Treatment of Pregnant Patients With Orthopaedic Trauma

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ABSTRACT

• Fracture management in pregnant patients is challenging. Anatomic and physiologic changes in pregnancy increase the complexity of treatment. Maternal trauma increases the risk of fatal maternal, fetal, or placental injury, placental abruption, cesarean delivery, and maternal death. Initial resuscitation and treatment in a facility equipped to handle the orthopaedic, gynecologic, and obstetric injury is necessary. The key to optimal management of pregnant trauma patients is a high index of suspicion for associated injuries, anticipation of potential problems, and collaboration among obstetricians, trauma surgeons, orthopaedic surgeons, anesthesiologists, and radiologists.

EVALUATION AND INITIAL MANAGEMENT

• The primary goals are stabilization and evaluation of the pregnant trauma patient’s vital signs. Aggressive resuscitation, diagnosis, and treatment promote the best outcomes for the mother and fetus. A high Injury Severity Score, a low Glasgow Coma Scale score, low hemoglobin levels, the development of disseminated intravascular coagulopathy, and length of hospital stay are associated with adverse fetal outcomes. Immediately after the patient is stable, fitness of ≤24 weeks’ gestation should be monitored with cardiology and high-resolution real-time ultrasonography to provide information on fetal maintenance of start rate, and placental integrity. • Cardiac telemetry should be started in the resuscitation room and continue for a minimum of 4 hours. • Ultrasound should be monitored for 24 hours if the patient has sustained endometrial or abdominal pain, vaginal bleeding, sustained contractions, rupture of membranes, an abnormal fetal heart rate, a high-risk mechanism of injury, or severe maternal hypotension. 2.0 Continuous electrical fetal heart rate monitoring remains the most common modality for monitoring of any fetus associated with a traumatic event to ensure that the fetus maintains a normal fetal heart rate of 120 to 160 beats per minute.²

INTRODUCTION

• Trauma is the leading cause of nonobstetric maternal death during pregnancy. When a pregnant patient sustains a traumatic injury, treatment should address not only the mother, but also the fetus. Maternal and fetal optimization should be performed by a multidisciplinary medical team consisting of obstetricians, anesthesiologists, orthopaedic surgeons, trauma surgeons, critical care specialists, emergency medicine specialists, and nursing staff. ²³ Although the literature on Obstetric and Gynecologic, the safest and most appropriate diagnostic study that yields the best result by providing an accurate diagnostic outweighs the low risks of the risks of miscarriage, preterm labor, placental abruption, rupture of membranes, fetal demise, and developmental delay. ²⁴ Understanding maternal physiologic changes during pregnancy is critical. These changes common alter patient presentation, affecting fetal and maternal outcomes.²⁴

MATERNAL PHYSIOLOGY

• Maternal physiologic changes in pregnancy are important for clinicians to understand. Physiologic characteristics of pregnant patients may mimic pathologic conditions seen in nonpregnant patients. These findings can complicate a trauma patient’s clinical presentation. Further confusing the clinical picture, the mother’s body undergoes physiologic adaptations to compensate for life-threatening situations. For example, a patient undergoing hemorrhagic shock may appear to be clinically stable at the expense of the fetus.²⁴

PROPHYLACTIC THERAPY

• An anesthesiologist specializing in the administration of anesthetic drugs is recommended because of the altered anatomy, physiology, pharmacokinetics, and pharmacodynamics of a pregnant woman and fetus. If possible, the surgical procedure should be delayed until after the first trimester.

• The indications and dosing schedule for antibiotic administration are the same in pregnant and nonpregnant patients.²⁶ The fetal antibiotics during pregnancy are cephalosporins, penicillins, and macrolides.²⁶ Skin flora pathogens, including Staphylococcus aureus, gram-negative bacilli, coagulase-negative staphylococci, and β-hemolytic streptococci are most common during orthopaedic procedures.²⁶

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SURGICAL TREATMENT

• Surgical management of a pregnant patient’s injury should be as short in duration as possible while maintaining optimal care to minimize perioperative complications. All maternal and fetal injuries, or fractures associated with vascular injury should be treated, regardless of pregnancy status.²⁷

• The primary goal in fracture fixation should be to use the fixation technique that at least limits, or of radiation without compromising fracture. Minimally invasive percutaneous plating techniques are commonly used. However, these difficult techniques often require high cumulative radiation exposure. Internal fixation of of comminuted long bone fractures is another example of a difficult technique. Reduction before nailing can be challenging, and ensuring proper alignment of the guide wire potentially increases the radiation exposure time. When the risk of radiation exposure becomes problematic, open plating techniques that involve minimal irradiation should be considered.²⁷

• After the patient is determined to be hemodynamically stable, additional imaging studies should be performed to guide definitive treatment. If closed reduction of the pelvic and fluid resuscitation do not restore hemodynamic venous, plexus bleeding can be repaired by means of an open laparotomy with retroperitoneal packing and external fixation. If the source of bleeding cannot be identified, or more benefit is more likely to benefit than laparotomy, depending on the clinical situation.²⁷

• Surgical treatment of pelvic fractures is indicated when the patient has an open abdominal or pelvic fracture. Secondary fractures are common in the uterine blood and carry a lower risk of heparin-induced thrombocytopenia, side effects, and cost compared with warfarin.²⁷

• An obstetrician should be present for the patient’s labor and delivery. Maternal and fetal monitoring should be performed throughout the pregnancy. Maternal and fetal blood should be obtained for maternal and fetal hemoglobin levels, electrolyte levels, creatinine levels, and liver function tests. Maternal and fetal blood should be obtained for maternal and fetal hemoglobin levels, electrolyte levels, creatinine levels, and liver function tests. Maternal and fetal blood should be obtained for maternal and fetal hemoglobin levels, electrolyte levels, creatinine levels, and liver function tests.