International Journal of Medical and Pharmaceutical Research
Website: https://ijmpr.in/| Print ISSN: 2958-3675 | Online ISSN: 2958-3683
NLM ID: 9918523075206676
Volume: 4 Issue:2 (Mar-Apr 2023); Page No:507-512

Research Article

HELLP Syndrome: It's Maternal and Foetal Outcome

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ABSTRACT

Objective: To study maternal and foetal outcome in HELLP syndrome. **Study design**: The present study was a hospital based prospective observational study to find out maternal and perinatal outcome in HELLP syndrome. **Subjects & methodology**: This study was conducted at the Department of Obstetrics and Gynaecology, Government medical college, Aurangabad during six months (from July 2022 to December 2022) with more than 28 weeks gestation,150 patients of HELLP syndrome were studied. Most common age group is 21-25 years(40.67%), followed by 26-30 years(30.67%). All available detailed history, clinical data, detailed laboratory investigation were studied and characterized by Tennessee and Mississippi classification for better analysis of complications and outcome in HELLP syndrome. **Conclusion**: HELLP syndrome is a severe variant and dreadful complication of Preeclampsia and Eclampsia, it needs early diagnosis and timely intervention in the form of termination of pregnancy to arrest further progress of pathophysiology leading to complication.

Key Words: *Abruption, Eclampsia, HELLP syndrome, PRES, Feto-maternal outcome*

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INTRODUCTION

HELLP is one of the complications of HDP compromises of hemolysis, elevated liver enzymes, and low platelet count. The HELLP syndrome was originally described by Pritchard et al in 1954[1]. HELLP Syndrome was named by Dr Louis Weintsein1 in 1982 based on its clinical features, H (hemolysis) is microangiopathic hemolytic anemia, EL(Elevated liver Enzymes), LP (Low platelet count). In Tennessee[2] classification system diagnostic criteria for HELLP are 1) Hemolysis with increased LDH (>600U/L), 2) AST (>70 µ/L) 3) Platelets (1.2 mg/100ml) all shows sign of hemolysis. Liver enzyme elevation shows liver involvement and also hemolysis. The activated platelets adhere to the damaged vascular endothelial cells leading to increased platelet consumption and decreasing the count. Although variable, the onset of HELLP SYNDROME is usually rapid[3]. HELLP syndrome develops in 6-12% of women with preeclampsia oreclampsia accounting for 0.4-0.7%ofallpregnancies[4].

Maternal mortality is due to consequences of pulmonary oedema, renal failure, disseminated intravascular coagulation and sub capsular liver hematoma. Perinatal mortality appears to be primarily related to the gestational age at the time of delivery. HELLP syndrome is regarded as a higher risk for the mother and neonate compared to pre-eclampsia[5].

Majority of women with this syndrome have hypertension and proteinuria, which may be absent in 10-20% of cases[4], excessive weight gain and generalized edema precede the syndrome in more than 50% of cases. The presentation of patients with HELLP SYNDROME is variable i.e., 90% of patient experience malaise, fatigue and non-specific complaint for few days seeking medical evaluation. Ominoussymptom of epigastric or right upper quadrant pain is present only in half to 2/3rd of patients[6]. Other Complication associated with HELLP SYNDROME are:[7]

Pulmonary oedema, renal failure/acute tubular necrosis, pleural effusion, disseminated intravascular coagulation, retinal detachment, vitreous hemorrhage and subcapsular liver hematoma. Early diagnosis and identification of complication of HELLP syndrome and timely intervention form the main strategy of management[3].

Hence, this study was done to find out maternal and fetal outcome in HELLP SYNDROME so that this information will help to prevent life threatening complications and improve maternal and fetal well-being.

METHODOLOGY

This prospective, cross-sectional study was carried out in department of Obstetrics & Gynaecology, Government medical college, Aurangabad. Study duration was from July 2022-December 2022. Institutional ethical committee

approval was taken for the present study. Written valid informed consent was taken from patient if they are willing to participate in the study or from their relatives if their general condition is poor. On admission detailed history was obtained. Detailed history includes age, parity, chief complaints such as headache, nausea, vomiting, blurring of vision, upper abdominal pain, history of preeclampsia /HELLP syndromes in previous pregnancies, its maternal and fetal outcome was elicited. General and systemic examination was carried out then investigation was carried out as and when required: CBC, urine, blood grouping, and Rh typing, Bleeding time, Clotting time, PT, INR,LFT,KFT and fundus examination, USG. Additional investigation will be done as and when required. After investigation HELLP was classified according to Tennessee classification into complete / partial HELLP:

1) Complete HELLP: Platelets <1,00,000 / UI, LDH > 600 IU / L, AST > 70 IU/L
2) Partial HELLP: Only one or two of these criteria's present.

The maternal condition was assessed and stabilized by controlling hypertension with tab / inj. Antihypertensive if systolic B.P more than 150 mm of hg and / or diastolic BP is more than 100 mm of hg as per the requirement. Convulsion prophylaxis as per Pritchard or Zuspan's regimen whichever is applicable and correction of coagulopathy if DIC is present. Evaluation of fetal wellbeing was done with the help of NST and USG based on severity. HELLP was classified as complete /partial syndrome. The administration of corticosteroid to the mother was done to enhance fetal lungs maturity and ameliorate the disease process.Ante-partum10 mg dexamethasone was given intravenously every12 hourly for selected patient at highest risk, including case of profound thrombocytopenia and CNS dysfunction: 20 mgintravenous dexamethasone was given every 12 hours for 4 doses.

- Postpartum: 10 mg intravenous dexamethasone was continued 12 hourly till: *maternal platelets count will > 1,00,000 cu/mm *LDH levels shows decreasing trend. Mode of Delivery: The clinical course of women with HELLP is usually progressive with sometimes sudden deterioration of maternal and fetal condition. Hence a diagnosis of HELLP syndrome is an indication for immediate delivery if the pregnancy is > 34 weeks or at any gestational age if pulmonary oedema, renal failure, placental abruption, severe liver dysfunction or bleeding, non-reassuring fetal status, or uncontrollable hypertension is present. All other cases require administration of magnesium sulfate, steroids for the prevention of intraventricular bleed and RDS in the fetus and delivery within 24 hours after the second steroid dose. In such situationsalso it may be better to error by delivering patients without the benefit of steroids than to risk serious maternal and fetal complications associated with prolongation of pregnancy. Women selected for steroid treatment received betamethasone 12 mg IM, two doses 24 hours apart or dexamethasone 6 mg IV four doses every 6 hours. Delivery was not delayed further even if there is some apparent improvement in the patient situation during the time required for steroid administration. Vaginal delivery was a consideration only if the cervix is ripe, the gestational age is > 32 weeks, the FHR is reactive and there are no indications for caesarean delivery. Labor proceeds rapidly and cervical changes was seen shortly after initiation of induction. If vaginal delivery was not foreseen within 12 hours after the onset of induction, caesarean section performed only after indication. Maternal morbidity in terms of pulmonary edema, as cites, acute renal failure, DIC, placental abruption, vision loss and maternal mortality noted. The perinatal outcome in terms of the IUFD, stillbirths, NICU admissions and early neonatal death were also noted. All findings were noted in Microsoft excel sheet statistical analysis was done using descriptive statistics.

RESULTS

In present study total 150 patients were included.

1. DEMOGRAPHIC PROFILE

PARAMETERS	Frequency (N=150)	Percentage (%)
MATERNAL AGE		
18-20	**31**	**20.67**
21-25	**61**	**40.67**
26-30	**46**	**30.67**
31-35	**09**	**06.00**
>35	**03**	**02.00**
Gravidity		
G1	**97**	**64.67**

G2-G4	**46**	**30.67**
>G5	**07**	**04.67**
GA		
28-32 weeks	**18**	**12.00**
32.1-37 weeks	**72**	**48.00**
>37 weeks	**60**	**40.00**

The above table shows age distribution among cases. The maximum number of cases were in the age group of 21-25 years (40.67%), followed by in 26-30 years (30.67%). The mean age among the distribution of cases was 24.16 ±8.12 years. Maximum number of cases were primigravida -G1 (64.67%), followed by G2-G4(30.67%). Maximum number of births was at 32-37 weeks(48%), followed by more than 37 weeks(40%).

2. Distribution according to symptoms of presentation(N-150)

Symptoms	Frequency (n=150)*	Percentage (%)
Swelling of legs	**103**	**68.67**
Pain in upper quadrant of abdomen (epigastric pain)	**25**	**16.67**
Blurring of vision	**11**	**07.33**
Headache	**32**	**21.33**
Nausea, vomiting	**09**	**06.00**
Yellowish discoloration of skin	**10**	**06.67**
Malaise	**15**	**10.00**

(*More than one symptom may be present)

The above table shows symptom distribution among cases. The maximum number of cases presented with pedal oedema (68.67%), followed by epigastric pain (16.67%), blurring of vision (7.33%), headache (21.33%) and nausea & vomiting. (6%)

3. MATERNAL COMPLICATIONS-

Maternal complications	Frequency (N=150)*	Percentage (%)
Abruption	**30**	**20.00**
PPH-Atonic	**21**	**14.00**

Traumatic PPH	**09**	**06.00**
Mixed PPH	**05**	**03.33**
DIC	**10**	**06.67**
Eclampsia	**06**	**04.00**
PRES	**02**	**1.33**
AKI	**06**	**04.00**

(*Multiple response Present)

The above table shows complications among cases. The maximum number of cases had abruption (20%), followed by atonic PPH (14%), DIC (6.67%), and AKI (4%).

4. FOETAL OUTCOME-

Fetal outcome	Frequency (N=150)	Percentage (%)
Live birth	**135**	**90.00**
Still birth	**15**	**10.00**
NICU admissions	**59**	**39.33**
Early Neonatal deaths	**05**	**03.33**

The above table shows fetal outcome. The live birth was observed among 135 (90%) neonates while still birth among 15 (10%) neonates. NICU admission required in 39 (39.33%) neonates with total neonatal deaths of 3.33%. The perinatal mortality was 13.33%. Out of 5 neonatal deaths, 3 died of prematurity and 2 died of perinatal hypoxia.

DISCUSSION

In the present study, it was observed that maximum number of cases were in the age group of 21-25 years (40.67%), followed by in 26-30 years (30.67%). The mean age among the distribution of cases was 24.16 years. Shiv Kumar et al[8] in a study on maternal and perinatal outcome in HELLP syndrome observed majority (50%) patients belong to age group of 21 to 25 years.

In the present study, Gravidity distribution among cases showed the maximum number of cases were primigravida (64.67%), followed by G2-G4 (30.67%). Shiva Anitha et al[9] in a study on maternal and perinatal outcome in HELLP syndrome observed maximum number of cases belonged to primipara (33 cases, 58.93%) followed by multipara (23 cases, 41.07%) .Shiva Kumar et al[8] in a study on maternal and perinatal outcome in HELLP syndrome observed most of them were primigravida (55%).The maximum number of cases presented with Swelling of legs((68.67%), followed by epigastric pain (16.67%), blurring of vision (7.33%), headache (21.33%) and nausea & vomiting. (6%). Shiv Kumar et al[8] in a study on maternal and perinatal outcome in HELLP syndrome observed head ache (56.25%) was the most common imminent symptom. Most of symptoms were nonspecific like malaise (50%), edema (45%), vomiting (20%) and epigastric pain (7.5%).

The maximum number of births was at 32-37 weeks (48%), followed by >37 weeks. (40%) Shiva Kumar et al[8] in a study on maternal and perinatal outcome in HELLP syndrome observed majority (52.5%) was in 36-40 weeks gestation and mean gestational age was 33.6 weeks.

In the present study, the maximum number of cases had abruption (20%), followed by atonic PPH (14%), DIC (6.67%), and AKI (4%). Shiva Kumar et al[8] in a study on maternal and perinatal outcome in HELLP syndrome observed as cites (26.25%), PPH (25%) and placental abruption (22.5%) were the most common maternal complications in HELLP syndrome followed by acute renal failure (18.75%), pulmonary edema (12.5%), DIC (6.25%) and cerebrovascular accidents (6.25%). The maximum number of cases required blood transfusion (37.33%), while ventilatory support among 21 (14%) cases, ICU admission among 31 (20.67%) and dialysis was required in 11 (7.33%) cases.

In the present study, the maternal mortality was 1.33%. One patient died of DIC with Septicemia with Septic shock with ARDS with B/L pneumonitis in case of PNC day 03. Other patient died by renal failure with MOF with shock with PNC day 8.Thefetal outcome observed the preterm was observed among 90 (60%) neonates while IUD among 15 (10%) neonates. NICU admission required in 59 (39.33%) neonates with total neonatal deaths of 13.3%. Among 5 neonatal deaths, 3 died of prematurity and 2 died of perinatal asphyxia. The fetal outcome observed the live birth was observed among 135 (90%) neonates while still birth among 15 (10%) neonates. NICU admission required in 59 (39.33%) neonates with total neonatal deaths of 13.33%. Out of 5 neonatal deaths, 3 died of prematurity and 2 died of perinatal asphyxia

CONCLUSIONS

HELLP Syndrome is a severe variant and a dreadful complication of Preeclampsia and Eclampsia, it needs early diagnosis and timely intervention in the form of termination of pregnancy to arrest further progress of pathophysiology leading to complications. Early registration with regular antenatal care, with control of blood pressure has play a major role in early diagnosis and to reduce complications like HELLP syndrome. Early detection, better transport facility, appropriate intervention, availability of life saving facilities like mechanical ventilators , dialysis equipment and blood components like FFP,PRBC transfusion at tertiary care centers will significantly reduce the maternal and fetal morbidity.

ABBREVIATIONS:

PPH: postpartum hemorrhage, DIC: disseminated intravascular coagulation, PRES: posterior reversible encephalopathy syndrome, LDH: lactate dehydrogenase
AKI: acute kidney injury, MOF: multiple organ failure, ARDS: acute respiratory distress syndrome

Funding: No funding sources

Conflict of interest: The authors declare that they have no conflict of interest

Ethical approval: The study was approved by the Institutional Ethics Committee

Authors' contributions: Dr. SMS developed the study proposal, managed the research implementation, data collection, analyzed data and wrote the manuscript. Dr. PEB developed the study proposal, assisted with data analysis and reviewed the manuscript. Dr. SSD participated in development of the study proposal, participated in research team meetings to monitor study progress, reviewed preliminary results and reviewed the manuscript. Dr. SNG assisted with development of the study proposal, reviewed preliminary results and reviewed the final manuscript. All authors have read and approved the manuscript

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