

## Triage of the Obstetrics Patient in the Emergency Department: Is There Only One Patient?

### ABSTRACT

*PA-PSRS has received a number of reports related to the management of pregnant patients in the emergency department. In many instances, reports submitted through PA-PSRS reflect a lack of effective communication between emergency and obstetrics department staff. When a pregnant patient arrives at the emergency department, there are really two patients. Optimal care of both patients can only be achieved through a systematic approach to care that involves open communication between emergency and obstetric services. Risk reduction strategies include having policy and procedures in place that ensure a systematic approach to the triage and initial assessment of the pregnant patient with consideration of the presenting complaint, gestational age, availability of testing and consultants, and fetal monitoring requirements. (Pa Patient Saf Advis 2008 Sep;5[3]:85-9.)*

PA-PSRS has received a number of reports related to the management of obstetric patients in the emergency department (ED). Fifty percent of the reports reflect ineffective communication between the ED and obstetrics (OB) department staff. In one event, an obstetric patient in her third trimester presented to the ED after a motor vehicle accident. Despite the patient's stable condition, fetal monitoring was not initiated until more than one hour after her transfer to the OB triage area. An ultrasound image revealed a fetal demise. Whether timely fetal monitoring would have prevented this Serious Event is unknown, yet this case emphasizes the need for consistent and coordinated communication between the ED and OB departments. When an obstetric patient arrives at the ED, there are two patients that require care. Optimal management of both patients can only be achieved through a systematic approach and open communication between ED and OB services.

### PA-PSRS Reports

Since June 2004, 20 reports have been submitted through PA-PSRS indicating ineffective interactions between the ED and the OB departments during the management of obstetric patients. Thirty percent of the reports involved delays in instituting fetal monitoring for OB patients evaluated in the ED. Forty-five percent of the reports indicated that obstetric patients with complaints not clearly OB-related were sent to the OB department without ED assessments; 20% of all of the reports involved pregnant trauma patients and 10% involved pregnant assault victims. Two events involved fetal demise, which may have been related to delays in fetal monitoring and OB care. In both events, the reports indicated that the facilities' plans to revise their policies to improve communication

and clarify the roles of OB and ED staff in caring for these patients.

The following are some Incidents and Serious Events involving obstetric patients reported through PA-PSRS:

*A pregnant woman at 32 weeks' gestation presented to the ED as a trauma patient. An initial ultrasound and fetal heart tones indicated a viable fetus. The patient underwent a series of imaging studies and treatment of superficial injuries, after which she was transferred to [the labor and delivery (L&D) department] where fetal heart tones were not detected. A nonviable fetus was delivered. Continuous fetal monitoring had not been initiated in the ED.*

*A pregnant patient arrived in the ED with complaints of chest pain and shortness of breath. . . . The ED staff instructed her to ambulate to the OB department. She was transferred back to the ED via wheelchair for evaluation, resulting in a delay in treatment.*

*A pregnant [trauma] patient was transported to L&D from the ED for continuous fetal monitoring. The patient's cervical spine x-rays had not been done and her cervical collar had been removed. In L&D, an ED nurse replaced the cervical collar, and portable cervical spine x-rays were performed.*

### Physiology of Pregnancy

Obstetric patients may present to the ED with complaints that may be unrelated to pregnancy, and the assessment of these complaints may be complicated by physiologic changes associated with pregnancy that affect almost every organ system. Understanding these changes is essential in the evaluation and management of the obstetric patient in the ED. One such obvious change in pregnancy is the enlargement of the uterus. The uterus becomes an abdominal organ at approximately 12 weeks' gestation, rising over the pelvic rim. At 20 weeks, the fundus of the uterus can be palpated at the umbilicus, and by 36 weeks, the uterus reaches the costal margins. During the last few weeks of pregnancy, the uterine fundal height decreases as the fetal head drops into the pelvis.<sup>1</sup> Other physiologic changes relevant to the assessment of obstetric patients in the ED are summarized in this section.

### Hematologic

By the 28th week of pregnancy, plasma volume increases by approximately 45% above nonpregnancy levels, and red blood cell mass increases by 20% to 30%.<sup>2</sup> The rise in blood volume greater than the increase in red blood cell mass may result in a physiologic anemia.<sup>2</sup> This relative hypervolemic state and hemodilution allow a pregnant patient to tolerate a significant amount of blood loss before tachycardia and hypotension occur.<sup>2</sup> White blood cell counts

typically increase and may erroneously suggest a diagnosis of infection. Changes in an obstetric patient's coagulation system result in a relative state of hypercoagulability. As a result, they are more susceptible to deep vein thromboembolism and pulmonary embolus, which is an important consideration during ED evaluations.<sup>2</sup>

### Cardiovascular

Cardiac output increases 30% to 50% above prepregnancy baseline. It peaks by the end of the second trimester, reaching a plateau until delivery. The cardiac output change is influenced by an increased preload due to a rise in blood volume, a decreased afterload due to a fall in systemic vascular resistance, and an increased maternal heart rate by 10 to 15 beats per minute. Blood pressure typically falls to approximately 10 mm Hg below baseline by the second trimester.<sup>3</sup> An obstetric patient is susceptible to hypotension when in the supine position due to vena cava compression by the gravid uterus.<sup>4</sup> The cardiac silhouette typically appears enlarged on a chest radiograph.<sup>2</sup> Characteristic electrocardiogram changes are commonly observed and include a shift in the QRS axis to the left and positional Q waves in lead II and AVF.<sup>2</sup>

### Respiratory

Oxygen consumption and resting ventilation increase during pregnancy as a result of an increase in tidal volume (i.e., the amount of air inhaled and exhaled during a normal respiration), without an increase in respiratory rate. By the second trimester, hypocapnia (i.e., a low partial pressure of carbon dioxide in the blood) is common.<sup>1</sup> These changes often result in complaints of shortness of breath or "air hunger," a phenomenon commonly known as the "dyspnea of pregnancy."<sup>2</sup>

### Gastrointestinal

Gastrointestinal function may be altered during pregnancy as increased levels of progesterone and estrogen inhibit gastrointestinal motility, leading to increased frequency of nausea and vomiting.<sup>2,4</sup> Constipation is more common due to decreased intestinal transit time. Decreased competency of the gastroesophageal sphincter increases the frequency of gastroesophageal reflux and the potential aspiration risk during anesthesia.<sup>2</sup> As the uterus enlarges, it displaces the intestines upward and laterally, stretching the peritoneum and making the physical examination of the abdomen unreliable. Physical findings, such as abdominal rigidity, guarding, and rebound tenderness are often difficult to assess.<sup>2,4</sup>

### Renal

To accommodate maternal and fetal metabolic and circulatory changes, the renal blood flow increases by 25% to 40%.<sup>4</sup> Increased levels of progesterone facilitate smooth muscle relaxation, resulting in bladder expansion and decreased peristalsis in the ureters. These factors contribute to an increase in urinary tract infections during pregnancy.<sup>2,4</sup>

## Risk Reduction Strategies

A systematic approach to the ED triage and initial assessment of the obstetric patient is essential. In particular, it is fundamental to ascertain whether: (1) the emergency problem is due to the pregnancy, (2) the problem is unrelated to but affected by the pregnancy, or (3) the problem affects the pregnancy. If any one of these is true, coordination between the ED and OB department is appropriate. The physical examination of the obstetric patient in the ED is challenging because of the physiological changes associated with pregnancy. In obstetric trauma patients, the primary treatment goal in the ED is to stabilize the patient's condition and provide treatment according to trauma guidelines, with several caveats. These caveats include the use of rapid-sequence induction with cricoid pressure and gastric decompression when oral intubation is required, the use of closed-tube thoracotomy at a higher intercostal space when treating for pneumothorax, and placement of the patient who is greater than 20 weeks' gestation in the left lateral position to maximize venous return.<sup>5</sup> According to American College of Obstetrics and Gynecology (ACOG) guidelines, the approach must be systematic and ensure that the patient is medically stable before evaluation of the fetus.<sup>6</sup>

An Agency for Healthcare Research and Quality case study described an event involving a 38 weeks' obstetric patient who presented to the ED with the complaint of left leg pain. Hospital policy required that patients greater than 20 weeks' gestation be directed to the L&D department, unless the complaint was unrelated to the pregnancy. In ED triage, the patient's pain was identified as nonobstetric in nature. Accordingly, the patient was evaluated in the ED, diagnosed with musculoskeletal pain, and discharged after a brief period of fetal monitoring in the L&D department. The next morning, the patient was found dead at home by a family member. An autopsy revealed a ruptured aortic aneurysm. This case illustrates the difficulty of recognizing nonobstetric emergencies that may threaten the life of a mother and fetus. Additionally, in case commentary, the authors note that problems occurred in the ED triage and early management of this patient. The authors suggest five general principles, which are summarized below, to be addressed when developing a systematic approach to ED triage, assessment, and management of urgent and nonurgent obstetric patients.<sup>7</sup> Applicable guidelines from professional organizations are also presented.

### Presenting Complaint

Even though physiologic and anatomic changes in pregnancy often complicate ED assessments, a number of guiding principles have been proposed. Pearlman and Desmond suggest that pregnant patients who present to the ED with complaints that are OB-related, such as episodic abdominal pain consistent with labor, should be triaged from the ED directly to the L&D department. Obstetric patients

presenting to the ED with complaints that are not clearly pregnancy-related should be triaged according to the institutions' resources, OB consultant availability, and diagnostic testing accessibility.<sup>7</sup> ACOG guidelines recommend coordination between the ED and the OB departments, including an agreement regarding the conditions that are best treated in the L&D unit, prioritization of the evaluation site based on patient needs, and the departments' abilities to provide for those needs.<sup>8</sup> Both the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) and the Emergency Nurses Association (ENA) recommend that the obstetric patient presenting to the ED in active labor should be transferred to and delivered in the L&D department. However, the care of the obstetric patient is to take place in the area best prepared to handle the needs of the patient.<sup>9</sup>

### Consultant Availability

The availability of consultants is a consideration in the development of a triage system for obstetric patients. For obstetric complaints, the L&D department is likely the best source for clinical expertise.<sup>7</sup> In nonobstetric ED presentations, the expertise of ED physicians and the availability of consultants may make the ED the most appropriate setting for evaluation.<sup>7</sup> ACOG and American Academy of Pediatrics guidelines recommend that obstetric patients with medical or surgical conditions that could reasonably be expected to have obstetric consequences should be evaluated by qualified obstetric providers.<sup>8</sup> ENA and AWHONN endorse the referral of urgent and nonurgent patients with fetal gestation of 16 to 18 weeks or later with suspected labor or obstetric complications to the obstetrician or L&D department for evaluation.<sup>9</sup>

### Timeliness of Testing

Access to advanced images and testing is another important policy consideration.<sup>2</sup> Depending on the resources of the facility, diagnostic testing such as CT may be more rapidly accessible in the ED.<sup>7</sup> (Radiation exposure is a common concern during pregnancy and has been addressed in the March 2008 issue of the *Pennsylvania Patient Safety Advisory*.<sup>10</sup> According to ACOG guidelines, concern about possible effects of high-dose radiation exposure should not prevent medically indicated diagnostic radiograph procedures from being performed on the mother.<sup>6</sup>)

### Gestational Age at Presentation

Some diagnoses are limited to certain time frames during pregnancy and can be considered in policies addressing the initial assessment of the obstetric patient in the ED. For example, ectopic pregnancy is the most common cause of maternal death in the first trimester of pregnancy.<sup>11</sup> Appendicitis, cholecystitis, pancreatitis, and bowel obstruction are the most common nonobstetric surgical conditions during pregnancy.<sup>11,12</sup> When a patient presents near the time of fetal viability, approximately 23 to 24 weeks, fetal monitoring and immediate consultation with the OB team are an important intervention in the event that a decision about delivery needs to be considered. A

comprehensive ED triage policy can address rapid triage and transfer of obstetric patients from the ED to the L&D department under these circumstances.<sup>2</sup>

### Need for Fetal Monitoring

In most circumstances, fetal monitoring is more readily available in the L&D department than in the ED. However, the obstetric patient's condition may require ED evaluation and initiation of fetal monitoring in the ED. The normal range for the fetal heart rate (FHR) is 120 to 160 beats/min and can be assessed by auscultation or Doppler probe.<sup>4</sup> Electronic fetal monitoring is the most widely used modality for FHR evaluation.<sup>4</sup> Frequent monitoring and documentation of FHR is important to allow early recognition of fetal distress.<sup>4</sup> Policies can address the availability of appropriate equipment and ongoing staff competency to perform continuous fetal monitoring in the ED. This can be accomplished through the assignment of an L&D nurse to perform fetal monitoring in the ED. In the alternative, fetal monitoring may be initiated in the ED by ED staff and interpreted and monitored remotely in L&D, if the facility has this capability.<sup>7</sup> ENA and AWHONN endorse the use of a fetal monitor in the ED by a monitoring nurse who meets the institutional standards for fetal monitoring.<sup>9</sup>

### Obstetric Triage

During the last decade, obstetric triage has been one of the latest obstetric services to emerge. Hospitals have incorporated triage principles into the practice of OB by either establishing stand-alone OB triage units or creating triage areas adjacent to the L&D department.<sup>13</sup> Qualified nursing personnel, including nurse-midwives, nurse practitioners, and clinical nurse specialists often staff these units. Typically, laboring patients who present to obstetric triage are assessed and transferred to the L&D department. Nonlaboring patients are evaluated and managed by experienced obstetric personnel. This approach has been shown to reduce length of stay, increase patient satisfaction, and reduce unnecessary admissions.<sup>14</sup> Potential errors in obstetric triage have been identified as incorrect assessment of maternal condition, fetal well-being, or OB-related complications; failure to diagnose active labor; inappropriate discharge from the triage unit; incomplete or poorly documented records; and failure to comply with the standard of care.<sup>14</sup> Clear communication between physicians and obstetric triage personnel is recommended to rely on well-defined clinical criteria and to decrease the likelihood of these errors.<sup>14</sup> Consistent communication between ED and OB personnel is essential when transferring obstetric patients from the ED to the OB triage unit, as these patients may initially present to the ED.

### Conclusion

Well-defined criteria exist for the assessment of obstetric patients in the OB department and the ED. Stabilization of the obstetric patient with any emergency condition, whether or not the condition

is OB-related, is of the utmost importance; otherwise the effect on the fetus may be detrimental. However, as PA-PSRS reports indicate, inadequate communication between these departments can expose both the obstetric patient and fetus to risk. Policies and procedures for the care of an obstetric patient presenting to the ED can address a number of factors, including the nature of the complaint, the availability of consultants and testing, the gestational age of the fetus, the need for fetal evaluation, and transfer of the patient between ED and OB departments. In addition, open lines of communication between providers are necessary in order to provide optimum care for both patients when an obstetric patient presents to the ED.

**Notes**

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## Self-Assessment Questions

The following questions about this article may be useful for internal education and assessment. You may use the following examples or come up with your own.

1. All of the following are factors to consider during the development of a systematic approach to emergency department (ED) triage, assessment, and management of urgent and nonurgent obstetric patients EXCEPT?
  - a. Consultant availability
  - b. Access to advanced images and testing
  - c. The need for fetal monitoring
  - d. Criteria for performing a medical screening exam
2. All of the following are typical cardiovascular changes relevant to the assessment of obstetric patients in the ED EXCEPT?
  - a. Cardiac output increases 30% to 50% above baseline
  - b. Blood pressure falls 10 mmHG below baseline by the second trimester
  - c. There are no characteristic changes on an electrocardiogram
  - d. An obstetric patient is susceptible to hypotension when in the supine position
3. Which of the following is not a physiological change of pregnancy that may impact the assessment of the pregnant patient in the ED?
  - a. Displacement of the intestines upward and laterally by the enlarged uterus
  - b. Inhibition of gastrointestinal mobility due to increased progesterone levels
  - c. An increase in resting ventilation and oxygen consumption
  - d. A decreased white blood cell count

(continued)

4. In obstetric trauma patients, the primary treatment goal in the ED is to stabilize the patient's condition and provide treatment according to trauma guidelines and ensure that the patient is medically stable before evaluation of the fetus.
  - a. True
  - b. False
5. The use of obstetrics triage units has been shown to reduce unnecessary admissions.
  - a. True
  - b. False

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