

Obstetric Anesthesia Considerations in a Pregnant Trauma Patient

Shabnaz Rob DO, Kalpana Tyagaraj MD

Maimonides Medical Center, Brooklyn NY

Obstetric Anesthesia Considerations in a Trauma Patient

Clinical Presentation: A 33 years old female at 34 weeks gestational presented to the ED after being struck by a motor vehicle

Exam Findings: she was awake and responsive, moving all 4 extremities and reporting left sided abdominal pain and ecchymosis over the left lateral abdomen and chest.

Vital Signs were as follows:

- HR 90
- BP 124/82
- RR 22
- O2 Sat 90%
- Temp 97.8

Imaging Findings: FAST showed no pericardial effusion, bilateral lung sliding, and no free fluid in abdomen. Noncontrast Head and C-spine CTs were done and no acute pathology was found.

Fetal heart rate was 80 bpm. A decision was made for emergent cesarean delivery for concern of placental abruption.

Intraoperative Management: The patient arrived to the OR with 2 18G IVs and 1 20G IV and crystalloid fluids running. Upon arrival at the operating room, she was immediately transfused 1 U PRBC.

Anesthesia was induced using rapid sequence intubation with cricoid pressure. Induction agents were: Propofol 200mg and Succinylcholine 100mg. Size 7 ETT was placed on the first attempt with videolaryngoscope and secured at 21 cm at the lip. Shortly after induction, the patient was given 50mg Rocuronium, 4mg Dexamethasone, 2g Cefazolin, 4mg Ondansetron. A brief period of hypoxia was noted, SpO2 84-88%. ETT was found to be deep and was pulled back with resolution of hypoxia.

The neonate was delivered few minutes after induction and oxytocin infusion was started at 40 units/hr and 250mcg of prostaglandin F2 alpha was administered. The surgery team started an exploratory laparotomy. A right radial A line was inserted and 1U FFP was administered. Fentanyl 300mcg and Morphine 4 mg were also administered. The patient remained hemodynamically stable throughout the surgery with MAPs ranging from 74-98 and HR ranging from 85-121. The surgery team did not find a source for active bleeding and opted to use hemostatic agents and monitor.

Postoperative Course: Decision was made to extubate the patient and was transferred to radiology suite for imaging then SICU. CT Chest showed multiple rib fractures and a right hemothorax. Chest tube was placed by surgical team in SICU. 12 hours post op Hgb was 7.6 and at 24 hours later 6.7. Patient received 1 additional unit of PRBC in SICU. Patient remained hemodynamically stable. On postop day 5 for reduction of left segmental humeral shaft fracture was performed.

Obstetric Anesthesia Considerations in a Trauma Patient

Discussion:

- Trauma is one of the most common cause of maternal death in the United States.
- Unique injuries due to the growing uterus and the developing fetus must be taken into consideration in the pregnant trauma patient.
- Mechanisms of trauma during pregnancy include motor vehicle collisions (MVCs), domestic violence, falls, and penetrating injuries.
- Physiological adaptations of pregnancy- hypercoagulable state, increased plasma volume and cardiac output may underestimate the extent of hemorrhage and influence the adequacy of resuscitation
- A lower mortality rate as compared to non-pregnant women suggests pregnancy likely confers some protection.
- Multidisciplinary approach and prompt intervention is essential for successful maternal and fetal outcomes.

Table 1: Placental Abruption: Clinical Manifestations, Complications, and Management

ETIOLOGY	CLINICAL MANIFESTATIONS	COMPLICATIONS
Hypertension Trauma Advanced age Parity Tobacco use Cocaine use Premature rupture of membranes	Vaginal bleeding Uterine tenderness Increased uterine activity Ultrasound: retroplacental hematoma	Maternal Hemorrhagic shock Acute renal failure Coagulopathy Fetal Fetal distress Fetal demise Prematurity Perinatal mortality and morbidity
MANAGEMENT		
Supportive management	Definitive Management	Anesthetic Management
Close monitoring of FHR Large bore IV access Assess hematocrit Assess coagulation Blood for cross match Left uterine displacement Supplemental oxygen	Continue pregnancy– Preterm fetus Minimal abruption No signs of fetal distress Induction of labor – No evidence of fetal distress Favorable cervix Cesarean delivery Maternal instability Fetal distress	Induction of labor Consider epidural analgesia if no coagulopathy or hypovolemia Cesarean section General Anesthesia preferred if fetal distress or hemodynamic instability RSI with Ketamine or Etomidate Aggressive volume resuscitation Replacement with PRBCs and coagulation factors Oxytocin and other uterotonic agents to treat uterine atony