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Original Research Article

A Study of Maternal and Perinatal Outcome in Hellp Syndrome in Rural Tertiary Care Center

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Abstract

Background: HELLP Syndrome is the severe form of preeclampsia characterised by hemolysis(H), elevated liver enzymes (EL) and low platlets count, frequently leads to adverse maternal and perinatal outcome. This study aimed to determine the incidence, complications of HELLP syndrome and evalution of Maternal and Fetal outcome at a rural tertiary care center. ***Methods:*** A prospective observational study was conducted at Department of obstetrics and gynaecology, RIMS, Adilabad during a period of one year. The analysis of data was done on all the patients diagnosed with HELLP syndrome and categorized by mississippi classification for better analysis of complications and outcome in HELLP syndrome. ***Results:*** Total 5820 women were delivered in our institute during the study period of which 572 women with Pre-eclampsia and 48 patients diagnosed with HELLP syndrome. Incidence of HELLP syndrome is 0.8 % of total deliveries and 8.3%of Pre-eclampsia patients. Most of them were primigravida 52%. Majority were in 32-36 weeks of gestational age Out of total 48 patients of HELLP syndrome,40 patients delivered vaginally and 8 patients delivered by LSCS Complications includes Ascites (27%), Postpartum hemorrhage (25%), Placental abruption (23%), Acute renal failure (16%), Pulmonary edema (10.4%), Disseminated intravascular coagulation (6.2%), Multi Organ Dysfunction (4.1%). Patients who received Blood products were 54.1% Preterm deliveries (58.3%), NICU admission (27%). Intra uterine Fetal demise (14.5%) There was no maternal mortality. Perinatal mortality rate was 43.7%. ***Conclusions*:** Vaginal delivery is allowed as better stabilization and better maternal outcome. There is increased fetal morbidity and mortality as patients came in advanced disease. Early detection and management of its complications with timely intervention to arrest further progress to reduce maternal and neonatal morbidity and mortality.

Keywords: HELLP Syndrome, maternal morbidity, perinatal mortality.

INTRODUCTION

HELLP SYNDROME - severe form of pre-eclampsia characterised by

1. Hemolysis -blood smear positive for burr cells, schistocytes, polychromasia or bilirubin conce ntration of 1.2 mg/dl or plasma hepataglobin level markedly decreased or absent
2. Elevated liver enzymes include AST and ALT levels > 70 u/L and LDH >600
3. Platlet count <1,50,000/mm3

Incidence ranges from 0.2 to 0.6 % of all pregnancies and in 10-20% in patients with preeclampsia [1]. The incidence of HELLP Syndrome in the present study is 0.8% of total deliveries (48/5820 cases) ,8.3% of Pregnancy Induced Hypertension (48/572 cases) which is comparatively higher, than in the study of 6.5% in the study of Ara S *et al.,* 3 [2], and in Sowjanya *et al.,* study it is 15.5% [3]. Most of them were primigravida 52% comparable with study by Rakshit *et al.,* [4]. HELLP Syndrome develops in about 75% before delivery, with highest frequency between 33-36 weeks, 8.3% before 28 weeks, 25 % beyond the 37 weeks of gestation [5]. Risk factors includes primigravida, overweight, previous hist ory of preeclampsia, white race, maternal age > 35 years, history of HELLP in previous pregnancy, history of poor pregnancy outcome with chronic hypertension The onset of HELLP syndrome is atypical, variable and rapid and the diagnosis can be

delayed. Many of them are misdiagnosed as gastritis, oesophagitis, hepatitis, cholecystitis, viral fever or idiopathic thrombocytopenia. Typical clinical features are right upper quadrant pain, nausea, vomiting and epigastric pain. Pain abdomen can be intermittent or colicky. It can be associated with malaise also [6]. The onset of HELLP syndrome before 28 weeks' gestation associated with severe disease with rapid onset of clinical manifestations that often coexist with fetal growth restriction. Fetus delivery is the only efficient treatment of HELLP syndrome.

Maternal complications are DIC, bleeding, abruption, Postpartum hemorrhage, ecalmpsia, pulmonary edema, respiratory failure, adult respiratory distress syndrome (ARDS), cardiac arrest, myocardial ischemia, cerebral edema, seizures, central venous thrombosis, cerebral hemorrhage, hepatic hematoma, ascites and infection. Fetal complications likely to develop are prematurity, intrauterine growth retardation, Intrauterine death, Respiratory distress syndrome.

Pathophysiology of HELLP syndrome is ill defined , Placenta plays main role, incomplete trophoblastic invasion of spiral arteries with release of anti-angiogenic factor like sFlt-1 into maternal blood and activation of the coagulation in micro vessels results in consumption of platlet and hemolysis in microvessels, Dysfunction in the complement system via excessive activation or defective regulation for a giv en amount of endothelial injury has been cause to damage to hepatic vessels in HELLP syndrome.

AIMS AND OBJECTIVES

Aims

To study the outcome of HELLP syndrome in Antenatal mothers and Early detection to prevent the serious complications, Maternal morbidity and mortality and improve the perinatal outcome by early detection and treatment.

Objectives

- To study the incidence of HELLP syndrome
- To study complications associated with HELLP syndrome
- To study the maternal and fetal outcome in HELLP syndrome
- To study mode of delivery in HELLP syndrome

METHODOLOGY

This study was carried on antenatal mothers diagnosed with HELLP Syndrome admitted in department of Obstetrics and Gynaecology from April 2023 to March 2024 in RIMS ADILABAD after taking approval from institutional ethics committee. The selected cases were studied with history, clinical data and detailed laboratory investigations done including Complete hemogram, peripheral blood smear, Coagulation profile, Liver profile, Renal profile ,LDH values ,Urine complete microscopy ,USG abdomen done when subcapsular hematoma suspected, USG ANC scan to know fetal age, weight, AFI, placenta location which have been recorded After initial resuscitative management ,depending upon the maternal and fetal condition ,mode of delivery was decided. Labour was monitored as per department protocol. Mode of delivery, Requirement of blood products, ICU admissions were noted

Inclusion Criteria

- Women with severe preeclampsia and eclampsia with abnormal laboratory findings
- HELLP syndrome cases were classified according to Mississippi classification

Table: Mississippi classification (University of Mississippi 2006 criteria)

	Class 1 (severe)	Class 2 (moderate)	Class 3 (mild)
Platlets	<50,000/ul	50,000-1,00,000/ul	1,00,000-1,50,000/ ul
AST or ALT	>70 IU/L	>70 IU/L	>40 IU/L
LDH	>600 IU/L	>600 IU/L	>600 IU/L

Exclusion Criteria

- Women with less than 20 weeks gestation
- Women with hypertension due to other than preeclampsia and eclampsia
- Women with other disorders like viral hepatitis, gastroenteritis, cholecysitis and pancreatitis
- Women with differential diagnosis of HELLP syndrome like

A) Diseases related to pregnancy: benign thrombocyto penia of pregnancy, Acute fatty Liver in pregnancy
B) Infections and inflammatory diseases not specifically related to pregnancy Viral hepatitis, Cholangitis, Cholecystitis, Gastritis, acute pancreatitis
C) Thrombocytopenia
   - Idiopathic thrombocytopenic purpura
   - Folate deficiency,

- Systemic lupus erythematosis
- APLA syndrome

D) Rare diseases that may mimic HELLP syndrome
- Thrombotic thrombocytopenic purpura
- Hemolytic uremic syndrome

Study Design- Institutional prospectives analytic study

Data Analysis

Data will be entered into Microsoft excel and analysis will be done using the statistical package for social sciences (SPSS-version 22.0)

RESULTS

Total 5820 women were delivered in our institute during the study period of which 572 women with Pre-eclampsia and 48 patients diagnosed with HELLP syndrome. Incidence of HELLP syndrome is 0.8 % of total deliveries and 8.3%of Pre-eclampsia patients. Most of them were primigravida 52%. Majority in the age group of 20-30 years 66.6%. Majority were in 32-36 weeks of gestational age. Out of total 48 patients of HELLP Syndrome,40 patients delivered vaginally and 8 patients delivered by LSCS.

Table 1: No of cases according to Mississippi classification

	CLASS 1	CLASS 2	CLASS 3	TOTAL
Preeclampsia	10(26.3%)	20(52.6%)	8 (21%)	79.1%
Eclampsia	0	3(30%)	7(70%)	20.8%

Table 2: Obstetric parameters

Maternal Age	**Number of Cases**	**Percentage**
<20 years	2	4%
20-30 years	32	66.6%
>30 years	14	29.1%
Parity	**Number of Cases**	**Percentage**
Primigravida	25	52%
Multigravida	23	48%
Geastational Age	**Number of Cases**	**Percentage**
<28 weeks	4	8.3%
29-32 weeks	6	12.5%
32-36 weeks	26	54.1%
>37 weeks	12	25%

Table 3: Mode of delivery

Mode of Delivery	No. of Cases	Percentage
Vaginal Delivery	40	83.3%
Cesarean Section	8	16.7%
Total	48	100%

Out of total 48 patients of HELLP Syndrome, 40 patients delivered vaginally and 8 patients delivered by LSCS

Table 4: Maternal outcome

Complications	No. of Cases	Percentage %
Ascites	13	27%
Post Partum Hemorrhage	12	25%
Placental Abruption	11	23%
Acute Renal Failure	8	16%
Pulmonary Embolism	5	10,4%
Dic	3	6.2%
Mods	2	4.1%
Blood Transfusions	26	54.1%

Maternal outcome

Complications includes Ascites (27%), Postpartum hemorrhage (25%), Placental abruption (23%), Acute renal failure (16%), Pulmonary edema (10.4%), Disseminated intravascular coagulation (6.2%), Multi Organ Dysfunction (4.1%).

Patients who received Blood products were 54.1% Preterm deliveries (58.3%), NICU admission (27%). There was no maternal mortality.

Table 5: Showing Fetal Outcome

Fetal Outcome	No. of Cases	Percentage%
Preterm Deliveries	28	58.3%
Nicu Admissions	13	27%
Iud	7	14.5%
Perinatal Mortality Rate	21	43.7%

Preterm deliveries -58.3%, NICU Admissions-27%, Intra uterine Fetal demise14.5%, Perinatal mortality rate was 43.7%

DISCUSSION

The incidence of HELLP Syndrome in the present study is 0.8% of total deliveries (48/5820 cases), 8.3% of Pregnancy Induced Hypertension (48/572 cases) which is comparatively higher, than in the study of 6.5% in the study of Ara S *et al.,* 3 [2], and in Sowjanya *et al.*, study it is 15.5% [3]. Majority were in 32-36 weeks of gestation which is comperable to Jayashre Moulik *et al.*, where maximum patients between 33-36 weeks of gestation.

HELLP Syndrome develops in about 75% before delivery, with highest frequency between 33-36 weeks, 8.3% before 28 weeks, 25 % beyond the 37 weeks of gestation, which is comparable to Lakshmi NK *et al.,* where HELLP Syndrome develops in about 70% cases before delivery, with a peak frequency between 27th-37th gestational weeks, 10% occur before the 27thweek, 20% beyond the 37th gestational weak [5].

Most of them were primigravida 52% comparable with study by Rakshit *et al.,* which is 66.55%. This early presentation results in higher chances of fetal pre maturity.

Our study in agreement with study of Jayshree Moulik et al and Sowjanya kumari *et al.,* in maternal complications the perinatal mortality in Sowjanya kumari *et al.*, is 35.33% in comperable to our study i.e. 43.7%. Majority of patients in this study delivered vaginally, 83.3% similar to study of Pandya *et al.,* & Soujanya *et al.*, where vaginal deliveries were 66.6% & 77.5% which is higher than vigil and Gracia study 29% We allowed vaginal delivery mainly because of better stabilization of disease process and also because of less concern of fetal outcome compared to maternal outcome .This is because our hospital is Rural Health care Hospital, patients were in advanced disease with poor maternal and fetal outcome .Once the diagnosis of HELLP syndrome made, it warrents aggressive intervention with control of Blood pressure, Anti-seizure prophylaxis, corticosteroid for fetal lung maturity and immediate delivery. HELLP syndrome needs early diagnosis from grassroot level with regular antenatal care.

CONCLUSION

Early detection and Prompt referral, appropriate intervention and availability of life saving facilities like ventilators, dialysis units and blood products at the tertiary care centers will significantly reduce the maternal and neonatal morbidity and mortality. It is important to Health education of mothers so that they can report early to the health care professionals.

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