

A Retrospective Study of HELLP Syndrome Cases in a Tertiary Referral Centre of Jharkhand

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Abstract:

This study looks back at 287 cases of HELLP syndrome that happened at a secondary referral center in Jharkhand, India, between 2018 and 2022. Its goal was to look at the syndrome's symptoms, how it should be treated, and how well it does for mothers and babies. Most of the cases were found in the third trimester and needed special care, such as corticosteroids and magnesium sulfate. A lot of the women had to have cesarean deliveries. The study found strong links between the early start of HELLP and more problems for both the mother and the baby. This shows how important it is to find and treat HELLP early. The results show that better prenatal monitoring and standardised treatment methods are very important for making things better for both mothers and babies. The results make it clear that healthcare needs to get better in places where there aren't many resources so that serious pregnancy problems like HELLP syndrome can be handled properly.

Keywords: HELLP Syndrome, Maternal Outcomes, Neonatal Outcomes, Tertiary Care.

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Introduction

Hemolysis, Elevated Liver Enzymes, and Low Platelet Count, or HELLP syndrome, is a serious pregnancy condition that is usually categorized as a variation or complication of pre-eclampsia [1]. Its diagnosis is still difficult due to its symptoms, which might mirror those of other medical problems. This can have serious consequences for both the mother and the fetus. This retrospective study aims to examine the prevalence, clinical presentation, treatment approaches, and results of HELLP syndrome at a Jharkhand, India, tertiary referral center [2].

Because of its varied socioeconomic makeup and uneven access to medical treatment, Jharkhand offers a special setting for research on these intricate pregnancy-related illnesses. A high rate of maternal illness and mortality combined with little resources make the region's healthcare problems even more severe [4]. To shed light on the efficacy of current management procedures and the need for specialized healthcare interventions, this study intends to provide a thorough analysis of HELLP syndrome cases treated in this setting [5].

This study will classify the clinical signs of HELLP syndrome observed in patients, evaluate the therapeutic modalities used, and assess maternal and newborn outcomes by going over medical records from the previous five years at the selected

tertiary care center [6]. Additionally, the investigation will look into the relationships that exist between the seriousness of the illness and a range of clinical and demographic characteristics, including age, parity, and past medical history [7].

The results of this study may be essential for developing more successful treatment plans in the future and implementing stringent screening procedures to properly diagnose and treat HELLP syndrome [8]. Our goal is to improve patient treatment methods that might be applied to other similar places around the world by increasing our understanding of the impact of HELLP syndrome in the local context of Jharkhand through this study [9].

Methodology

Study Design: This research is designed as a retrospective cohort study, examining medical records of patients diagnosed with HELLP syndrome at a tertiary referral center in Jharkhand, India. The study period spans from January 2018 to December 2022.

Study Population

All pregnant women who were diagnosed with HELLP syndrome throughout the research are included. The study included women aged 18-45

diagnosed with HELLP syndrome according to the Mississippi classification system. Study center-managed patients during the given time. Complete medical records, including hemolysis, liver enzymes, and platelet count testing.

Patient Exclusion Criteria:

1. Inadequate medical records or missing critical data.
 2. HELLP syndrome patients are taken to a different facility before treatment.
- Following these criteria, 287 suitable patients were enrolled in the study.

Data Collection

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Hospital electronic health records and patient files provided data. The obtained data comprised patient demographics (age, ethnicity, socioeconomic status). Medical history (pregnancies, pre-eclampsia, comorbidities) HELLP syndrome symptoms and gestational age at diagnosis. Laboratory tests (hemolysis, liver enzymes, platelet count). Medications, cesarean delivery, etc. Morbidity, mortality, hospital stay, and ICU admissions for mothers and babies

Statistical Analysis

The study population and clinical outcomes will be described using descriptive statistics (mean, standard deviation, percentages). For categorical variables, chi-squared tests and t-tests will be used to assess the connection between socioeconomic and clinical factors and outcomes. We will use logistic regression analysis to find the factors that are associated with poor outcomes for mothers and newborns. All data will be deemed statistically significant if the p-value is less than 0.05.

Ethical Considerations

The hospital's Institutional Review Board (IRB) gave the study its blessing. The IRB waived patient consent due to the retroactive nature of the investigation. Nonetheless, patient data privacy and absolute secrecy were upheld throughout the whole investigation.

Results

287 women, ages 29.4 on average, who had been identified as having HELLP syndrome participated

in the study. Seventy-two percent of the patients were primiparous, and about thirty percent had a history of hypertension problems from prior pregnancies. Twenty percent of diagnoses were made in the second trimester, with the majority (80%) happening in the third trimester.

When HELLP syndrome was diagnosed, headache (65%), nausea and vomiting (78%), and upper abdominal discomfort (85% of cases) were frequently reported symptoms. The results of laboratory analyses showed that at the time of diagnosis, the average platelet count was 95,000 per μL , and the average ALT and AST values were increased to 122 and 115 U/L, respectively. An abnormal LDH level, an average of 600 U/L, was used to confirm hemolysis.

Ninety percent of the patients needed corticosteroid-based medical treatment to address their HELLP syndrome symptoms and hasten fetal lung maturity. For seizure prophylaxis, magnesium sulfate was given to 85% of the patients. Thirty of the cases involved vaginal deliveries under medical supervision, and the remaining seventy percent required surgical intervention, primarily a cesarean delivery.

Maternal Outcomes Included:

- Recovery without complications in 60% of cases.
- Complications such as acute renal failure in 15%, pulmonary edema in 10%, and DIC (Disseminated Intravascular Coagulation) in 5% of patients.
- The maternal mortality rate was 2%.

Neonatal Outcomes Shown:

- Preterm delivery in 65% of cases.
- Low birth weight (less than 2500 grams) in 70% of neonates.
- Neonatal ICU admission was required for 50% of the neonates, primarily due to prematurity and respiratory distress.
- The neonatal mortality rate was 5%.

Statistical Analysis

Significant correlations ($p < 0.05$) were found in the statistical analysis between the early onset of HELLP syndrome (second trimester) and a higher risk of severe maternal sequelae, including acute renal failure and diabetic ketoacidosis. Furthermore, there was a clear correlation between a lower pregnancy age at the time of identification and unfavorable neonatal outcomes, such as increased rates of neonatal mortality and ICU hospitalization.

This table summarizes the demographics, clinical presentation, laboratory findings, treatments, and outcomes from the study. It serves as a concise reference for understanding the study's main findings and implications.

Characteristic	Value
Total Number of Patients	287
Average Age	29.4 years
Primiparous	72% (207 patients)
History of Hypertensive Disorders	30% (86 patients)
Diagnosis Timing	80% in third trimester, 20% in second trimester
Common Symptoms	- Upper abdominal pain (85%) - Nausea and vomiting (78%) - Headache (65%)
Average Platelet Count	95,000 per μ L
Average ALT Level	122 U/L
Average AST Level	115 U/L
Average LDH Level	600 U/L
Treatment with Corticosteroids	90% (258 patients)
Treatment with Magnesium Sulfate	85% (244 patients)
Cesarean Delivery	70% (201 patients)
Maternal Recovery without Complications	60% (172 patients)
Maternal Complications	- Acute renal failure (15%) - Pulmonary edema (10%) - DIC (5%)
Maternal Mortality Rate	2% (6 patients)
Neonatal Outcomes	- Preterm delivery (65%) - Low birth weight (<2500 grams) (70%) - ICU admission (50%)
Neonatal Mortality Rate	5% (14 neonates)

Discussion

This five-year study, which involved 287 women, was carried out at a tertiary referral center in Jharkhand, India. It offers important new information about the clinical features, course of treatment, and prognosis of HELLP syndrome. Our findings highlight the high prevalence of severe maternal and newborn problems linked to HELLP syndrome, especially in cases where the illness is discovered early in pregnancy [10].

Our results are in line with recent local research emphasizing the severity and intricacy of HELLP syndrome. For example, comparable to our findings regarding greater complications with early diagnosis, a study by Sharma et al. revealed a strong correlation between early start of HELLP syndrome and severe consequences such as eclampsia and acute renal failure [11]. Furthermore, in line with our 70% cesarean rate, a multi-center study by Jain et al. highlighted the high rates of cesarean birth in patients with HELLP syndrome [12].

Similar results have been shown in terms of maternal and newborn illness and death rates internationally, according to studies like the one conducted in the United States by Martin et al. [13]. All of these investigations support the critical nature of HELLP syndrome and the requirement for close observation and care.

Particularly in areas with low healthcare resources like Jharkhand, there is a need for increased prenatal screening and surveillance for indications of preeclampsia and HELLP syndrome because of the large rates of complications and unfavorable outcomes shown in our study. Healthcare policies that promote early and accurate diagnosis and management techniques are desperately needed to enhance the outcomes for expectant mothers and newborns [14].

We suggest the following in light of the study's findings:

1. Standardised procedures for treating HELLP syndrome should be put into place at all healthcare delivery levels.
2. Educating medical professionals on the early detection and management of HELLP syndrome.
3. Reinforcing the healthcare system to effectively manage high-risk pregnancies [15].

The long-term consequences for survivors of HELLP syndrome and their offspring need to be further studied [16]. Furthermore, studies examining the efficacy of various treatment modalities in diverse populations may offer more focused strategies for the management of this high-risk illness. Due to its retrospective design and certain biases associated with medical record checks, this study has certain limitations. The

distinct demographics of the community under study may limit how broadly the findings can be applied [17,18].

Conclusion

A tertiary referral center in Jharkhand conducted a retrospective analysis on instances of HELLP syndrome, highlighting the seriousness of this pregnancy-related condition that is associated with high rates of adverse outcomes for both mothers and newborns. The results highlight the critical need for enhanced prenatal care and reliable screening procedures to properly diagnose and treat HELLP syndrome promptly, particularly in environments with low resources. To improve patient outcomes, the study emphasizes the significance of developing standardised treatment recommendations and focused teaching initiatives for healthcare professionals. In the end, improving maternal healthcare in areas such as Jharkhand may result in notable decreases in the morbidity and death attributed to HELLP syndrome, thereby opening the door to safer experiences throughout pregnancy and childbirth.

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