



# Incidence of Hellp Syndrome in Preeclampsia and Eclampsia & Maternal and Perinatal Outcome Including Morbidity and Mortality.

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**ABSTRACT**

**Objective-**To study the incidence of HELLP in pre-eclampsia and eclampsia and maternal and perinatal outcome including morbidity and mortality.  
**Material and methods –** A prospective study was conducted where 136 cases of HELLP syndrome diagnosed on the basis of abnormal laboratory findings in preeclampsia and eclampsia women after gestational age of 24 weeks.  
**Result-** The incidence of HELLP syndrome in total live births from July 2013 to June 2014 constitutes 0.73% and 4.28% in pre-eclampsia, and 33.54% in eclampsia. The present study shows maternal mortality of 2.2% but still perinatal mortality is 44.5%.  
**Conclusion-**Once the diagnosis of HELLP syndrome has been made it warrants aggressive intervention with control of blood pressure, anti-seizure prophylaxis, corticosteroid treatment for fetal lung maturity and expeditious delivery. HELLP syndrome among pre-eclampsia and eclampsia cases are associated with significant maternal morbidity and perinatal mortality and morbidity. We have to intensify our efforts to reduce pre-eclampsia with HELLP syndrome from the grass root level with regular antenatal care, early detection of pre-eclampsia and its prompt management.

**KEYWORDS**

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**INTRODUCTION -** The HELLP syndrome is a serious complication in pregnancy characterised by hemolysis, elevated liver enzymes and low platelet count. The incidence of HELLP syndrome is 0.5 to 0.9% of all pregnancies and 10-20% of cases with severe pre-eclampsia. The HELLP is a progressive condition and is currently regarded as a variant of pre-eclampsia and eclampsia or a complication.<sup>59</sup>

Diagnosis of the complete form of the HELLP syndrome requires the presence of all three major components while partial or incomplete HELLP syndrome consists of only 1 or 2 elements of the triad of hemolysis. Elevated liver enzymes and low platelet counts. The HELLP syndrome, a serious condition in its complete form and is associated with substantial risk for the mother and her fetus. A wide range of complications may arise like renal failure, consumptive coagulopathy, abruption-placenta pulmonary and cerebral edema, subcapsular liver hematoma and hypovolemic shock. Early diagnosis and identification of complication of HBLPP syndrome and timely intervention are the main strategy of management.<sup>59</sup> The aim of the present study is to update in maternal clinical issues of the syndrome with special focus on diagnosis, complication, perinatal mortality and morbidity.

Classification system have been created to enable physicians to identify patients at risk for significant maternal morbidity, to guide therapeutic intervention and assess efficacy or outcome, and to provide common platform for comparison of research results.

Two most commonly used systems.

**1. Mississippi Classification**

Class I - Platelet < 50,000/μL

ALT or AST > 70 IU/L

**LDH > 600 IU/L**

Class II - Platelet 50,000-1,00,000/μL

AST or ALT > 70 IU/L

LDH > 600 IU/L

Class III - Platelet 1,00,000-1,50,000/microL

AST or ALT > 40 IU/L

LDH > 600 IU/L

**2. Tennessee Classification:**

True or complete HELLP : Platelet < 1,00,000/μL

AST/ALT > 70 IU/L

LDH > 600 IU/L

**Partial or incomplete HELLP.**

In studies conducted at Regional Medical Centre in Memphis, Tennessee and University of Mississippi Medical Centre Jackson on women with preeclampsia and HELLP syndrome the presenting complaints are of gastrointestinal in most of the cases. The symptoms are mainly generalised malaise, epigastric pain, nausea and vomiting.

The most common complications are hematological and co-

agulation abnormalities, others like cardiopulmonary (pleural effusion, pulmonary oedema, ARDS), acute renal failure and intra cerebral hemorrhage.

**RESULT**

**Out of** 18346 pregnant women ,136 developed HELLP Syndrome, which had 0.73% incidence and 6.5% in Preeclampsia-eclampsia.

In the present study maximum number of cases were between 20-24 years (63 cases 46.3%) followed by age group 25-29 years (35 cases 25.7%), 30-34 years age group (7 cases 5.1%), >35 years age group (4 cases 2.9%).

Maximum number of cases belonged to primipara (75 cases 55.4%) followed by multipara 61 cases (44.6%). Class I, majority of cases belong to multipara (9 cases 52.94%), classes II and III majority of the cases belong to primipara 27 (51.52%) and 40 (59.7%) respectively. Maximum number of cases belonged to lower socioeconomic class and were unbooked.

**Table 1: Distribution of cases according to type of onset**

| Type of onset | I  | II | III | Total | %   |
|---------------|----|----|-----|-------|-----|
| Antepartum    | 13 | 45 | 44  | 102   | 75  |
| Postpartum    | 4  | 7  | 23  | 34    | 25  |
| Total         | 17 | 52 | 67  | 136   | 100 |

Maximum number of cases belonged to antepartum(75%) followed by postpartum(25%).

**Table 2: Distribution of cases according to mode of delivery**

| Mode of delivery | I  | II | III | Total | %    |
|------------------|----|----|-----|-------|------|
| Vaginal          | 15 | 47 | 54  | 116   | 85.3 |
| Instrumental     | 0  | 1  | 2   | 3     | 2.2  |
| Cesarean section | 2  | 4  | 11  | 17    | 12.5 |
| Total            | 17 | 52 | 67  | 136   | 100  |

119 of the cases were delivered by vaginal route (87.5%). Among these 3 cases (2.5%) were instrumental deliveries, cesarean section rate in HELLP was 12.5%..

**Table 3: Distribution of cases according to birth weight**

| Birth weight (gm) | I  | II | III | Total | %    |
|-------------------|----|----|-----|-------|------|
| < 1000            | 1  | 6  | 12  | 19    | 13.3 |
| 1001 – 1500       | 8  | 9  | 16  | 33    | 24.4 |
| 1501 – 2000       | 1  | 17 | 13  | 31    | 22.2 |
| 2001 – 2500       | 5  | 12 | 13  | 30    | 22.2 |
| 1501 – 3000       | 2  | 6  | 9   | 17    | 12.6 |
| >3000             | 0  | 3  | 4   | 7     | 5.2  |
| Total             | 17 | 53 | 67  | 137   | 99.9 |

Majority of the babies 83 cases (59.9%) weighed <2000 gms, 54 cases (40.1%) weighed >2000 gms. Class I HELLP majority were in 1001-1500 gm (8 cases). Class II HELLP majority were in 1501-2500 gm (28 cases 54.9%). Class III HELLP majority were in 1001-2000gm (29 cases 43.28%). There is no statistical significance of birth weight among the different classes.

**Table 4: Distribution of cases according to maternal complications**

| Maternal complications      | I                                      | II | III | Total | %  |       |
|-----------------------------|--|----|-----|-------|----|-------|
| Hematological complications | Severe anemia                          | 6  | 16  | 8     | 30 | 22.05 |
|                             | Disseminated intravascular coagulation | 5  | 8   | 4     | 17 | 12.5  |

| Maternal complications    | I                               | II | III | Total | %  |      |
|---------------------------|---------------------------------|----|-----|-------|----|------|
| Respiratory complications | Respiratory infection           | 1  | 1   | 0     | 2  | 1.5  |
|                           | Pleural effusion                | 0  | 1   | 0     | 1  | 0.73 |
|                           | Pulmonary embolism              | 0  | 0   | 1     | 1  | 0.73 |
|                           | Pulmonary oedema                | 1  | 0   | 0     | 1  | 0.73 |
| Renal complications       | Oliguria                        | 1  | 1   | 2     | 4  | 2.9  |
|                           | Hematuria                       | 1  | 3   | 1     | 5  | 3.7  |
|                           | Renal failure                   | 3  | 3   | 0     | 6  | 4.4  |
| CNS complication          | Transient loss of consciousness | 1  | 1   | 0     | 2  | 1.5  |
| Obestic complications     | Abruptio                        | 2  | 7   | 5     | 14 | 10.3 |
|                           | Post partum haemorrhage         | 3  | 5   | 3     | 11 | 8.1  |
|                           | Febrile morbidity               | 3  | 6   | 3     | 12 | 8.8  |
|                           | Retained placenta               | 0  | 1   | 0     | 1  | 0.73 |
| Other complications       | Jaundice                        | 2  | 2   | 1     | 5  | 3.7  |
|                           | Ascites                         | 1  | 4   | 1     | 6  | 4.4  |
|                           | Septicemia                      | 1  | 4   | 0     | 5  | 3.7  |
|                           | Wound infection                 | 1  | 0   | 1     | 2  | 1.5  |
|                           | Paralytic ileus                 | 1  | 0   | 1     | 1  | 0.73 |

66 patients out of 136 had some maternal complications (48.52%). Severe anemia Hb <7gm% (30 cases 22.05%), DIC (17 cases 12.5%), abruptio (14 cases 10.3%) were the commonest complications. Other common complications seen were PPH (11 cases 8.1%), febrile morbidity (12 cases 8.8%), renal failure (6 cases 4.4%), ascites (5 cases 4.4%), jaundice (5 cases 3.7%), hematuria (5 cases 3.7%), oliguria (4 cases 2.9%), septicemia (5 cases 3.7%). One patient with renal failure died and 5 recovered after dialysis. Majority of the patients who died had more than one fatal complications.

**Table 5: Distribution of cases according to perinatal morbidity**

| Complications                 | I  | II | III | Total | %     |
|-------------------------------|----|----|-----|-------|-------|
| Preterm                       | 11 | 23 | 33  | 67    | 49.62 |
| Birth asphyxia                | 2  | 10 | 9   | 21    | 15.4  |
| Respiratory distress syndrome | 1  | 1  | 4   | 6     | 4.4   |
| IUGR                          | 3  | 18 | 22  | 44    | 32.6  |
| MAS                           | 3  | 6  | 7   | 16    | 11.8  |
| Septicemia                    | 0  | 2  | 0   | 2     | 1.5   |
| Intrauterine death            | 0  | 4  | 8   | 12    | 8.88  |
| NICU admission                | 6  | 24 | 27  | 57    | 41.9  |
| APGAR <6                      | 12 | 30 | 42  | 84    | 62.2  |

136 pregnancies resulted in 137 births (1 pair of twin). There were 30 still birth, 12 IUD and 19 early neonatal death. The perinatal mortality rate in this study was 44.52%.

In this present study, prematurity is the common cause of death 43 cases (70.49%). In class I HELLP 8cases (88.8%) with preterm babies. In class II HELLP 14 cases (60.86%) with preterm babies. In class III HELLP 21 cases (72.4%) with preterm babies. Majority of take home babies are with term babies.

Besides prematurity and IUGR birth asphyxia was the commonest cause of death (78.84%) followed by respiratory distress syndrome (10.58%) septicemia (10.58%)

**DISCUSSION-**

The incidence of HELLP syndrome and total number of deaths from HELLP have dramatically declined in the developed countries due to improvement in antenatal care, prompt diagnosis and management of preeclampsia. In developing countries, preeclampsia-eclampsia with HELLP and its complication still contribute to maternal and perinatal morbidity and mortality. The incidence of HELLP syndrome among preeclampsia-eclampsia in the present study 6.5% is lesser than developing and developed countries probably due to inclusion of diagnostic criteria such as mild PE and other parameters.

Majority of the patients in the present study were primi 55% comparable to Sibai BM<sup>1</sup> 52% and Martin JN<sup>2</sup> 51%. In other studies majority were multiparous Isler CM et al.<sup>3</sup> 61.5% and Ahmed et al.<sup>4</sup> 62.5%. In the present study, majority of the patients were unbooked 61.7%. In the present study 38.23% were booked comparable to Imir GA et al.<sup>5</sup> 32.8% and Sibai BM<sup>1</sup> 21%.

In Vigil P de Gracia<sup>6</sup> only 4.6% were unbooked. It has been widely accepted that standard antenatal care has immense values in reducing the incidence of HELLP syndrome by early detection of PE and its prompt management.

Majority of the patients were referred 69% comparable to Sibai BM<sup>1</sup> et al. 58 In the present study majority of the HELLP were in gestational age >37 weeks (42.6%) comparable to Vigil P de Gracia<sup>6</sup> 40%.

Postpartum HELLP syndrome in the present study 25% were comparable to Hadded et al.<sup>7</sup> 22%.

Majority of the patients in this study delivered vaginally 85.3% higher than Vigil P de Gracia<sup>6</sup> 29% and Shafika Banoo<sup>8</sup> 60%.

We allowed vaginal delivery mainly because of better stabilisation of the disease process and also because of less concern for foetal outcome by maternal side.

Cesarean delivery in this present study 12.5% were lesser than Vigil P de Gracia<sup>6</sup> 71% and Shafika Banoo<sup>8</sup> 40% and Hadded et al.<sup>7</sup> 63. Majority of the babies of HELLP mother weighed <2000 gms 59.9% in the present study. This was because majority of the babies were preterm and TUGR. Even term babies weighed lesser (SGA). However the birth weights were slightly higher in other studies. In the present study, DIC 12.5% lesser than Ahmed et al.<sup>4</sup> 62.5%, but higher than Hadded et al.<sup>7</sup> 8%. In this present study, maternal mortality is 2.2% was comparable to Vigil P de Gracia<sup>6</sup> 2.3%. Hararn K Svendsen<sup>9</sup> 2.5%, Sibai BM et al.<sup>1</sup> 1.8%. It is lesser than Ahmed et al.<sup>4</sup> 6.25%, Imir GA<sup>5</sup> 7.8% and higher than Hadded et al.<sup>7</sup> 1%. In this present study, perinatal mortality 44.52% comparable to Gui et al.<sup>10</sup> 42%, but higher than Sibai BM<sup>1</sup> 33.3%, Magann EF et al.<sup>11</sup> 23.2%, Willey Visser<sup>12</sup> 14.1%.

Majority of the causes of Perinatal neonatal mortality in our study was preterm (49.62%), still birth (21.9%), SGA (32.6%), birth asphyxia (78.8%), RDS (10.58%). Vigilant fetal monitoring (including electronic fetal monitoring) prompt timely intervention and improvement of neonatal care facilities are needed to reduce the perinatal mortality in the present study.

**Conclusion**-The incidence of HELLP syndrome in total live births from July 2013 to June 2014 constitutes 0.73% and

4.28% in pre-eclampsia, and 33.54% in eclampsia.

Once the diagnosis of HELLP syndrome has been made it warrants aggressive intervention with control of blood pressure, anti-seizure prophylaxis, corticosteroid treatment for fetal lung maturity and expeditious delivery. HELLP syndrome among pre-eclampsia and eclampsia cases are associated with significant maternal morbidity and perinatal mortality and morbidity. The present study shows maternal mortality of 2.2% but still perinatal mortality constitutes 44.52%.

We have to intensify our efforts to reduce pre-eclampsia with HELLP syndrome from the grass root level with regular antenatal care, early detection of pre-eclampsia and its prompt management. This will go long way in preventing this catastrophic disease.

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