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Fetomaternal Outcome of High-Risk Obstetrics Cases in a New Medical College in Hilly Area of Kumaon Region of Uttarakhand

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Abstract

Background: As maternal mortality remains unacceptably high with about 830 women dying from pregnancy and childbirth related complications over the aging rates world everyday (WHO). Majority 99 % occur in developing countries. Therefore, we conducted a retrospective cross-sectional study to know the Fetomaternal outcome of high-risk obstetrics cases in our region. The objective is to know the Fetomaternal outcome of high-risk obstetrics cases in an upcoming new medical college of Kumaon region. **Material and Methods:** It is a retrospective cross-sectional study done at a new tertiary care center, from the records of a year i.e from 1/1/2022 to 31/12/2022. 140 high risk obstetrics cases after 32 weeks of pregnancy, according to Pradhan Mantra Surakshit Matritva Abhiyan, were included and their maternal and fetal outcome was observed. **Results:** Among 140 ANC cases reviewed, majority belonged to unbooked cases (62.85%), majority were between 20-25 yrs of age(52.85%), mostly were multigravida(58.5%) and term(53.5%), majority high risk were pre-eclampsia (20%), previous cesarean (18.57%), severe anemia (12.14%), APH (11.42%). 68.5% underwent emergency LSCS,32.14 % needed ICU admission,40% required BT,29.28% experienced PPH for which 23.55 % required conservative surgical management for PPH whereas 5.71 % required emergency hysterectomy. In case of fetal outcome, only 17.11% were <1.5 kg, NICU required in 25.36%, 1.42% had SB. **Conclusion:** Early detection of high risk pregnancy , emphasis on correction of anemia and timely referral from the periphery should be given importance to improve feto maternal outcome.

Keywords: Fetomaternal outcome, high risk obstetrics cases, hilly area, anemia.

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Introduction

It is rightly said that childbirth is a rebirth of a women. Pregnancy and childbirth though physiological process, are not risk free despite continuous efforts from Government to cut down maternal mortality and improve health services Maternal mortality rate (MMR) is still high. The factors include place of residence, social and cultural factors.

As maternal mortality remains unacceptably high with about 830 women dying from pregnancy and childbirth related complications over the aging rates world everyday (WHO). Majority 99 % occur in developing countries. Between 1990 and 2015, maternal mortality worldwide dropped by 44% from 385 to 216 maternal deaths per 100000 live births. Despite

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this progress the world still fell far short of the millennial development goals target of 75% reduction in global MMR by 2015.as part of sustainable development goals, the target is to reduce global maternal mortality ratio to less than 70% per 100000 live birth.[1]

Maternal mortality and poor access to health care is disproportionately higher in rural populations of poor states of India.[2] Identification of high risk pregnancy, causes and its complications through quality antenatal care helps in achieving favorable maternal, obstetric and neonatal outcome.[3] Skilled medical intervention such as blood transfusion, cesarean delivery, expert surgical team, medicines etc are required to prevent these complications.[4]

Maternal deaths can be caused directly by PPH, hypertension during pregnancy, pre eclampsia, anemia, pregnancy related infection and complications aggravated by pregnancy. Therefore, early diagnosis of high-risk pregnancy, early intervention or early referral from first referral units (FRU) from the periphery to tertiary care centre saves the patient and improves feto maternal outcome.

Hypertensive disorders of pregnancy (PIH) are a common condition of pregnancy that occurs after 20 weeks of gestation in women with previously normal blood pressure.[5] The broad classification of PIH is gestational hypertension, pre-eclampsia, eclampsia. It occurs in 7 to 10 % of all pregnancies. It can lead to IUGR in fetus and in some cases IUD and for maternal side it can cause PPH, convulsions and need for blood transfusion.

Anemia in pregnancy is a major cause of morbidity. In India, the most common cause of anemia is Iron Deficiency Anemia due to poor diet and inadequate antenatal care. According to WHO, prevalence of anemia among pregnant women varies from 14 % in developed countries to 65% in India.[6] Iron deficiency Anemia is highly prevalent in Indian pregnancies with around 47% of women suffering from anemia during pregnancy. It leads to maternal as well as fetal morbidity and mortality.

CDC defines anemia as Hb< 11 gm / dl in first and third trimester whereas WHO and ICMR Hb< 11 gm/dl.[7]

Intrahepatic cholestasis of pregnancy (ICP) is a reversible cholestatic disorder unique to pregnancy. It manifests as pruritus with altered liver function test and raised bile acids which resolves 2 to3 weeks post pregnancy. While it poses minimal risk to mother except itching it is associated with increased fetal risk due to prematurity, asphyxia, meconium-stained liquor, fetal distress and still birth. It can occur in future pregnancy in upto 90%.[8]

Estimated rate of still birth (SB) worldwide is 2.6 million per year whereas developing countries contribute 98% of total SB. India's SB rate as estimated by WHO is 22 per 1000 total birth.[9]

The need to improve pregnancy care and to promote institutional deliveries of high-risk pregnancies has been recognized by Government of India.

There is increase incidence of hypothyroidism in reproductive age group females of Himalayan region like Uttarakhand presenting as difficulty in conceiving, antenatal period and labour and delivery. Thus contributing to high risk obstetrics.

Due to long distance from periphery to tertiary care centre, increases the morbidity like obstructed labour, more blood loss as in cases of ante partum hemorrhage or when the pregnant women is already anemic, contributing to high risk obstetrics and poor outcome.

Methodology

This observational retrospective study was conducted in the department of obstetrics and gynecology of SSJGIMSR, Almora, which is a tertiary care centre teaching hospital, an upcoming medical college in geographically challenged hilly area in the Himalayan region of Uttarakhand, 1600 metres above sea level with minimal temperature of -2 degree Celsius to maximum temperature of 7 degree Celsius during winters.

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The study was carried out for 1 year from 1 January 2022 to 31 December 2022. Being a tertiary care centre, it caters patients from 4 different districts namely Bageshwar, Pithoragarh, Almora and occasionally from Chamoli of Uttarakhand. As a referral care centre, we deal with high-risk obstetrics cases referred from the peripheries often in low condition. These high-risk cases include pregnancy with high BP, pregnancy with raised blood sugar, pregnancy with anemia, pervious cesarean with scar tenderness, grand multipara.

Inclusion Criteria

All high-risk pregnancies with gestational age of > 32 weeks were included in the study.

High risk pregnancy was classified based on the guidelines provided by Pradhan Mantri Surakshit Matritva Abhiyan.[10]

Antenatal women with the following conditions were categorized under high-risk pregnancy

a) Severe anemia with Hb <7 gm/dl
b) Hypertensive disorder during pregnancy(BP >140/90 mm hg)
c) Hypothyroidism (TSH values ; first trimester 0.1-2.5 mIU/L, second trimester 0.2-3 mIU/L, third trimester 0.3 -3 mIU/L)
d) GDM (GCT > 140 mg/dl)
e) Twin or multiple gestation
f) Previous cesarean section
g) Young primi (<20 yrs) or elderly primi (>35 yrs)
h) Malpresentation
i) BOH (H/O congenital malformation, still birth, premature birth and obstructed labour)
j) Rh incompatibility
k) APH
l) Pregnant women positive for HIV, HBsAg

Exclusion criteria

Antenatal cases before 32 weeks of pregnancy

Pregnancy without any high-risk condition.

Pregnancy with cardiac disease as no cardiologist or CCU available here.

Total of 140 patients were taken into account.

These patients data was taken from Obstetrics OPD and emergency OT record register, who were followed up in Obstetrics and Gynaecology department of SSJGIMSR Almora. These were mostly the booked patients but being a tertiary care center, unbooked high risk obstetrics cases were referred to us in third trimester or near term for better confinement and management and operative intervention. These were termed unbooked cases in the study.

Unbooked cases were 88 while booked cases were 52.

RESULTS

In the study, 140 pregnant women were included after confirming our inclusion criteria. Only 52 were booked cases and 88 were unbooked cases referred from different neighboring districts of Almora, Bageshwar, Pithoragarh and Chamoli.

Table 1: Distribution of cases according to age, gravida and gestational age.

AGE	< 20 years	13	9.28 %
	20–25 years	74	52.85%
	25–30 years	28	20%
	>30 years	25	17.85%
	>35 years	01	00.71%
GRAVIDA	G1	58	41.4%

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	G2 – G4	70	50%
	G5-G8	12	8.57%
GESTATIONAL AGE	<37 weeks	40	28.5%
	37 – 40 weeks	75	53.5%
	>40 weeks	17	17.85%

Table 2: Distribution of variety of high-risk cases

Cases	Frequency	Percent
Pre eclampsia	28	20%
Severe anemia (Hb<7gm/dl)	17	12.14%
APH	16	11.42%
Hypothyroidism	15	10.71%
BOH	11	7.85%
GDM	7	5%
Multiple gestation	3	2.14%
Rh incompatibility	9	6.42%
Previous LSCS	26	18.57%
Malpresentaion	5	3.57%
Pregnancy with HIV / HBsAg	3	2.14%
Young and elderly primi	13	9.28%

Table 3: Distribution according to mode of delivery

Mode of delivery	Frequency	Percent
Vaginal delivery	44	31.4%
LSCS	96	68.57%

Table 4: Fetal outcome according to birth weight

Birth weight	Frequency	Percent
<1.5 kg	24	17.11%
1.5 – 2.5kg	57	40.7%
>2.5 kg	59	42.1%

Table 5: Fetal outcome according to fetal condition

Fetal condition	Frequency	Percent
Jaundice	25	17.85%
Asphyxia	10	7.14%
Still birth	2	1.4%
healthy	103	73.5%
NICU Admission	35	25.36%

Figure 6: Distribution according to ICU Admission, PPH, BT Requirement and Maternal death

	frequency	percent
ICU Admission	45	32.14%
PPH	41	29.28%
BT Requirement	56	40%
Maternal Death	00	0%

Figure 7: Distribution according to conservative surgical management and Emergency Hysterectomy

Procedure	Frequency	percent
B-Lynch suture	12	8.57%
Isthmic suture	6	4.28%
Cho suture	4	2.85%

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Uterine artery ligation	11	7.85%
Emergency hysterectomy	8	5.71%

DISCUSSION

In our study, majority of the women belonged to age group of 20-25 years out of which majority were multigravida. Only 37.14% were booked cases whereas 62.85% were referred from the peripheries. Majority were associated pre-eclampsia (20%), secondly associated with previous LSCS (18.5%), and thirdly associated with severe anemia (12.14%). Majority were taken up for emergency LSCS 96 (68.57%) while 44 (31.4%) had normal delivery.

32.14% required ICU admission, 40% required blood transfusion. 29.28% experienced PPH for which conservative medical and surgical management applied first like giving oxytocics when postpartum hemorrhage not controlled then conservative surgical management done in 23.5% like B-Lynch suture in8.57%, uterine artery ligation in 7.85%, isthmic suture in 4.28% and cho suture in 2.85%.

Even after rigorous conservative management when PPH could not be controlled, then emergency hysterectomy was done in 5.71%, as a lifesaving procedure after taking written consent from the patients attendants. 44.28% required blood transfusion pre and post operatively. No maternal mortality or death noted.

The fetal outcome was that out of 140 deliveries, majority newborns weigh >2.5 kg [42.1%] whereas only 17.1% were <1.5 kg. NICU admission required in 25.36% newborns, 17.85% had jaundice, 7.14% had asphyxia at birth [these were the newborns belonged to referred unbooked obstructed labour group].

0ur study results were similar to study by Rekha Jakhar et al on maternal outcome in referred obstetrics case.[11] In the study maximum cases belonged to hypertensive disorder [22.27%, anemia [18.05%]and malpresentation[15.19%], previous cesarean[12%], APH[6%] and obstructed labour {4%]. 36.6% had PPH, in 11 cases emergency laparotomy done for atonic PPH and rupture uterus & 6 underwent emergency hysterectomy. Morbidity was higher in referred cases like our study.

Study done by Marie Gilbert et al,[8] found that almost 1/5 th of pregnancy were in rural area have high risk pregnancy.[12] Almost 15% developed potentially life-threatening complications which required major intervention for survival, which is similar to our study. Prevalence for high-risk pregnancy was 18.3% [majority PIH]10.4% gave birth to LBW babies & only 1.7% had still birth, similar to our study.

Study by Urvashi Miglani et al showed 53.2 % were unbooked cases and had high incidence of ICU admission [0.77%]1. Blood transfusion required in 83% which is way higher than our study [44.28%].

4.85% had still birth unlike our study [1.4%].

CONCLUSION

Dealing with high-risk obstetrics cases is itself a challenge to obstetricians but dealing it in a geographically challenged hilly area with high altitude of 1600 meters above sea level, ext in remely cold bad weather during winters with minimum temperature of – 2 degree celcius, raises the challenge exponentially for the patients and the faculty working in an upcoming tertiary care centre of hilly area of Kumaon region of Uttarakhand.

As new medical colleges are opening up in the peripheries of the cities to improve the health care system, it is also a truth that they are dealing with shortage of faculty , the blood bank is available 4 km away from the hospital which causes great difficulty while doing emergency cases of obstetrics. It might be because the new tertiary centres are transition phase of becoming full-fledged medical college.

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In our study, we found that timely intervention had less maternal and perinatal mortality and morbidity. Early detection of high-risk pregnancy at PHC level with proper ANC and timely referral system is advisable to improve maternal and fetal outcome.

We must give emphasis on correction of anemia in antenatal cases, so that women can bear the loss during delivery which could be achieved by iron supplementation to adolescent girls, early registration of ANC and educating women about contraception and birth spacing.

Thus, such more studies are required to see the Fetomaternal outcome in tertiary care centre which is in transition phase of becoming full-fledged medical college to improve the health care system and to learn the challenges faced by the faculty.

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