed and discharged. There were Ten (10) maternal deaths among the referrals, during the study period and 3 were due to Obstetric hemorrhage; and behind these there were many near misses which would provide valuable information on the quality of care at the periphery facilities.

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Neonatal outcomes were 80.4% (627) live babies, 10.5% (82) were FSB/MSB and 10% had APGAR score ≤5 at 5 minutes of birth while 13.2% of the recorded weights were low birth. **Conclusion:** A wide spectrum of complicated and uncomplicated obstetric cases were referred to this hospital and majority were unjustifiable. Unavailability of comprehensive emergency obstetric care (CEMONC) was the most common reason for referrals. Most common diagnosis at the time of referral was prolonged/obstructed labour. Even today, obstetric hemorrhage is the leading cause of maternal mortality while prolonged/obstructed labour contributed to the high neonatal mortality. Majority of the referred conditions could be managed at the CEMONC sites; could this be a lacunae in the human resource and supplies to handle these cases as most referrals were unjustified.

Keywords: Obstetric Referrals; Maternal; outcome; fetal outcome; Referral sites.

1. Introduction

Timeliness and appropriateness of referral are a challenge to health care providers, since delay in referral adversely affects maternal and neonatal outcome [1]. Hence, identification and referral of high risk pregnancies and obstetric emergencies are an integral part of maternal and child health services, to reduce the fetal and maternal morbidity and mortality. Appropriate and timely referral ensures continuity of care and inspires confidence in consumers in the health care system [2]. Lira regional referral hospital receives a large number of obstetric referrals, but to date, little is documented about them. Maternal morbidity and mortality remains a major challenge to health systems worldwide and is an important focus for international development, thus the sustainable development goals. Timely referral and intervention of high risk pregnancies can reduce feto-maternal morbidity and mortality whereas unnecessary referrals increase workload on tertiary hospitals and also cause discomfort to pregnant women and relatives. Moreover in obstetrics apparently normal is potentially abnormal and change can occur with frightening rapidity and requires experience to detect the patients at risk before emergency arises. Obstetrics is a one way traffic. This demands eyes trained to see, hands skilled to feel [3] and brain disciplined to coordinate and act. Obstetric performance is assessed in terms of maternal and neonatal morbidity and early perinatal and maternal mortality. The known cases of maternal mortality in our set-up are namely hemorrhage, obstructed labour, sepsis, unsafe abortion and hypertensive disorders in pregnancy. The interaction of a variety of factors may contribute to limiting or delaying access to maternal health care services particularly emergency obstetric care when life threatening complications occur. Weaknesses and deficiencies in the health systems especially with regard to referral linkages may affect access to emergency obstetric care and negatively influence maternal and fetal outcomes. Lira Regional Referral Hospital is a tertiary institution that receives most of these emergency obstetric referrals. Emergency obstetric care (EmOC) refers to elements of obstetric care needed or 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. It is still recommended to electively refer pregnant woman with previous caesarean section, breech presentation, transverse lie, multiple gestation, hypertension and severe anemia for delivery before any complication arise to a health care centre where all the facilities to deal with the complications are available. With this background, present study was undertaken to evaluate the pattern of obstetric cases referred to tertiary hospital and maternal outcomes amongst referred case.

1.1. Material & Methods

This was a prospective study undertaken at Department of Obstetrics & Gynecology, Lira Regional Referral Hospital from 1st January 2018 to 31st December 2018 after attaining institutional ethical clearance. The objective was to review the obstetric referrals, source of referrals, and document the maternal and perinatal outcomes. Data was from 4799 admissions drawn from the integrated maternity register and it was Prospective, Observational study. The study population consisted of all (780) cases of obstetric referrals from periphery health units at 28 weeks or more, requiring emergency obstetric care. The total number of deliveries during this period were 4313 out of the 4799 total admissions. Data was obtained from referral sheets, patient case notes, Ward registers and theatre records. Excluded cases included postpartum referrals; self-referrals and referred cases less than 28 weeks of gestation. The outcome measures were level of referring unit, C/S, maternal and fetal outcome which was retrieved from the case notes; APGAR score less than 7 at 5 minutes and indication for C/S. Descriptive Data analysis statistics like percentages was done using Statistical Package for Social Sciences (SPSS) software version 23.

2. Results

2.1. Demographics of Obstetric Referrals

The proportion of obstetric referral cases to the tertiary care center was 16.3% (780/4799) of the total admissions which compares with other studies [1], 97.4% of the referred cases had their age recorded and the mean age of the patients was 24.3 years while the age ranged between 14 years to 48 years. Maximum number of cases in the study were in the age group 14-19 years comprising 30.1%, while most mothers were in the age group <24years as this comprised 59.7%. Concerning the pregnancy status, 96.4 were intrapartum, 0.3% postpartum and the rest antepartum (Table 4). The majority of the referral cares were Primepara (40.4%). The number of referrals decreased with increasing gravidity irrespective of the level of the facility. In this study, we found that 44.0% of the patients were primegravidas, which is comparable to other studies [2, 3]. Analyzing the Gravidity of the mothers in comparison with the age, 87.1% (679) met the criteria out of the 780 referrals (Table I)

Table I

Gravidity	Aggregated age in years					
	</=19	20-29	30-39	>/=40	Missing	Total
G1	180 (26.5%)	98 (14.4%)	3 (0.4%)	1 (0.1%)	3 (0.4%)	285 (42.0%)
G2-4	16 (2.4%)	169 (24.9%)	32 (4.7%)	1 (0.1%)	5 (0.7%)	223 (32.8%)
G5-9	0 (0.0%)	37 (5.4%)	78 (11.5%)	9 (1.3%)	6 (0.9%)	130 (19.1%)
>/=G10	0 (0.0%)	0 (0.0%)	4 (0.6%)	6 (0.9%)	0 (0.0%)	10 (1.5%)
Missing	0 (0.0%)	22 (3.2%)	8 (1.2%)	0 (0.0%)	1 (0.1%)	31 (4.6%)
Total	196 (28.9%)	326 (48.0%)	125 (18.4%)	17 (2.5%)	15 (2.2%)	679 (100.0%)

2.2. Source of Obstetric Referrals

The bulky of referrals came from HC III which is the Basic obstetric emergency care unit, thus bypassing the immediate comprehensive emergency health centre IVs; and referrals from HC III also contributed to the high number of C/Section indicating appropriateness of referrals (Table II). Mothers who lost the reproductive potential soon after admission were from the same HC IIIs. Half of the referrals had emergency Caesarean section. In this study, More than 1/3 (44.5%) of the referrals were from comprehensive emergency obstetric and Neonatal Care (CEMONC) sites; that is, HC IVs, Medical centers and hospitals. showing a lacunae in the emergency obstetric care given at the CEMONC sites. As many as 53.3% of the referrals were directly from lower centers, hence, bypassing the intermediate levels of the referral chain. Although sometimes bypassing the intermediate levels of care is necessary if the desired facility is available only at the higher centers, but such reasons do not account for such a higher figure of 53.5% in this study [4, 5] and in line with other studies.

Table II: Distribution of Cases According Level of Referring Unit and Mode of Delivery

	MODE OF DELIVERY						
	SVD	C/SECTION	CAESAREAN HYSTERECTOMY	ANTENATAL	TRANSFER OUT	POSTPARTUM	TOTAL
Level II	8 (1.0%)	7 (0.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	**15 (1.9%)**
Level III	171 (21.9%)	202 (25.9%)	4 (0.5%)	11 (1.4%)	13 (1.7%)	0 (0.0%)	**401 (51.4%)**
Level IV	112 (14.4%)	128 (16.4%)	0 (0.0%)	8 (1.0%)	5 (0.6%)	1 (0.1%)	**254 (32.6%)**
Hospital	8 (1.0%)	15 (1.9%)	0 (0.0%)	1 (0.1%)	2 (0.3%)	0 (0.0%)	**26 (3.3%)**
Medical Centre	24 (3.1%)	35 (4.5%)	0 (0.0%)	6 (0.8%)	2 (0.3%)	0 (0.0%)	**67 (8.6%)**
Others	4 (0.5%)	9 (1.2%)	0 (0.0%)	2 (0.3%)	1 (0.1%)	1 (0.1%)	**17 (2.2%)**
Total	**327 (41.9%)**	**396 (50.8%)**	**4 (0.5%)**	**28 (3.6%)**	**23 (2.9%)**	**2 (0.3%)**	**780 (100.0%)**

2.3. Indication for the Obstetric Referrals

Table III presents the main diagnoses at referral by the referring units and the diagnosis at admission at the tertiary unit as recorded in the integrated register or operation book. In this study, 93.5% (729) of the cases were admitted in labour or with labour complications; 95.1% had referral notes and the reason for referral recorded while 98.1% (715) of these had labour outcome recorded.

Table III: Distribution of Cases according to Reason for Referral and Diagnosis at Admission

REASON FOR REFERRAL (A)		DIAGNOSIS ON ADMISSION (B)	
Reasons For Referral	**Frequency**	**Diagnosis on admission**	**Frequency**
Prolonged Labour	365 (46.8%)	Obstructed Labour	198 (25.4 %)
Obstructed Labour	78 (10.0%)	Normal Labour	173 (22.2 %)
APH	39 (5.0%)	2nd stage of labour	78 (10.0 %)
Hypertensive Disorders	30 (3.8%)	Prolonged Labour	54 (6.9 %)
Preterm Labour	21 (2.7%)	Contracted Pelvis	31 (4.1 %)
Previous C/S Scar	32 (4.0%)	APH	30 (3.8 %)
Mal-Presentation	23 (3.0%)	Preeclampsia/Eclampsia	27 (3.5 %)
IUFD	19 (2.4%)	Malpresentation/Malposition	21 (2.7 %)
UTI	15 (1.9%)	Fetal distress	19 (2.4 %)
PROM	14 (1.8%)	Preterm labour	19 (2.4 %)
Multiple Pregnancy	14 (1.8 %)	Previous c/s scar	11 (1.4 %)
Contracted Pelvis	12 (1.5 %)	Uti	09 (1.2 %)
Malaria	9 (1.2 %)	Arm prolapse	09 (1.2 %)
Fetal Distress	9 (1.2 %)	Cord prolapse	08 (1.0 %)
Others	100 (17.9 %)	Others	102 (11.8 %)
Total referrals	**780 (100.0%)**	**Total**	**780 (100 %)**

Most common diagnosis for referral was labour or intrapartum complications and only 4.6% had other diagnoses. The most common reasons for referral were prolonged labour (46.8%), obstructed labour (10.0%), APH (5.0%), Hypertensive disorders in pregnancy (3.8%), Previous C/S scar (4.0%). The diagnoses at the time of admission were normal labour (31.0%); obstructed labour (25.1%); prolonged labour (7.1%). Prolonged and obstructed labour were the most frequent registered diagnoses while a sizeable number of cases were referred with no identifiable reason. Many of the referrals with prolonged labour turned out as normal labour or obstructed labour; while 29.9% presented with more than one obstetric diagnosis/complications. Among others were retained twin, PPH, Ruptured uterus, Malaria in pregnancy, post-operative sepsis, Oligohydromnious/polyhdromnious. IUFD, and previous caesarean section scars. Although anemia is prevalent in pregnant women, only 0.4% were referred due to anemia.

2.4. Outcome of Obstetric Referrals

Tables IV show the distribution of mode of delivery and neonatal outcomes in C/S and normal delivery cases. Caesarean section rate was 54.4% in the referred cases who delivered, which is comparable to other studies in the region [6, 7]. Out of that majority only one was done as elective caesarean section. The outcome of the referred cases included: 45.1% (327) vaginal delivery (either spontaneous or augmented), ; 0.6% (04) Caesarean hysterectomy, 2.9% (23) were transferred out undelivered due to logistical issues, 0.5% (04) were postpartum. Those did not deliver, 3.6% (28) had medical conditions were managed conservatively and discharged while 3.1 % (24) were transferred out undelivered due to logistical issues in the operating theatre.

Table IV: Distribution of Obstetric Referral According to Mode of Delivery and Fetal Outcome

MODE OF DELIVERY	OUTCOME OF DELIVERY					
	LIVE BIRTH	FRESH STILL BIRTH	MACERATED STILL BIRTH	NEONATAL DEATH	MISSING OUTCOME	TOTAL
SVD	**280** (38.5%)	19 (2.6%)	17 (2.3%)	06 (0.8%)	06 (0.8%)	328 (45.1%)
C/SECTION	345 (47.4%)	39 (5.4%)	02 (0.3%)	07 (0.9%)	03 (0.4%)	396 (54.4%)
C/S HYSTERECTOMY	02 (0.3%)	02 (0.3%)	00 (0.0%)	00 (0.0%)	00 (0.0%)	04 (0.5%)
TOTAL	**627** (86.1%)	**60** (8.2%)	**19** (2.6%)	**13** (1.8%)	**09** (1.2%)	**728** (100%)

Table V: Table showing Referrals from Comprehensive Obstetric Emergency Sites and Indication for Operation

INDICATION FOR C/SECTION	CEMONC SITE		
	YES	NO	TOTAL OPERATIONS
Obstructed Labour	80 (20.1%)	108 (27.1%)	188 (47.1%)
Prolonged Labour	13 (3.3%)	24 (6.0%)	37 (9.3%)
CPD	14 (3.5%)	19 (4.9%)	33 (8.3%)
Severe PET	8 (2.0%)	11 (2.8%)	19 (4.8%)
Fetal Distress	9 (2.3%)	9 (2.3%)	18 (4.5%)
APH	9 (2.3%)	9 (2.3%)	18 (4.5%)
Malpresentation	12 (3.0%)	15 (3.8%)	29 (7.3%)
Prolonged Prom	7 (1.8%)	4 (1.0%)	11 (2.8%)
Prematurity	1 (0.3%)	7 (1.8%)	8 (2.0%)
Repeat C/Section	13 (3.3%)	4 (1.0%)	17 (4.3%)
Breech	5 (1.3%)	4 (1.0%)	9 (2.3%)
Ruptured Uterus	0 (0.0%)	4 (1.0%)	4 (1.0%)
Others	3 (0.8%)	6 (1.5%)	2 (2.3%)
TOTAL	174 (43.6%)	225 (54.4%)	399 (100.0%)

There were 10 maternal mortalities among the referrals as follows: 3 followed normal delivery but admitted with intrauterine Fetal death, five after C/Section for indication including eclampsia and obstructed labour, one after hysterectomy for ruptured uterus and one died undelivered admitted with aspiration pneumonia admitted unconscious. This contributed to 1.3% of the total referrals. Behind these deaths, there were many near misses which would provide valuable information on the quality of care at the periphery facilities and tertiary facility. 6.2% of mothers had at least one recorded postpartum complication. Among the maternal morbidities included Wound sepsis, Puerperal sepsis (22), Burst abdomen (6) with repeat laparotomy, loss of reproductive potential due to postpartum hysterectomy (4). In the present study, 3.1% of referred cases were transferred out due to lack of operating theatre services. The government should take measures to improve health infrastructure facilities, at tertiary centres to reduce the burden on the mothers of multiple referrals.

2.5. Fetal Outcome from Obstetric Referrals

Neonatal outcomes were 86.1% (627) live babies, 8.1% (60) FSB, 2.6% (19) MSB, 1.8% (13) early neonatal deaths while 10% had APGAR score ≤5 at 5 minutes of birth and 13.2% of the recorded weights were low birth. Of the total live births, 18.2% (142) were admitted to NICU.

Table V: Fetal outcome of Labour in relation to APGAR Score

	APGAR SCORE					
	0-1	**2-4**	**5-7**	**8-10**	**Missing Score**	**Total**
LIVE BIRTHS	0 (0.0%)	43 (5.9%)	156 (21.4%)	423 (58.1%)	5 (0.7%)	627 (86.1%)
FSB	60 (8.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	60 (8.2%)
MSB	19 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	19 (2.6%)
END	0 (0.0%)	11 (1.5%)	2 (0.3%)	0 (0.0%)	0 (0.0%)	13 (1.8%)
MISSING OUTCOME	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (1.2%)	9 (1.2%)
TOTAL	79 (10.9%)	54 (7.4%)	158 (21.7%)	423 (58.1%)	14 (1.9%)	728 (100.0%)

3. Discussion

The importance of referral in obstetric emergencies is related to the unpredictability of pregnancy complications and their potential to rapidly progress to become severe and life threatening. For example, hemorrhage can lead to the death of the woman and her baby in minutes or hours *[8, 4]*,. Lira Regional Referral hospital is a tertiary care hospital, where complicated obstetric cases are referred from various peripheral primary and private health centers within and the surrounding districts. The study documented the magnitude and reasons for referral to the tertiary care center. The study also documented a number of referrals come from facilities that should be able to offer the comprehensive obstetric care, that is secondary level health facilities and this was high (Table II). The

proportion of obstetric referrals to our tertiary care institute accounted for 16.3% [4] of the total admissions, which is in line with other studies *[8, 9]*. On assessing the overall age distribution in this study, we found most patients (59.7%) were below 25 years of age which is comparable to the above authors and other studies [10]. The mean age was 24.3 with the minimum of 14 years and 48 as maximum [4, 9]. Similarly ≤24 years was the most frequent age group referred to the Hospital. Majority of the patients referred were prime gravida (44%) which is comparable to other studies *[4, 8]* and 56% distributed between gravida 2 to 12. The number of referrals reduced with increasing age and gravidity (Table I). Most of the patients were from government health centers especially from Health center IIIs (51.4%) [1] and HC IVs (32.3%) as seen in table 2 from within and various neighboring districts *[8]*. This indicates that the community has trust in the government health facilities which are less costly (Table 4) and the bulky of the patients were referred in the intrapartum period. In a similar observational study conducted in Gujarat, most common referral was during the intra-partum period similar to our study. Unlike in other studies [5, 11, 12, 2] where hypertensive disorders and other medical conditions were the major cause of referral to tertiary care hospital, the major indication for referral in this study were emergency obstetric indications that do not require tertiary care like prolonged and obstructed labour (Table 3) which shows that many of the referrals were unjustifiable. Proper Monitoring of labour using a partograph can prevent morbidity from abnormal labour or prolonged labour, which is preventable cause of maternal and perinatal morbidity and mortality. The reasons for referral included both obstetric and non-obstetric, and more so structural or system problems since majority of referred cases did not need sophisticated equipment or personnel to manage. In this present study, 41.9% of the referred cases had vaginal delivery either spontaneous or induced; while 50.8% underwent caesarean section which was a substantial percentage as in other studies [7, 12], and 51.4% needed some surgical interventions; the results of which are comparable with other studies & we can conclude that referrals contributed substantially to the high rate of caesarean section. The commonest indication of caesarean section was obstructed labour (47.0%) as shown in table 6. Thus, this increase in referrals of unjustifiable cases increases the burden on tertiary centers and lowers the quality of health services. There should be deliberate effort to improve and strengthen manpower plus prper equipment at the secondary level facilities. In this study, the total number of births were 719 (96.1%) while 28 (3.6%) were discharged undelivered and 24 (3.1%) transferred out due to logistical problems like lack of theatre supplies. Of these, the total number of live births and discharged alive were 627 (80.4%), 13 neonatal deaths and 79 (10.1%) were still births comparable with other studies [10]. In our study, 30.1% of babies had 5 minute score of less ≤ 7. There were 10 maternal deaths in this study, and the leading cause was obstetric hemorrhage. And 8 of these died within 6 hours of admission. This shows a delay in referral of complicated cases from the peripheral health centers, which could be due to lack of transport facilities, inadequate skills by health personnel to diagnose emergencies and patient attitude towards referral. Some cases arrived two days from the time of referral. The leading cause of maternal mortality in this study was obstetric hemorrhage [8] and complications of obstructed labour. The high percentage of maternal deaths occurring in the immediate postpartum period elicited in our study confirms the importance to be placed on early identification and referral of high-risk patients before the onset of labour or delivery.

4. Limitations of the study

Many of the patients referred did come with missing information on the referral letter like the treatment given,

duration of labour and stay at the referring facility plus time of referral or even the reason for referral. This incomplete documentation can lead to delay in the provision of emergency obstetric care or the mismanagement of patients. The appropriateness of the interventions at the referring and referral sites were not studied and could highly influence the outcome of labour. The second and third delays in the chain of referral was not assessed: this contributes to delay to access care and the gravity of the complications.

5. Conclusion

The referrals contributed to a substantial number of admitted patients in the facility and the high maternal and neonatal mortality plus a substantial degree of operative deliveries.

6. Recommendations

The reliance on referrals to tertiary centers for emergency obstetric care should be shifted to improving the functionality of the referring centers and improve mothers experience during child birth. This will avert the unacceptable maternal and perinatal mortality observed in the study. In order to reduce the high number of unnecessary referrals and to reduce the burden on tertiary care hospitals, healthcare workers should be trained and mentored in essential and emergency obstetric care.

References

[1]. P. R. Dr. Gupta, S. N. Dr. Chaunhari and N. V. Dr. Gonnade, "Maternal and Fetal Outcome in Referred Patients to Tertiary Care Center," Scholars Journal of Applied Madical Science (SJAMS), vol. 4, no. 5C, pp. 1624-1631, 2016.

[2]. G. Prakriti, B. Jyoti and C. Niketa, "Pattern of Obstetric cases referred at tertiary care centre in Central India," International Journal of Reproduction, Contraception, Obstetrics and Gynecology, vol. 6, no. 6, pp. 2370-2374, 2017.

[3]. P. Gupta, S. Chaudhary and N. Gonnade, "Maternal and fetal outcome in reffered patiennts to tertiary care center," Sch. journal of applied Medical Science, vol. 4, no. 5C, pp. 1624-63, 2016.

[4]. A. Neelam, S. Rimpi, D. Lakhbir and S. Vanita, "Audit of Emergency Obstetric Referrals- A Pilot Study from Tertiary Care Centre of North India," Bangladesh Journal of Obstetrics and Gynecology, vol. 30, no. 1, pp. 25-29, 2015.

[5]. S. Samiksha, D. Pat, M. C. Oona, M. Manu, G.V.S and Murthy, "Referrals between Public Sector Health Institutions for Women with Obstetric High Risk, Complications, or Emergencies in India- A systematic Review," PLoS ONE, 2016.

[6]. K. S. Ingvil, V. Siri, O. Olola, S. Johanne and B. Per, "Caesarean Section among referred and Self-referred birthing women: a cohort study from a tertiary hospital, northern Tanzania," BMC Pregnancy & Childbirth, 2011.

[7]. O. A. Godwin and A. E. E. Bissallah, "Maternal and fetal outcomes of emergency obstetric referrals to a Nigerian teaching hospital," Tropical Doctor, vol. 48, no. 2, pp. 132-135, 2018.

[8]. S. Umesh and A. M. Patankar., "Study of Maternal and Perinatal Outcome in Referre Obstetric Cases,"

Journal of Evolution of Medical and Dental Sciences, vol. 4, no. 26, pp. 4448-4455, 2015.

[9]. Jyotsana, L. D and V. Hafsa, "Study of maternal and Perinatal outcome of referred patients in tertiary health centre," International Journal of Reproduction, Obstetrics and Gynecology, vol. 6, no. 12, pp. 5363-5367, 2017.

[10]. H. Julia, K. Lovney, A. Margaret and M. Stephen, "The Effectiveness of Emergency Obstetric Referral Interventions in Developing Country Settings: A Systematic Review," PLoS Medline, vol. 9, no. 7, 2012.

[11]. H. Patel, B. Singh, M. Moitra and S. Kantharia, "Obstetric Referrals: Scenario at a Primary Health Centre in Gujarat," National Journal of Community Medicine, vol. 3, no. 4, pp. 711-714, 2012.

[12]. S. Maskey, "Obstetric Referrals to a tertiary Teaching Hospital of Nepal," NJOG, vol. 19, no. 1, pp. 52-56, 2015.

[13]. K. Sorbye, S. Vangen, O. Oneko, J. Sundby and P. Bergsjo, "Caesarean section among referred and self- referred barthing women: a cohort study from a tertiary hospital, north Eastern Tanzania," BMC Pregnancy and Childbirth, vol. 11, no. 55, 2011.

[14]. K. Narsaria, M. P, Kyal, A. K, A. A and S. S, "A Study of obstetric referrals-one year experience at a tertiary care centre in West Bengal," HECS Int J Com Health and Med Res, vol. 3, no. 3, pp. 32-36, 2017.

[15]. C. Rathi, K. Gajria and N. Soni, "Review of Referred Obstetric Cases- Maternal and Perinatal Outcome," Bombay Hospital Journal , pp. 52-56, 2010.

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