HELLP: can maternal death be prevented?

A PPIC® Closed Claim Case Review by Deborah J. Price, RN, MSN, PhD, Director, Risk Services

Abstract
Is it possible to prevent maternal death arising from any of its four most prevalent causes? The literature suggests that death from hemorrhage is almost always preventable; death from hypertensive disease is usually preventable; death from pulmonary thromboembolism is often preventable; and death from amniotic fluid embolism is never preventable.

According to the American College of Obstetricians, hypertensive disease occurs in as many as 22% of pregnancies and is directly responsible for 17.6% of maternal deaths in the United States. Pregnancy-induced hypertension directly relates to preeclampsia and eclampsia, which relates to the HELLP syndrome (hemolysis, elevated liver enzymes, and low platelets). The mortality rate from HELLP runs as high as 25%.

Case Overview
A 35-year-old married G3 P0 sought a CNM and established prenatal care. Her two previous pregnancies had ended at eight and nine weeks secondary to tubal pregnancy and spontaneous miscarriage respectively. Other relevant history included genital herpes and a medicated anxiety disorder.

The CNM counseled the patient about advanced maternal age pregnancy, proper food choices for her vegetarian diet, and the advised testing necessitated by her Jewish heritage and age.

At the patient’s first OB visit early in her first trimester, she was noted to be healthy with a blood pressure of 100/60 and weight of 125 pounds. Her complaints included mild headaches, nausea, anxiety, and fatigue. Except for mild anemia treated with iron supplements, all diagnostic testing results, including amniocentesis, were normal. This visit produced the only instance of documented blood work in the case.

Prominent renal collecting systems appeared on the first fetal ultrasound and the repeat ultrasound showed severe hydronephrosis, prompting referral to a pediatric urologist. The specialist made plans to address this condition after delivery. Fetal growth appeared appropriate for gestational age.

Other complaints voiced during the pregnancy were the expected pulling sensation in the abdomen caused by tension on the supporting ligaments of the uterus, a stomach ache, and diarrhea at approximately 19 weeks gestation. Her stomach pain was not investigated, and there was no documentation regarding specific location, duration, intensity, or alleviating factors.

The CNM placed the patient on advanced surveillance at 26 weeks gestation, although the rationale for this is unclear. The norm is monthly patient visits until 28 weeks gestation, followed by biweekly visits until 36 weeks gestation, then weekly until delivery. Even though the chart indicates the advanced surveillance, the patient was not scheduled accordingly.

During an office visit six weeks before delivery, BP was 140/90. It hadn’t returned to normal when remeasured at 130/82 six hours later. The CNM later stated she had not considered hypertension, but acknowledged the BP readings were above patient’s normal.

The patient’s final office visit took place one month later at approximately 35 weeks gestation. Her BP was 108/80, and she had a total weight gain of 30 pounds, increased edema, and proteinuria. She was not asked about other symptoms.

One week later, the patient called the clinic to report diarrhea and was told to take Immodium. Any further questions regarding the diarrhea or possible abdominal pain were not documented. She did not speak directly to the CNM.

Six days after that phone call, the patient again called and asked to speak to the CNM to report nausea, vomiting, and diarrhea. The return call is documented to include complaints of stomach pain and retching.

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There is no indication in the chart that the patient was asked about other symptoms such as headache or visual changes. An appointment was offered but not insisted upon and the patient declined to come to the office. Phenergan was ordered with instructions to call if symptoms worsened.

The patient called back about two hours later to request an appointment, and was scheduled to wait another two hours rather than instructed to come in immediately. One hour after that phone call, she experienced a four-minute grand mal seizure. When paramedics arrived, she was unresponsive with BP at 170/90. The paramedics gave her Valium 5 mg and Magnesium Sulfate 2 mg and transported her to the hospital.

Upon arrival at the ED, she was transferred to Labor and Delivery and evaluated by a non-attending obstetrician (not named in the lawsuit). The OB assessed the patient and the nonreassuring fetal heart strips, ordered a 5 mg bolus of Magnesium Sulfate and 5 mg of Apresoline IV, and immediately took her to the OR for a C-section. Her SGOT was 2700. She was initially stable post surgery but rapidly developed symptoms of diffuse intravascular coagulation (DIC). She died 14 hours after arriving at the ED without regaining consciousness.

Autopsy was completed at her husband’s request. The medical examiner concluded that she died of well-known complications of eclampsia, namely hemorrhage and spontaneous rupture of a subcapsular hematoma of the liver and DIC.

The newborn had Apgars of 0, 1, 5 and required resuscitation. Although initially stabilized, the infant developed seizures and was transferred to a children’s hospital, where brain studies demonstrated no cortical function. Life support was withdrawn on the second day and the infant died 24 days after birth.

**Negligence Allegations**
The lawsuit claimed several negligence allegations against the CNM. These included improper prenatal management, failure to conduct further tests, failure to monitor more closely, failure to inform the patient she needed to be immediately seen on the morning in question, failure to recognize the symptoms as potential preeclampsia, and failure to call her back-up physician to assure that back-up was emergently available to assume the patient’s management.

**Expert Opinions**
Plaintiff experts were consistent in their opinion that the CNM deviated from the standard of care, which resulted in a significant delay in the diagnosis and treatment of preeclampsia. This ultimately progressed to eclampsia and HELLP syndrome and directly led to the deaths of patient and infant.

Although basically supportive of the care, defense experts had “cautions” regarding the case. They were concerned about the final day and the sequence of events beginning with the first telephone call. There was also concern because the headache, stomach pains, nausea, and vomiting received no further investigation.

**Causation**
Opinions weighed more convincingly towards the CNM’s failure to inform the patient on the final morning that she needed to be seen immediately, failure to ask the right questions and chart them, and failure to recognize the symptoms as potential preeclampsia.

**Discussion: Was HELLP preventable?**
Even if the patient had arrived immediately after requesting an appointment, the extraordinarily unusual circumstances of her having two potentially lethal complications of eclampsia – liver hematoma and intracerebral hemorrhage – meant that the outcome probably would have been the same.

No one can say when her liver ruptured or the cerebral bleed occurred, but her pupils were fixed and dilated in the recovery room, indicating the effects of an intracerebral bleed. It is unlikely the liver ruptured prior to the C-section or the doctors would have found blood upon entering the abdominal cavity. Both of these complications are strong evidence of a very severe case of preeclampsia.

It is possible that if seizures were prevented, and the resultant intracerebral hemorrhage from hypertensive

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crisis avoided, the patient could have survived. She might have been admitted and given magnesium sulfate to reduce her blood pressure, and the C-section might have been accomplished before the infant was compromised.

There are some deviations from the expected norm in the prenatal course, such as the weight gain (although this opinion varies depending on the expert), visit frequency, diarrhea, and stomach pain. Taken individually, these deviations may not be of concern, but it is troubling that no one ascertained the precise nature of the stomach ache and diarrhea symptoms. One of the hallmarks of HELLP syndrome is persistent epigastric pain. The record clearly indicates that the patient complained of stomach pain on more than one occasion.

The patient was on advanced surveillance sooner than the norm, with no clear reason elucidated for it. If the CNM was concerned about advanced maternal age or any other possible issue, perhaps she might have considered other tests and studies.

To that end, was HELLP preventable in this case? This question will never be answered, but reasonable doubt existed in terms of the deviations from the acceptable standard of care. The case against the CNM settled for $1.6 million prior to trial.

**Risk Lessons**
- See the patient before prescribing medication.
- Develop telephone triage protocols and guidelines for office staff.
- Document a patient refusal to follow medical advice as well as the detailed discussion informing them of the possible consequences.
- Document rationales for deviation from the norm or standard of care.

**References**
ACOG practice bulletin. Diagnosis and management of preeclampsia and eclampsia. Number 33, January 2002
PPIC webcasts by Dr. Steven L. Clark: “Avoiding Maternal Death: Key Process Failures” and “Making Obstetrics a High Reliability Profession.”
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