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CASE REPORT

STUDY OF UTEROPLACENTAL INSUFFICIENCY: DIAGNOSIS AND MANAGEMENT

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ABSTRACT

Introduction: Fetal growth restriction is the second most common cause of perinatal death and the most important cause for it is utero-placental insufficiency. Utero-placental insufficiency is a process leading to progressive deterioration of placental function and a decrease in trans-placental transfer of oxygen and nutrients to fetus. Therefore early detection and treatment of utero-placental insufficiency is required. In this study we have tried to find out the effects of utero-placental insufficiency on fetus. **Aims and objectives:** 1. To study the risk factors and etiology of utero-placental insufficiency 2. To predict utero-placental insufficiency in high risk pregnancies 3. To study effects of utero-placental insufficiency on perinatal morbidity and mortality. **Material and Method:** It was an observational study, conducted at Department of Obstetrics and Gynaecology, Civil Hospital Ahmedabad from June to December, 2018. History taking, examination and Doppler study was done for each patient and patients with utero-placental insufficiency were selected. Their pregnancy outcomes, for example still births and birth weight, were noted. **Results:** In this study 48% of patients with utero-placental insufficiency had PIH and 10% had severe anemia. 40% patients were primi gravida. 66% patients had abnormal Doppler findings. 68% had preterm deliveries and 6% had still births or IUD.

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INTRODUCTION

Every pregnancy is precious, especially in today's era where the concept of small and nuclear family norm is there. In urban population average age of conception is in increasing trend i.e above 26-28 years or even above 30 years, and many of them conceiving after treatment of infertility. It is important to maintain a normal circulation between mother and fetus for normal growth of fetus. Any abnormality in circulation presents as utero-placental insufficiency which leads to Fetal growth restriction (FGR) or Intrauterine growth restriction (IUGR). Fetal growth restriction is the second cause of perinatal death after prematurity and can complicate up to 6% of all pregnancies.[1,2] Thus it is necessary to diagnose any such abnormality as early as possible. For this there are various diagnostic modalities available like USG, Doppler and CTG to diagnose fetal growth retardation and utero-placental insufficiency. There is also need to assess the effect of planned early birth(either normal delivery or caesarean section) versus expectant management depend on maturity of fetus in case of Utero-placental insufficiency or IUGR on fetal as well as in maternal well being.[3,4]

Aims and Objectives

- To study risk factors and etiology of utero-placental insufficiency.
- To predict utero-placental insufficiency in high risk pregnancies.
- To study effects of utero-placental insufficiency on perinatal morbidity and mortality.
- To study the prognosis in utero-placental insufficiency in babies.

MATERIALS AND METHODS

- Study design-observational study.
- Place-Department of obstetrics and gynaecology, Civil hospital, Ahmedabad.
- Duration- 1st July to 1st December, 2018

Inclusion Criteria

- During antenatal clinical examination, fetus seems small for the age of gestation.
- Antenatal patient with abnormal ANC Doppler studies.
- Disparity in maturity by Last Menstrual Period and 1st USG and present USG.
- Any chronic medical illness associated with pregnancy.

Exclusion Criteria: Congenital anomaly in fetus.

Patients with suspected Fetal growth restriction were found by

- History- Questionnaires including LMP, any H/O hypertensive disorder or any other medical or surgical illness.

- Physical examination- General, systemic and obstetric examination and measurement.
- NST and biophysical profile
- Antenatal USG with assessment of AFI
- Anomaly scan.
- Antenatal color Doppler studies.

Patients were monitored for any complication development

Monitoring the patients for which type of medical treatment was given to the patients for utero-placental insufficiency like low dose aspirin, low molecular weight heparine (LMWH), any anti-hypertensive and outcome like induction of labour or normal delivery or caesarean section. Neonatologist was present in every delivery and babies were observed and prognosis could be made.

RESULTS

Table 1. Distribution according to age

Age (years)	Percentage (%)
<23	20
24-35	8
>35	22

Table 2. Distribution according to gravidity

Gravidity	No. of cases
Primi	20
G2	13
G3	10
G4	5
>G4	2

Table 3. Causes associated with IUGR

CAUSES	NO. OF CASES
Pregnancy Induced Hypertension	24
Past history of Still Birth and IUGR	10
Severe anaemia	5
Chronic hypertension	3
Jaundice	4
Medical illness	2
Substance abuse(tobacco, alcohol)	2

Table 4. Type of IUGR

Symmetrical IUGR	17(34%)
Asymmetrical IUGR	33(66%)

Table 5. Diagnosis of IUGR at weeks

<28weeks	12
>28 weeks	38

Table 6. Normal and abnormal Doppler in study

Doppler	No. of cases
Abnormal	33
Normal	17

Table 7. Doppler finding in abnormal Doppler studies

Decreased diastolic flow in Umbilical artery	19
Absent diastolic flow in umbilical artery	9
Reversal of flow in umbilical artery with brain sparing effect	5

Table 8. Deliveries of baby at weeks

Delivery at weeks	No. of pt
<34 weeks	12
34-37 weeks	22
>37 weeks	6
IUD	3

7 patients lost follow up.

Table 9. Route of delivery

Caesarean Section	19
Normal delivery	24

Table 10. Birth weight of live birth

weight	No
<1.5 Kg	10
1.5-2.5 Kg	23
>2.5 Kg	7

Table 11. NST and outcome

NST	No. of patients	No. of CS	Abnormal doppler
Reactive	30	5	13
Non reactive	20	14	20
Total	50	19	33

Table 12. Effect of LMWH, Aspirin, Arginine in patients of utero-placental insufficiency

	Treatment with LMWH and Aspirin	Live birth outcome among treatment given
IUGR in high risk group of pregnancy (severe pre-eclampsia)	20	18
	Treatment not given	Live birth outcome
Patient other than high risk group	23	22

DISCUSSION

In our study majority of the patients were from extreme of ages.<23 and >35 years age group. Majority of patients were primigavida. In our study majority of cases were of PIH i.e. 24 patients out of 50.Asymmetrical IUGR was found in 66%.Majority of patients were diagnosed in 3rd trimester almost 38. In 33 cases there was abnormal Doppler study in which in 19 cases decreased diastolic flow in umbilical artery, in 9 cases absent diastolic flow and in 5 cases there was a reversal of diastolic flow with brain sparing effects. In Zimmermann P,Eirio V, Koskinen J *et al* Doppler assessment in high risk pregnancies was made showing majority changes in late 2nd trimester and early 3rd trimester pregnancy. In this study 12 patients were delivered before 34 weeks majority of them having absent or reversed diastolic flow.[5]3 patients were having intra uterine death.7 patients were lost follow up. In Vashevnik s, Walker a *et al*. study (2002) still birth rate was 3%.[6] In this study 19 patients were underwent caesarean section and 24 were underwent normal vaginal delivery. In study of Nadia Bardien *et al*. CS rate was 32%.[7] In study total 10 patients were delivered below 1.5 Kg. Majority of babies(23) were having weight between 1.5 to 2.5 Kg. Only 7 patients were having baby weight above 2.5 Kg. In France J. biochemical study 62% having low birth babies in Utero-Placental Insuffieciency.[8] In JS Niam *et al* study 70% babies are low birth weight in Utero-Placental Insufficiency.[9] In present study out of 20 among 50 patients in whom NST was

non-reactive, 14 patients were underwent CS. And all patients in whom NST was non-reactive, all of them were having abnormal Doppler. We had given Inj. LMWH, Aspirin to the patient with high risk pregnancy like pre-eclampsia and 18 out of 20 patients were delivered live birth like in leitich H, Egarter C, Husslein P *et al* study.[10] Other than the high risk group we had not given LMWH and Aspirin. Other modalities like bed rest, fluid, arginine were given and delivery was almost 97%. Though result were notsignificant but indeed there is a positive roll of treatment give with LMWH and Aspirin in our study but large RCT should be needed.

Conclusion

Normal utero placental perfusion is very much necessary for growth of the baby. Any abnormality in this normal perfusion can lead to utero-placental insufficiency, IUGR, and fetal demises. For the prevention of utero-placental insufficiency everyone has to be vigilant and identify the high risk pregnancies risk factors related to UPI like PIH, Anemia, DM, infection which are more prone to develop utero-placental insufficiency. All should be early diagnosed in antenatal patients and all should be counseled properly for the same. One has to do close observation of these group with possible available modalities like BP monitoring, urine albumin, serial SFH measurement, serial weight measurement, Non Stress Test, Cardio Toco Graphy, Bio-Physical Profile, Ultrasonography, Doppler study. Every patient of utero-placental insufficiency should be treated properly with bed rest, nutrition, fluid, LMWH, Aspirin, proper antihypertensive.

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