

ORIGINAL ARTICLE

Clinical Characteristics and Maternal and Fetal-Neonatal Complications Among Patients With HELLP Syndrome: A Retrospective Single-Center Study

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ABSTRACT

BACKGROUND:

HELLP syndrome-hemolysis, elevated liver enzymes, and low platelet count-is a severe pregnancy complication associated with substantial maternal and perinatal morbidity. Published data from Venezuela remain limited, and historical hospital cohorts can provide useful descriptive information when their methodological limitations are explicitly recognized.

OBJECTIVE:

To describe demographic and obstetric characteristics, clinical and laboratory features, and maternal and fetal-neonatal complications among patients with a chart-documented diagnosis of HELLP syndrome at a high-risk maternity service in Venezuela.

METHODS:

We performed a retrospective, descriptive, single-center medical-record review of 106 patients treated at the Maternidad de Alto Riesgo Hugo Chavez, Ciudad Hospitalaria Dr. Enrique Tejera, Valencia, Venezuela, from May 2019 through May 2020. Eligible records had a chart-documented diagnosis of HELLP syndrome and available laboratory studies. Analyses were descriptive, and exact binomial 95% confidence intervals were calculated post hoc for key complication and mortality proportions.

RESULTS:

Among 106 patients, 74 (69.8%) were recorded in the preterm gestational-age category. Headache was documented in 76 (71.7%), nausea in 54 (50.9%), and epigastric pain in 45 (42.5%). Hemolysis was recorded in 74 (69.8%), elevated liver enzymes in 105 (99.1%), and thrombocytopenia in 79 (74.5%). At least one maternal complication occurred in 53 patients (50.0%; 95% CI, 40.1%-59.9%), while at least one fetal-neonatal complication occurred in 83 pregnancies (78.3%; 95% CI, 69.2%-85.7%). No maternal deaths were reported, and five fetal deaths were recorded.

CONCLUSION:

This historical single-center series demonstrates a substantial burden of maternal and fetal-neonatal complications among patients with a chart-documented HELLP diagnosis. Because the study lacked a comparator group, uniform patient-level diagnostic adjudication, and patient-level data for reanalysis, the findings should be interpreted as descriptive regional evidence rather than as estimates of causal associations or independent risk factors.

KEYWORDS

HELLP syndrome; preeclampsia; pregnancy complications; maternal morbidity; prematurity; Venezuela

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Individual author contributions were not documented in the source academic thesis; specific CRediT roles could therefore not be reliably assigned.

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ETHICS

Approved

CONSENT

Not Applicable

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ABSTRACT

BACKGROUND: HELLP syndrome—hemolysis, elevated liver enzymes, and low platelet count—is a severe pregnancy complication associated with substantial maternal and perinatal morbidity. Published data from Venezuela remain limited, and historical hospital cohorts can provide useful descriptive information when their methodological limitations are explicitly recognized.

OBJECTIVE: To describe demographic and obstetric characteristics, clinical and laboratory features, and maternal and fetal-neonatal complications among patients with a chart-documented diagnosis of HELLP syndrome at a high-risk maternity service in Venezuela.

METHODS: We performed a retrospective, descriptive, single-center medical-record review of 106 patients treated at the Maternidad de Alto Riesgo Hugo Chávez, Ciudad Hospitalaria Dr. Enrique Tejera, Valencia, Venezuela, from May 2019 through May 2020. Eligible records had a chart-documented diagnosis of HELLP syndrome and available laboratory studies. The source thesis reviewed the Tennessee and Mississippi HELLP classifications but did not report a single operational patient-level case definition, the laboratory thresholds used for hemolysis, elevated liver enzymes, or thrombocytopenia, or sufficient raw data to classify complete versus partial HELLP; diagnoses were therefore retained as documented. Gestational age was reported only as preterm, term, or post-term; numeric cutoffs and whether the category referred to diagnosis, admission, or delivery were not specified. No screening log was available, so the numbers of records screened or excluded and variable-level missing data could not be quantified. Analyses were descriptive. Exact binomial 95% confidence intervals (CIs) were calculated post hoc for key complication and mortality proportions.

RESULTS: Among 106 included patients, the most frequent age category was 31–35 years (32/106, 30.2%), and 74/106 (69.8%) were recorded in the source as preterm; the numeric gestational-age boundary and timing of that classification were not reported. Headache was documented in 76/106 (71.7%), nausea in 54/106 (50.9%), and epigastric pain in 45/106 (42.5%). Hemolysis was recorded in 74/106 (69.8%), elevated liver enzymes in 105/106 (99.1%), and thrombocytopenia in 79/106 (74.5%). At least one maternal complication was reported in 53/106 (50.0%; exact 95% CI, 40.1%–59.9%) and at least one fetal-neonatal complication in 83/106 (78.3%; 95% CI, 69.2%–85.7%). The source complication tables each contained one recorded primary category per affected record; operational definitions for individual complications were not provided. No maternal deaths were reported (0/106; 95% CI, 0%–3.4%). Five events labeled “fetal death” in the source were recorded (5/106, 4.7%; 95% CI, 1.5%–10.7%); the source did not distinguish intrauterine/stillbirth from neonatal death.

CONCLUSION: This historical single-center series demonstrates a substantial burden of maternal and fetal-neonatal complications among patients carrying a chart-documented HELLP diagnosis. Because the study had no comparator group, no uniform patient-level diagnostic adjudication, and no patient-level dataset available for reanalysis, the findings should not be used to identify independent risk factors, estimate causal effects, or validate diagnostic performance. The data are best interpreted as descriptive regional evidence and support the need for standardized diagnostic criteria and prospectively collected multicenter data.

KEYWORDS: HELLP syndrome; preeclampsia; pregnancy complications; maternal morbidity; prematurity; Venezuela

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Running title: Maternal and fetal-neonatal complications in HELLP syndrome

INTRODUCTION

HELLP syndrome is defined by the constellation of hemolysis, elevated liver enzymes, and low platelet count and is generally considered within the spectrum of severe hypertensive disorders of pregnancy. The syndrome was described as a distinct clinical entity by Weinstein in 1982 and remains associated with important maternal and perinatal complications, including disseminated intravascular coagulation, placental abruption, acute kidney injury, pulmonary edema, hepatic complications, preterm birth, fetal growth restriction, and perinatal death [1–5].

Diagnostic classification has evolved. The Tennessee and Mississippi systems have historically been used to define complete or severity-based HELLP phenotypes, while contemporary guidance emphasizes recognition of severe preeclamptic end-organ manifestations and careful exclusion of mimics [2–5]. Complete HELLP typically requires evidence of all three laboratory components, whereas partial or incomplete presentations may contain only one or two components [3,4]. Contemporary differential diagnosis also requires distinction from other pregnancy-associated thrombotic microangiopathies, particularly thrombotic thrombocytopenic purpura and complement-mediated hemolytic uremic syndrome, because overlapping hemolysis, thrombocytopenia, and organ injury can obscure classification [12]. This distinction is especially important when interpreting retrospective datasets in which the diagnosis was assigned clinically but patient-level adjudication against a single prespecified laboratory definition was not performed.

Latin American cohorts have reported substantial maternal and perinatal morbidity associated with HELLP syndrome. A Venezuelan study from Maternidad Concepción Palacios reported maternal morbidity in 62.5% of 128 affected patients and no maternal deaths, with acute renal failure as the most frequent maternal complication [6]. Another Venezuelan critical-care cohort reported a high frequency of incomplete HELLP and major hematologic, hepatic, and renal dysfunction [7]. Multicenter Latin American data among women with eclampsia have also demonstrated that coexisting HELLP syndrome identifies a group with high maternal risk [8].

The original academic study underlying the present report was designed as a descriptive review of patients with HELLP syndrome treated at a high-risk maternity service in Valencia, Venezuela. Because it did not include an unaffected comparator group or inferential modeling, it cannot establish independent risk factors for developing HELLP syndrome. The present journal manuscript therefore reframes the study around the question the data can validly answer: What clinical, obstetric, laboratory, maternal, and fetal-neonatal features were documented among the affected patients?

The objective of this study was to describe demographic and obstetric characteristics, clinical and laboratory features, and maternal and fetal-neonatal complications among patients with a chart-documented diagnosis of HELLP syndrome treated between May 2019 and May 2020.

MATERIALS AND METHODS

Study design and setting

This was a retrospective, descriptive, single-center medical-record review conducted at the Maternidad de Alto Riesgo Hugo Chávez, Ciudad Hospitalaria Dr. Enrique Tejera, Valencia, Carabobo, Venezuela. The study period was May 2019 through May 2020. The source thesis characterized the design as nonexperimental, retrospective, and cross-sectional/descriptive. For the present report, the study is presented as a retrospective descriptive cohort of chart-documented cases, with no causal or comparative inference.

Study population and eligibility

The source population comprised medical records of patients treated at the study maternity service during the study period. The analytic dataset contained 106 records with a documented diagnosis of HELLP syndrome. Source inclusion criteria were: (1) a medical record documenting HELLP syndrome during the specified period, (2) care at the study maternity service, (3) no age restriction, and (4) available laboratory studies. The thesis states that 100% of records meeting these criteria were included, although it also labels the sampling strategy as nonprobability intentional/convenience sampling. No screening log or total number of records assessed for eligibility was reported. Accordingly, the number screened and the number excluded cannot be reconstructed; 106 records constitute the final analytic cohort. Completeness of case capture therefore cannot be independently verified. No a priori sample-size calculation was reported; study size was determined by the records included in the source dataset. No additional exclusion criteria were specified.

Diagnostic ascertainment

The source thesis reviewed the Tennessee and Mississippi HELLP classifications as part of its background; however, it did not document that either system was applied uniformly to all 106 records. It did not provide a single operational patient-level case definition or report the laboratory thresholds used to classify hemolysis, elevated liver enzymes, or thrombocytopenia. Patient-level laboratory values needed to adjudicate complete versus partial HELLP were not available in the supplied source.

Accordingly, no Tennessee class, Mississippi class, or complete/partial HELLP category was assigned retrospectively in this journal report. The analysis retains the chart-documented HELLP diagnosis and reports the three laboratory components exactly as summarized in the source dataset.

Gestational-age classification

The source tables classified gestational age only as “preterm,” “term,” or “post-term.” The source did not report the numeric gestational-week boundaries used for these categories and did not specify whether gestational age referred to the time of HELLP diagnosis, hospital admission, or delivery. Because the patient-level records were not available for reanalysis, conventional week-based cutoffs were not imposed retrospectively. Throughout this manuscript, these categories are therefore described as source-recorded gestational-age categories rather than gestational age at diagnosis or gestational age at delivery.

Variables and data collection

Data were abstracted retrospectively from medical records using a researcher-designed clinical data form. The source thesis reports that the form underwent content review by three subject-matter experts. Variables included age, municipality of residence, marital status, Graffar socioeconomic category, gravidity, number of prenatal-control visits, gestational-age category, symptoms and signs, documented laboratory components of HELLP, and maternal and fetal-neonatal complications. Because the source table describing “type of delivery” contained mutually incompatible counts that summed to 113 observations (107% of the 106-patient cohort) and did not clarify whether categories represented prior obstetric history or the index pregnancy, that variable was excluded from this journal report rather than reinterpreted.

Outcomes and terminology

Maternal complications were reported in the source as renal insufficiency, hepatic insufficiency, hepatic rupture, cerebrovascular accident, cerebral hemorrhage, pulmonary edema, respiratory failure, disseminated intravascular coagulation, placental abruption, postpartum hemorrhage, and maternal death. Fetal-neonatal complications included fetal growth restriction, prematurity, respiratory distress syndrome, cerebral hemorrhage, perinatal asphyxia, intestinal disease, hypoglycemia, low birth weight, and fetal death. The source did not provide standardized operational definitions or laboratory/clinical thresholds for these individual complication labels; therefore, the original labels are retained without retrospective redefinition. The source first reports whether any maternal or fetal-neonatal complication was present and then provides complication-category tables whose counts sum exactly to the corresponding number of affected records (53 maternal and 83 fetal-neonatal). Because the thesis does not state whether additional coexisting complications were captured outside the single tabulated category, these tables are treated as distributions of recorded primary complication categories rather than exhaustive incidence counts. Percentages are reported using both the affected-record denominator (53 or 83) and the full-cohort denominator (106), where applicable.

Bias and data-quality considerations

Potential selection bias arises because the completeness of case capture cannot be verified from the source thesis. Information and misclassification bias are possible because diagnoses, laboratory components, symptoms, and outcomes were abstracted retrospectively from routine clinical records without a single documented adjudication protocol. To limit additional reinterpretation during conversion to a journal article, the present report preserves source counts, recalculates percentages from those counts, does not retrospectively reclassify HELLP status, excludes the internally inconsistent delivery-type table, and explicitly labels unresolved denominators and definitions.

Participant flow and missing data

Records screened for eligibility: not reported. Records excluded: not reported. Records included in the analytic cohort: 106. Although the source states that all records meeting its eligibility criteria were included, the absence of a screening log prevents independent verification of the screening denominator or reasons for exclusion. Variable-level missingness was not reported in the aggregate source tables and could not be reconstructed without patient-level data. No imputation was performed. For this report, denominators are 106 unless the source explicitly provides a different denominator; unresolved missingness or definition issues are stated in the relevant text or table notes.

Statistical analysis

The original analysis used Microsoft Excel to summarize data in frequency tables and graphs. For this revised report, integer counts from the source tables were retained and percentages were recalculated using the stated denominator. Results are presented as n (%). For key summary proportions (any maternal complication, any fetal-neonatal complication, maternal death, and fetal death), two-sided 95% confidence intervals were calculated post hoc using the exact Clopper-Pearson method. No hypothesis tests, effect estimates, regression models, or risk-factor analyses were performed. No imputation was performed. Because only aggregate source tables were available for this journal revision, patient-level cross-tabulation, multivariable adjustment, and variable-specific missing-data analysis were not possible. The numbers screened and excluded were also unavailable because the source did not include a screening log. Because the study includes only affected patients, no relative risks, odds ratios, or independent predictors of HELLP syndrome can be estimated from these data.

Reporting guideline

This manuscript was prepared with reference to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) recommendations [13]. Reporting items that require information unavailable from the aggregate source thesis are identified explicitly rather than inferred or reconstructed.

Ethics

The source thesis states that written permission was requested and obtained for medical-record data collection. It does not identify a formal institutional review board or research ethics committee approval/exemption, approval number, or consent

waiver. These items must be confirmed with the authors and study institution before publication as a Version of Record. No prospective intervention or direct patient contact was described.

RESULTS

Cohort characteristics

The analytic cohort contained 106 patients. The source did not report the number of records screened or excluded before these 106 records were included. The largest age category was 31–35 years (32/106, 30.2%). Most patients were recorded as single (75/106, 70.8%). Graffar category III was the most frequent socioeconomic category (45/106, 42.5%). Gravidity was distributed similarly across gravida 1 (29/106, 27.4%), gravida 2 (29/106, 27.4%), and gravida 3 (28/106, 26.4%). Seventy-four patients (69.8%) were recorded in the source “preterm” category and 32 (30.2%) in the “term” category. The source did not provide numeric gestational-week cutoffs or specify whether these categories referred to diagnosis, admission, or delivery. Table 1 summarizes the available demographic and obstetric characteristics.

Characteristic	n	%
Age, years		
15–20	17	16.0
21–25	18	17.0
26–30	20	18.9
31–35	32	30.2
36–40	19	17.9
Marital status		
Single	75	70.8
Cohabiting/concubinato	10	9.4
Married	19	17.9
Divorced	0	0.0
Widowed	2	1.9
Graffar socioeconomic category		
I	5	4.7
II	30	28.3
III	45	42.5
IV	24	22.6
V	2	1.9
Gravidity		
1	29	27.4
2	29	27.4
3	28	26.4
4	10	9.4
5	5	4.7
≥6	5	4.7
Prenatal-control visits		
0	4	3.8
1–2	12	11.3
3–4	25	23.6
5–6	31	29.2
7–8	34	32.1
>9	0	0.0
Recorded gestational-age category		
Preterm	74	69.8
Term	32	30.2
Post-term	0	0.0

Denominator is 106 unless otherwise indicated. Percentages were recalculated from source counts. “Preterm,” “term,” and “post-term” reproduce the source gestational-age labels. The source did not provide numeric week boundaries and did not specify whether the category referred to HELLP diagnosis, hospital admission, or delivery; no retrospective week-based reclassification was performed.

Clinical and laboratory features

Headache was the most frequently documented symptom (76/106, 71.7%), followed by nausea (54/106, 50.9%) and epigastric pain (45/106, 42.5%). Regarding the laboratory triad, elevated liver enzymes were documented in 105/106 (99.1%), thrombocytopenia in 79/106 (74.5%), and hemolysis in 74/106 (69.8%). The source did not report the laboratory thresholds used to define any of these three components and did not provide patient-level values for independent adjudication. These frequencies therefore represent documented components in the source record rather than confirmation that each patient met a standardized Tennessee, Mississippi, or other uniform HELLP definition.

Clinical/laboratory feature	n	%
Headache	76	71.7
Nausea	54	50.9
Epigastric pain	45	42.5
Scotoma	20	18.9
Visual disturbance	18	17.0
Jaundice	17	16.0
Right-shoulder pain	12	11.3
Mucocutaneous bleeding	3	2.8
Hemolysis documented	74	69.8
Elevated liver enzymes documented	105	99.1
Low platelet count documented	79	74.5

Symptoms are not mutually exclusive. Laboratory variables are reported as documented in the source thesis; raw values, patient-level timing, and a single operational diagnostic threshold were not available.

Maternal complications

At least one maternal complication was recorded in 53/106 patients (50.0%; exact 95% CI, 40.1%–59.9%). Among these 53 records, renal insufficiency was the most frequent recorded primary complication category (17/53, 32.1%), followed by placental abruption (10/53, 18.9%), postpartum hemorrhage (9/53, 17.0%), and respiratory failure (8/53, 15.1%). No maternal deaths were reported (0/106; exact 95% CI, 0%–3.4%). The source did not provide standardized operational definitions for the individual maternal complication labels. Table 3 therefore reports each source-recorded primary category using both the 53 affected records and the full cohort of 106 as denominators.

Recorded primary maternal complication category*	n	% of 53	% of 106
Renal insufficiency	17	32.1	16.0
Hepatic insufficiency	5	9.4	4.7
Hepatic rupture	1	1.9	0.9
Cerebrovascular accident	0	0.0	0.0
Cerebral hemorrhage	0	0.0	0.0
Pulmonary edema	0	0.0	0.0
Respiratory failure	8	15.1	7.5
Disseminated intravascular coagulation	3	5.7	2.8
Placental abruption	10	18.9	9.4
Postpartum hemorrhage	9	17.0	8.5
Maternal death	0	0.0	0.0

The source table totals exactly 53 complication entries for the 53 patients reported as having maternal complications. This indicates one tabulated category per affected record, but the source does not document whether patients could also have additional coexisting complications that were not represented in that single category. Table 3 is therefore interpreted as a distribution of recorded primary complication categories, not as a complete incidence profile of every maternal complication. No standardized diagnostic definitions for the individual categories were available in the source. No maternal death was recorded.

Fetal-neonatal complications

At least one fetal-neonatal complication was recorded in 83/106 pregnancies (78.3%; exact 95% CI, 69.2%–85.7%). Among these 83 records, prematurity (24/83, 28.9%), low birth weight (19/83, 22.9%), respiratory distress syndrome (16/83, 19.3%), and perinatal asphyxia (10/83, 12.0%) were the most frequent recorded primary categories. The source did not provide standardized operational definitions for these individual fetal-neonatal labels. Five events were labeled “muerte fetal” (fetal death) in the source, corresponding to 5/106 pregnancies (4.7%; exact 95% CI, 1.5%–10.7%) and 5/83 records with a fetal-neonatal complication (6.0%). The source did not specify whether these events were antepartum/intrapartum fetal deaths, stillbirths, or neonatal deaths; they are therefore reported only as fetal death and are not temporally reclassified.

Recorded primary fetal-neonatal complication category*	n	% of 83	% of 106
Fetal growth restriction	6	7.2	5.7
Prematurity	24	28.9	22.6
Respiratory distress syndrome	16	19.3	15.1
Intracranial/cerebral hemorrhage	0	0.0	0.0
Perinatal asphyxia	10	12.0	9.4
Intestinal disease (unspecified)	0	0.0	0.0
Hypoglycemia	3	3.6	2.8
Low birth weight	19	22.9	17.9
Fetal death	5	6.0	4.7

The source table totals exactly 83 complication entries for the 83 records reported as having fetal-neonatal complications. This indicates one tabulated category per affected record, but the source does not document whether multiple coexisting outcomes could occur in the same pregnancy/newborn beyond the single category shown. Table 4 is therefore interpreted as a distribution of recorded primary complication categories rather than an exhaustive incidence profile. “Fetal death” reproduces the source outcome label; timing relative to birth was not specified.

DISCUSSION

This revised report describes 106 patients with a chart-documented HELLP diagnosis treated at a high-risk maternity service in Venezuela. The principal observations were a high proportion of patients recorded in the preterm gestational-age category, frequent headache and gastrointestinal/epigastric symptoms, incomplete documentation of all three HELLP laboratory components across the cohort, maternal complications in one half of cases, and fetal-neonatal complications in more than three quarters of cases. These observations characterize the affected cohort but do not identify risk factors for developing HELLP syndrome because no unaffected comparison group was available.

The source-recorded gestational-age pattern is numerically similar to prior Venezuelan reports in which HELLP frequently presented before 37 weeks. Soto and colleagues reported that 73.4% of 128 patients developed HELLP before 37 weeks [6]. Labarca and colleagues reported preterm pregnancy in 69.37% of critically ill patients with HELLP [7]. The 69.8% source-recorded preterm-category frequency in the present cohort is similar in magnitude, but direct comparison is limited because the current source did not report its numeric week boundary or whether gestational age referred to diagnosis, admission, or delivery, in addition to differences in setting, case definition, and illness severity.

Maternal morbidity was substantial. The source dataset recorded at least one maternal complication in 50.0% of patients, with renal insufficiency as the most frequent primary complication category. In the Concepción Palacios cohort, maternal morbidity was reported in 62.5% and acute renal failure was the leading complication [6]. HELLP syndrome is recognized as an important clinical context for pregnancy-associated acute kidney injury, and a systematic review and meta-analysis reported higher odds of acute kidney injury among patients with HELLP syndrome than among comparison patients without HELLP [9]. The present study cannot estimate that association and did not provide renal-function criteria sufficient to retrospectively relabel the source category as acute kidney injury; its finding should therefore remain described as renal insufficiency.

The absence of maternal deaths in this 106-patient cohort should not be interpreted as evidence of low lethality. Large historical series have documented serious maternal morbidity and nonzero maternal mortality, including disseminated intravascular coagulation, placental abruption, acute renal failure, pulmonary edema, and hepatic complications [10]. Multicenter Latin American data among women with eclampsia similarly demonstrate that HELLP syndrome can accompany severe maternal

outcomes [8]. With 106 patients, a zero observed death count is compatible with a clinically meaningful true event risk and is strongly influenced by case mix and referral patterns.

The most important diagnostic limitation is the inconsistency between the chart-level HELLP label and the aggregate laboratory-component frequencies. Elevated liver enzymes were documented in 99.1% of patients, but hemolysis and thrombocytopenia were documented in only 69.8% and 74.5%, respectively. This pattern could reflect partial/incomplete HELLP, missing laboratory documentation, different thresholds, timing of laboratory sampling, or diagnostic misclassification. It cannot be resolved from the aggregate thesis tables. Prior literature explicitly recognizes complete and partial HELLP phenotypes [3,4], and the Venezuelan critical-care cohort by Labarca et al. reported incomplete HELLP in 56.76% of cases [7]. For this reason, the present manuscript deliberately uses the term “chart-documented diagnosis of HELLP syndrome” rather than asserting that every record met a single modern complete-HELLP definition.

Fetal-neonatal morbidity was dominated by prematurity, low birth weight, respiratory distress, and perinatal asphyxia. These outcomes are clinically plausible in severe hypertensive disease and are consistent with the major contribution of prematurity to adverse perinatal outcome reported in prior HELLP cohorts [3,6]. However, the original dataset did not provide neonatal gestational age at birth, birth-weight distributions, neonatal intensive care utilization, timing of fetal death, or patient-level linkage between maternal and neonatal complications. The current data therefore support descriptive reporting only.

Strengths and interpretive scope

The principal value of this study is transparent descriptive reporting from an underrepresented Venezuelan high-risk maternity setting. The present report preserves the original integer counts, recalculates percentages using explicit denominators, distinguishes cohort-level frequencies from complication-category distributions, and avoids unsupported causal or risk-factor language. It also makes source-data inconsistencies visible rather than resolving them by assumption. These features improve reproducibility of interpretation even though they cannot overcome limitations inherent to the original aggregate dataset.

Limitations

This study has several important limitations. First, its retrospective, single-center design limits generalizability and is susceptible to selection and information bias; completeness of case capture cannot be verified because no screening denominator or flow log was reported, so the numbers screened and excluded are unknown. Second, the cohort contains only patients with a documented HELLP diagnosis; without a comparator group, demographic or obstetric characteristics cannot be interpreted as independent risk factors. Third, the source study did not document one uniform patient-level HELLP case definition, did not report the laboratory thresholds used for the three HELLP components, and did not provide raw values for independent diagnostic adjudication or complete-versus-partial classification. Fourth, the source gestational-age categories lacked numeric week boundaries and did not identify whether timing referred to diagnosis, admission, or delivery. Fifth, no denominator of all pregnancies or deliveries at the institution was provided, so incidence or prevalence cannot be estimated. Sixth, only aggregate source tables were available for the present journal revision; patient-level cross-tabulation, temporal sequencing, multivariable adjustment, and variable-specific missing-data analysis were therefore impossible. Seventh, timing of laboratory tests, treatment exposures, intensive-care status, multiple gestation, and standardized operational definitions for maternal and fetal-neonatal outcomes were not consistently reported. Eighth, the source “type of delivery” table was excluded because its counts exceeded the cohort size and the category definition could not be determined. Ninth, the maternal and fetal-neonatal complication tables each sum exactly to the number of affected records but do not clarify whether additional coexisting complications were captured; their category frequencies should therefore be interpreted as recorded primary complication distributions rather than exhaustive incidence estimates. Finally, the data reflect care delivered in 2019–2020 and may not represent current practice or referral patterns.

CONCLUSION

In this retrospective single-center series of 106 patients with a chart-documented diagnosis of HELLP syndrome, maternal and fetal-neonatal complications were common. Renal insufficiency, placental abruption, postpartum hemorrhage, and respiratory failure were the most frequently recorded primary maternal complication categories, while prematurity, low birth weight, respiratory distress syndrome, and perinatal asphyxia predominated among fetal-neonatal categories. No maternal deaths were reported, and five fetal deaths were recorded. These findings provide descriptive historical data from a Venezuelan high-risk maternity service; they do not establish risk factors, causal relationships, diagnostic performance, or the independent effect of HELLP syndrome on outcomes. Future studies should apply prespecified diagnostic criteria, retain patient-level laboratory data, define outcomes prospectively, and use appropriate comparator groups and multivariable methods.

DECLARATIONS

ETHICS APPROVAL AND CONSENT TO PARTICIPATE: The source thesis documents written institutional permission for medical-record data collection. The supplied materials do not contain a research ethics committee/IRB approval or exemption letter, approval number, or waiver of informed consent. These items require verification with the study institution before final publication.

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DATA AVAILABILITY: This journal manuscript was reconstructed from aggregate data reported in the source academic thesis. Patient-level data were not available for reanalysis. Availability of deidentified source data should be confirmed with the corresponding author and responsible institution before publication.

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