

7. SPECIAL POPULATIONS

D. Management of the Pregnant Trauma Patient

OBJECTIVE: Provide guidelines for the admission of pregnant patients with traumatic injuries.

Guiding principle:

- The best initial treatment for the fetus is the provision of optimum resuscitation of the mother and the early assessment of the fetus (level 3)
- OBGYN consult for confirmed pregnancies

1. Trauma bay procedure modifications

- A. Keep the pregnant patient with gestation > 20 weeks tilted 15 degrees left side down to remove the pregnant uterus off the vena cava and prevent supine hypotension syndrome
- B. All female patients of childbearing age with significant trauma should have a human chorionic gonadotropin (HCG) performed (level 3)
- C. Kleihauer-Betke (Fetal to Maternal RH factor incompatibility) analysis should be performed in all pregnant patients at 12 week-gestation (level 2)
- D. Pregnant wombs should be shielded from X-rays whenever possible (level 3)
- E. Recall the physiologic changes of pregnancy
 - Increased minute ventilation normally reduces PaCO₂ to 30, so a normal PaCO₂ is a sign of respiratory compromise
 - Gravid women tend towards higher heart rates but lower blood pressures and a left shift on their EKG
 - They have an increased plasma volume, allowing them to compensate longer during hemorrhage, followed by a precipitous crash
 - They have slower GI transit times and are prone to aspiration

2. Imaging

- A. All pregnant women must have an ultrasonographic examination for fetal viability and heart tones by a certified physician, preferably the on-call OB-GYN physician
- B. Consultation with a radiologist should be considered for purposes of calculating estimated fetal dose when multiple diagnostic X-rays are performed (level 3)
 - Exposure to 5 Rad (50 mGy) has not been associated with an increase in fetal anomalies or pregnancy loss and is herein deemed to be safe at any point during the entirety of gestation (level 3)
 - Radiation dose delivered on our scanner –
 - CT head: 55 mGy (due to multiple axes)
 - CT C-spine: 7 mGy
 - CT Chest: 7 mGy
 - CT Abd/Plv: 8 mGy

*Concern about possible effects of high-dose ionizing radiation exposure should not prevent medically indicated maternal diagnostic X-ray procedures from being performed (level 3)

*CT scans of the thoracoabdominal region should be preceded by shared decision-making and discussion of risks/benefits with the patient, whenever feasible, prior to performance of the test.

*Ultrasonography and magnetic resonance imaging are not associated with known adverse fetal effects. However, until more information is available, magnetic resonance imaging is not recommended for use in the first trimester (level 3)

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3. Post Activation monitoring

- A. All pregnant women of 20-weeks' gestation who suffer trauma should have cardiotocographic monitoring for a minimum of 6 hours (level 3)
- B. Monitoring should be continued and further evaluation should be carried out if uterine contractions, an abnormal fetal heart rate pattern, vaginal bleeding, significant uterine tenderness or irritability, serious maternal injury, or rupture of the amniotic membranes is present (level 3)
- C. Perimortem cesarean section should be considered in any moribund pregnant woman of 24-weeks' gestation
- D. Delivery in perimortem cesarean sections must occur within 20 minutes of maternal death but should ideally start within 4 minutes of the maternal arrest

References:

- 1. Barraco RD, Chiu WC, Clancy TV, et al., Practice Management Guidelines for the Diagnosis and Management of Injury in the Pregnant Patient: The EAST Practice Management Guidelines Work Group, J of Trauma V69 (1) July 2010; p 211 – 214 ATLS Course Manual, 9th Ed.

Approved Date: 12/20/2023

To Be Reviewed:

12/2026