



ANTEPARTUM ASSESSMENT MANAGEMENT AND PERINATAL OUTCOME IN IUGR

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ABSTRACT

Introduction: Intrauterine growth restriction (IUGR) is defined as a fetal growth rate that falls below the expected norm for an infant's race and gender, indicating a deviation from or reduction in the anticipated fetal growth pattern. In our study we analysed in terms of Antepartum assessment, management and, perinatal outcome.

Materials And Methods: It was an observational and prospective study that includes 100 patients with IUGR. Analysed in terms of Antepartum assessment, management and, perinatal outcome. **Results:** In the present study maximum number of cases within 21-25 years of age group with mean age of 23.4 years. Primigravidas were 56% and more in number. The most common maternal risk factors for IUGR associated was Pre-eclampsia (48%) followed by Anaemia (36%). Oligohydramnios was present in 40% cases. In the present study when the mean values of umbilical artery Doppler velocimetric indices U/A PI > 95 percentile had sensitivity (66.67%) and ppv (76.92%) and AEDV and REDV is a good marker of hypoxic and acidotic fetuses found a very high specificity and PPV of 100% each for the prediction of adverse perinatal outcome. In present study CU ratio had highest specificity (85%), PPV (87.5%), when compared to other Doppler velocimetric indices of MCA. In our study Ductus venosus Doppler indices though studied in only a very small subset of patients a 27 patients out of which 9 patients with abnormal flow showed mortality. In our study, 42 patients (42%) underwent vaginal delivery and 58 patients (58%) underwent caesarean section. We found that the average birth weight of the babies was 1700 grams and most of the babies were born between 1500-2499 grams of weight. In our study abnormal perinatal outcome constituted of 14 IUD due to prematurity, Respiratory distress, 16 NND including both early and late neonatal death, 22 babies had 5 minute APGAR score < 7.34 had NICU admission for > 24 hour for indication of low APGAR, Respiratory distress, prematurity and low birth weight, MSL. **Conclusion:** Proper antenatal assessment of high-risk pregnancies, such as those complicated by preeclampsia, oligohydramnios, severe anemia, or substance abuse, combined with early detection of IUGR using SFH, ultrasound parameters, and Doppler velocimetry, and management according to gestational age and etiology can significantly reduce perinatal mortality and morbidity.

KEYWORDS :

INTRODUCTION

IUGR is pathological condition in which fetus has not achieved his genetic growth potential irrespective of fetus size. IUGR is a challenge for maternal and perinatal care and a leading cause of neonatal morbidity and mortality. IUGR carries increased risk to mother and fetus. Second primary cause of perinatal mortality. More number of NICU admission is seen in IUGR pregnancies. Fetal complication comprises fetal hypoxia and acidosis, respiratory distress syndrome, hypothermia, hypoglycemia, hypocalcemia, meconium aspiration syndrome, hyperviscosity syndrome, still birth, intrapartum complications, intraventricular haemorrhage, encephalopathy, PDA, lower neuro developmental score. Higher incidence of coronary artery disease and Diabetes in adult life. There are multiple causes for IUGR including maternal, fetal, placental and, genetic factors. Risk factors for IUGR poor maternal nutrition, maternal disease like Preeclampsia, Diabetes mellitus, chronic Hypertension, severe anemia. Maternal habits smoking, substance abuse etc.

Aims And Objectives

1. To correlate clinical findings in IUGR with perinatal outcome.
2. To correlate clinical findings in IUGR with Doppler study.
3. To correlate Doppler findings with perinatal outcome.
4. To study perinatal morbidity and mortality in IUGR.

Inclusion Criteria

- All pregnant women irrespective of age and parity with IUGR clinically.
- Normal fetal anatomy.

Exclusion Criteria

- Fetus with congenital anomalies.
- IUGR in multiple pregnancy

MATERIALS & METHODS

This is a prospective observational study conducted at department of obstetrics and gynaecology, B.J. Medical College, Civil hospital. 100 cases of patients with IUGR baby from May 2022 to May 2024 were included in this study and were analysed in terms of Antepartum assessment, management and, perinatal outcome.

RESULTS

A total of 100 antenatal patients were included in the study. The period of gestation was between 24-42 weeks of pregnancy. The first Doppler examination has been used for analysis and computation of results. The results are as follows:

Table 1: Distribution Of Cases In Relation To Age (n = 100)

AGE IN YEARS	N(100)	%
≤20	20	20
21-25	38	38
26-30	32	32
31-35	6	6
≥36	4	4

Table 2: Distribution Of Cases In Relation To Parity

Parity	PRESENT STUDY (n=100)		Sinha and kurude et al
	N	%	%
Primipara	56	56	55
Multipara	44	44	45

Table 3: Number Of Patients Having Abnormal Amniotic Fluid Index.

	PRESENT STUDY (N=100)		SINHA and KURUDE ET AL ⁸² (N=100)	
	N	%	N	%

Oligohydramnios	40	40	57	57
Normal	60	60	43	43

Table 4: Distribution Of Cases In Relation To Maternal Risk Factors Of Iugr:

	PRESENT STUDY		SINHA AND KURUDE ET AL
	N	%	%
PIH/Chronic HTN	48	48	58
Anaemia	36	36	30
Cardiac Disease	3	3	2
Post dated Pregnancy	3	3	
Low BMI < 18.5 (malnutrition)	2	2	

Table 5: Performance Characteristics Of Umbilical Artery Velocimetry Study In Prediction Of Abnormal Perinatal Outcome (Data Are Presented As Percentages.)

END DIASTOLIC VELOCITY	PERINATAL OUTCOME	
	ABNORMAL	NORMAL
Normal	8	34
Reduced	22	6
Absent	18	0
Reversal	12	0

Table:6 Correlation Of Ua Aedv & Redv And Abnormal Perinatal Outcome.

Parameter studied		Author	Sensitivity	Specificity	PPV	NPV
PI	>95 TH percentile	Present study	66.67	70	76.92	58.33
SD ratio	>3	Present Study	60	75	64.28	71.42
	>95 TH percentile	Present Study	53.33	77.5	64	68.89

Table 7: Comparison Of Standard Dignostic Tests In Prediction Of Abnormal Perinatal Outcomet (data Are Presented As Percentages.)

Test characteristic	Present study			Iyer and Bhagwat study et al ⁸³		
	MCA PI+	UA PI	CU ratio	MCA PI	UA PI	CU ratio
Sensitivity	66.67	66.67	70	59	81	87.5
Specificity	77.5	70	85	83	77	77.7
PPV	81.63	76.92	87.5	86.3	86.6	87.5
NPV	60.78	58.33	65.38	53	70	77.5

Table 8: Correlation Of Ductus Venosus Abnormal Flow Pattern And Perinatal Outcome (n=27)

DV ABNORMALITY	PERINATAL OUTCOME	
	NORMAL	ABNORMAL
PRESENT	0	9
ABSENT	8	10

Table 9: Distribution Of Cases In Relation To Birth Weight:

BIRTH WEIGHT	Present study(n=100)
≥2500 gm	6
1500-2499 gm	52
1000-1499 gm	29
<1000 gm	7

Table 10:corelation Of Nst Pattern & Perinatal Outcome: (n=100)

NST PATTERN	PERINATAL OUTCOME	
	NORMAL	ABNORMAL
REACTIVE	18	14
SUSPICIOUS	12	20
NON REACTIVE	10	26

Table 11: Distribution Of Cases According To Mode Of Delivery And Gestational Age.

MODE OF DELIVERY	PRETERM	FULL TERM	TOTAL
	N=44	N=56	N=100

VAGINAL DELIVERY	26	16	42
CAESAREAN SECTION	18	40	58

Table 12: Abnormal Perinatal Outcome In Study Population (n=100)

	N	PERCENTAGE
INTRAUTERINE DEATH	14	14
NEONATAL DEATHS	16	16
INTRACRANIAL HEMORRHAGE	4	4
NEONATAL HYPERBILIRUBINEMIA	18	18
EARLY ONSET SEPTICEMIA	15	15
HYPOXIC ISCHEMIC ENCEPHALOPATHY	12	12
5-MIN APGAR SCORE <7	22	22
ADMISSION TO NICU >24 HRS	34	34
CAESAREAN SECTION FOR FETAL DISTRESS	22	22

DISCUSSION

In the present study maximum number of cases within 21-25 years of age group. The mean age of the study number was 23.4 years. Primigravidas were 56% & multigravidas were 44% in the present study so, primigravida were more in number. The most common maternal risk factors for IUGR associated was Pre- eclampsia (48%) followed by Anaemia (36%) in the present study. In the present study Oligohydramnios was present in 40% cases. In the present study when the mean values of umbilical artery Doppler velocimetric indices were considered in predicting abnormal perinatal outcome U/A PI>95 percentile had sensitivity (66.67%) and ppv (76.92%). In our study highly increased resistance to flow in the UA seen as AEDV and REDV is a good marker of hypoxic and acidotic fetuses. We found a very high specificity and PPV of 100% each for the prediction of adverse perinatal outcome when we encounter ARED. In present study Cerebro-umbilical ratio was found to be useful in identifying fetuses with increased placental and/or decreased cerebral resistance. CU ratio had highest specificity (85%), PPV (87.5%), when compared to other Doppler velocimetric indices of MCA. In our study Ductus venosus Doppler indices though studied in only a very small subset of patients a 27 patients out of which 9 patients with abnormal flow showed mortality. So, ductus venosus flow found to be a powerful predictor of impending fetal death in growth retarded fetuses. In our study, 42 patients (42%) underwent vaginal delivery and 58 patients (58%) underwent caesarean section. (Out of which 22 patients (37.93%) were done for the indication of fetal distress.). In the present study we found that the average birth weight of the babies was 1700 grams and most of the babies were born between 1500-2499 grams of weight. In our study abnormal perinatal outcome constituted of 14 IUD due to prematurity, Respiratory distress. 16 NND including both early and late neonatal death. 22 babies had 5 minute APGAR score <7.34 had NICU admission for >24 hour for indication of low APGAR, Respiratory distress prematurity and low birth weight, MSL.

CONCLUSION

Severe preeclampsia, anemia, and oligohydramnios are common complications associated with intrauterine growth restriction (IUGR). Assessment and management tools, including non-stress tests (NST), amniotic fluid levels, and Doppler findings, are crucial for managing IUGR. Common causes of perinatal mortality include prematurity, hypoxic-ischemic encephalopathy (HIE), and early-onset sepsis. Proper antenatal assessment of high-risk pregnancies, such as those complicated by preeclampsia, oligohydramnios, severe anemia, or substance abuse, combined with early detection of IUGR using SFH, ultrasound parameters, and Doppler velocimetry, and management according to gestational age and etiology can significantly reduce perinatal mortality and morbidity.

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