The HELLP syndrome (hemolysis, elevated liver enzymes, and low platelets): Much ado about nothing?

Baha M. Sibai, MD
Memphis, Tennessee

The question of whether the HELLP syndrome exists as a distinct entity or is part of a spectrum of pregnancy complications, which have in common hemolysis, elevated liver enzymes, and thrombocytopenia, has long been a source of speculation and debate among obstetricians and internists. A review of the literature indicates a definite need for a uniform definition, diagnosis, and management of this syndrome. Patients manifesting this syndrome usually are seen before term (<36 weeks' gestation) complaining of malaise (90%), epigastric or right upper-quadrant pain (90%), and nausea or vomiting (50%), and some will have nonspecific viral-syndrome-like symptoms. Hypertension and proteinuria may be absent or slight. Thus some of these patients may have a variety of signs and symptoms, none of which are diagnostic of classic preeclampsia. In consideration of the high maternal and perinatal mortality and morbidity reported with the presence of this syndrome, I recommend that all pregnant women having any of these symptoms should have a complete blood cell count with platelet and liver enzyme determinations irrespective of maternal blood pressure. (Am J Obstet Gynecol 1990;162:311-6.)

Key words: Preeclampsia, HELLP syndrome, epigastric pain, management

Hemolysis, abnormal liver function tests, and thrombocytopenia have been recognized as complications of preeclampsia-eclampsia for many years.[1-4] According to Chesley,[1] some of these components had been reported in the obstetric literature for almost 100 years (coagulation defects and microthrombi were first described by Schmorl in 1893). in 1982, Weinstein[5] described 29 cases of severe preeclampsia-eclampsia complicated by thrombocytopenia, abnormal peripheral smear, and abnormal liver function test results. He suggested that this collection of signs and symptoms constituted an entity separate from severe preeclampsia and coined the term HELLP syndrome (*H* for hemolysis, *EL* for elevated liver enzymes, and *LP* for low platelets). Since then, several articles and case reports claiming to describe this syndrome have appeared in the medical literature. In addition, the presence of this syndrome became a major cause of litigation against obstetricians involving cases of alleged misdiagnosed preeclampsia.

Controversy surrounds almost every aspect of the HELLP syndrome. A review of the literature highlights the confusion concerning the terminology, incidence, cause, diagnosis, and management of this syndrome.[6] In the discussion that follows, opinions are given on these controversial aspects that have been derived from the literature and from my own experience of managing more than 300 cases of severe preeclampsia-eclampsia complicated by the HELLP syndrome.

From the Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology, University of Tennessee, Memphis.
Reprint requests: Baha M. Sibai, MD, Department of Obstetrics and Gynecology, 853 Jefferson Avenue, Rm. E-102, Memphis, TN 38103.
6/1/15071

Terminology and diagnosis

The terminology and diagnostic criteria used to describe this syndrome have been confusing and inconsistent. Goodlin[4] considered it an early form of severe preeclampsia and labeled it as a great imitator, impending gestosis, EPH (edema, proteinuria, hypertension) gestosis type B, and expanded toxemia syndrome. Weinstein[5] considered it a "unique variant" of preeclampsia while Mackenna et al.[7] considered it as misdiagnosed preeclampsia. On the other hand, several authors considered it as mild disseminated intravascular coagulation that was missed because of inadequate laboratory investigation.

One reason for the controversy surrounding the HELLP syndrome is the different diagnostic criteria and different methods used in studies and case reports claiming to describe this syndrome. Consequently, the results of these studies have been inconsistent and contradictory. There are considerable differences regarding the time of onset, type, and degree of laboratory abnormalities used to make the diagnosis of this syndrome. Some studies included patients who had the abnormalities on admission; others included patients who developed the abnormalities during conservative management of patients with preeclampsia, and others included patients who developed the abnormalities in the postpartum period. A significant percentage of the reports included patients who had no evidence of hemolysis; hence these patients will fit the criteria for

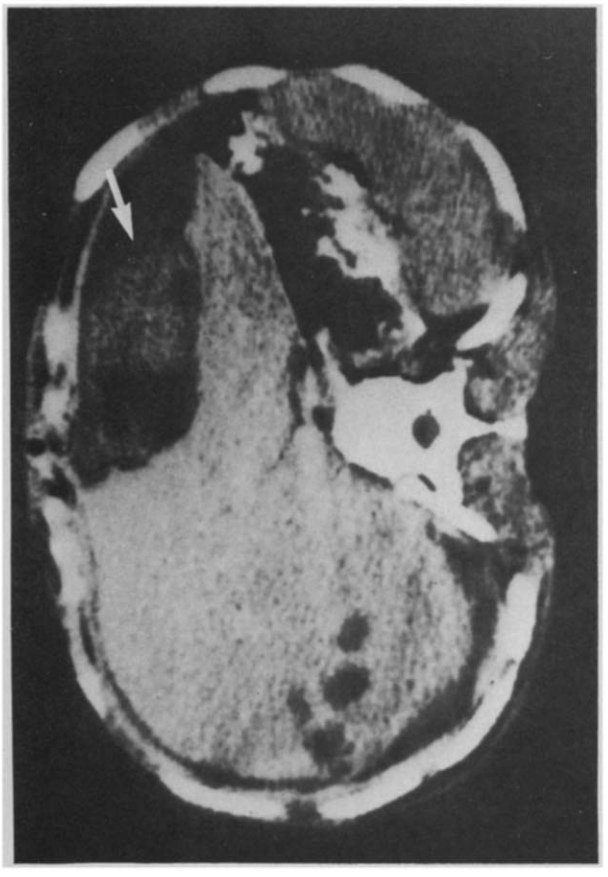

Fig. 1. Computerized axial tomographic scan of liver demonstrating subcapsular hematoma *(arrow)* and intraparenchymal bleeding in a patient who had HELLP syndrome at 23 weeks' gestation.

ELLP syndrome. Even in cases where hemolysis was mentioned, the diagnosis was based mostly on the presence of an abnormal peripheral smear (burr cells or schistocytes). Other studies included patients whose platelet count was more than $100 \times 10^3/mm^3$; hence these patients will fit the criteria for HEL syndrome. Even in cases where thrombocytopenia was present, the diagnosis was based on either $<150 \times 10^3/mm^3$, $<100 \times 103/mm^3$, or $<75 \times 10^3/mm^3$.

There is no consensus in the literature regarding which liver function test abnormalities should be used to diagnose the syndrome. Weinstein[5] reported abnormal serum glutamic oxaloacetic transaminase (SGOT), abnormal serum glutamic pyruvic transaminase (SGPR), and abnormal bilirubin values; however, levels were not stated. In addition, he made no mention of lactic dehydrogenase (LDH) as a diagnostic feature. Mackenna et al.[7] stated that liver enzymes were elevated in all their patients but did not specify the level or identity of the enzymes measured. Goodlin[4] and Thiagarajah et al.[8] considered SGOT to be abnormal at a level of >30 U/L, Vandam et al.[9] used a level of >16 U/L, Brazy et al.[10] used a level of >50 U/L, and Sibai et al.[6] and Aarnoudse et al.[11] used a level of ≥72 U/L. In addition, the threshold for LDH levels was variable among these studies (195 to 600 U/L).

The role of disseminated intravascular coagulopathy (DIC) in preeclampsia is controversial. Most authors[1-8] do not consider HELLP syndrome as a variant of DIC since coagulation parameters such as prothrombin time, partial thromboplastin time, and serum fibrinogen are usually normal. The frequency of DIC in this syndrome ranges from 4% to 38%. However, recent reports suggested that all patients with HELLP syndrome will have DIC if sensitive laboratory tests are used.[9, 11, 12] Sensitive determinants of this condition include antithrombin III, fibrinopeptide A, fibrin monomer, D-dimer, plasminogen, and fibronectin. Unfortunately, these tests are expensive, time-consuming, and not suitable for routine clinical monitoring.

In consideration of the above problems, I suggest that uniform and standardized laboratory values be used to diagnose this syndrome. It is my opinion that LDH and bilirubin values should be included in the diagnosis of hemolysis. In addition, the degree of abnormality of liver enzymes should be defined as a certain number of standard deviations from the normal values for each hospital population. Furthermore, the rate of change in either liver enzymes or platelet count may be as important as the absolute value in establishing the diagnosis. We use a cutoff of more than 3 SD above the mean as being abnormal. Our criteria for the diagnosis of this syndrome require the presence of these laboratory findings: (1) hemolysis, defined by abnormal peripheral smear, increased bilirubin (≥1.2 mg/dl), and increased lactic dehydrogenase (>600 U/L); (2) elevated liver enzymes, defined as increased SGOT (≥70 U/L) and increased LDH; (3) low platelets, defined as platelet count $<100 \times 10^3/mm^3$. Moreover, for reporting maternal-perinatal outcome, patients having the syndrome before giving birth must be analyzed separately from those developing the syndrome in the postpartum period.

Pathophysiology

Preeclampsia is usually associated with vasospasm, pathologic vascular lesions within multiple organ systems including liver and placental bed, and activation of the coagulation system. In addition, there is good evidence from several studies that preeclampsia is accompanied by endothelial cell injury, increased platelet activation with platelet consumption in the microvasculature, and excessive clotting activity.[13] The etiology of the HELLP syndrome in preeclampsia is poorly understood. No one precipitating cause of this syndrome has yet been reported. The syndrome is a group of clinical and pathologic manifestations resulting from an insult that leads to intravascular platelet activation

Download English Version:

https://daneshyari.com/en/article/4950699

Download Persian Version:

https://daneshyari.com/article/4950699

Daneshyari.com