Resuscitation of the Pregnant Patient

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Case Study

A 26 year old woman G1 at 30 weeks gestation is brought in by ambulance.

She has been feeling unwell for a few days.

While she is talking to the nurse, she loses consciousness, stops breathing and has no pulse.
Assessment: Call First or Care First

Call First: *Call First* means to call for advanced medical personnel *before* providing care for—

– Suspected cardiac emergency.

– An unconscious adult

Always *Call First* if you suspect a cardiac emergency.
Assessment: Call First or Care First

Care First: *Care First*, that is to provide 2 minutes of care, and then summon advanced medical personnel for—

- Any victim who has suffered cardiac arrest associated with trauma.
- Any victim who has taken a drug overdose.

*Care First* situations are likely to be breathing emergencies.
Key Points

- During resuscitation there are two patients, mother & fetus
- The best hope of fetal survival is maternal survival
- Consider the physiologic changes due to pregnancy
Modifications of Basic Life Support

Airway

Hormonal changes promote insufficiency close of the gastroesophageal sphincter, increasing the risk of regurgitation.

Apply continuous cricoid pressure during positive pressure ventilation for any unconscious pregnant woman.

Use an ETT 0.5 to 1 mm smaller in internal diameter than that used for a nonpregnant woman of similar size because the airway may be narrowed from edema.
Modifications of Basic Life Support

**Breathing**

- Hypoxemia can develop rapidly because of increased O2 demand, so be prepared to support oxygenation & ventilation.
- Ventilation volumes may need to be reduced because the mother’s diaphragm is elevated.
- Reduced chest compliance
  - Splinting of diaphragm by abdominal contents

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Modifications of Basic Life Support

Circulation

- Chest compression more difficult because of breast hypertrophy
- Gravid uterus compresses IVC in supine position
  - Impairs venous return and cardiac output
- This may be accomplished manually or by placement of a rolled blanket or other object under the right hip and lumbar area
In **late pregnancy** (>20 wk), place the patient in lateral position by using a wedge or manually displacing the uterus
Modifications of Basic Life Support

Circulation

- Perform chest compressions higher, slightly above the center of the sternum to adjust for the elevation of the diaphragm & abdominal contents

- Vasopressor agents, including epinephrine & vasopressin, will decrease blood flow to the uterus, but since there are no alternatives, indicated drugs should be used in recommended doses

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Modifications of Basic Life Support

Defibrillation

- Defibrillate using standard ACLS defibrillation doses
- There is no evidence that shocks from a direct current defibrillator have adverse effects on the heart of the fetus
- If fetal or uterine monitors are in place, remove them before delivering shocks
Emergency Cesarean Delivery for the Pregnant Woman in Cardiac Arrest

- CPR leader should consider the need for an ER cesarean delivery as soon as a pregnant woman develops cardiac arrest
- Delivery of the baby empties the uterus, relieving both the venous obstruction and the aortic compression
- Delivery also allows access to the infant so that newborn resuscitation can begin
- The best survival rate for infants 24-25 weeks in gestation occurs when the delivery of the infant occurs no more than 5 minutes after the mother’s heart stops beating

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Decision Making for Emergency Cesarean Delivery

**Gestational age less than 20 weeks**
- Need not be considered because this size gravid uterus is unlikely to significantly compromise maternal cardiac output

**Gestational age approximately 20 to 23 weeks**
- Perform to enable successful resuscitation of the mother, not the survival of the delivered infant, which is unlikely at this gestational age

**Gestational age greater than 24 weeks**
- Perform to save the life of both the mother & infant
Perimortem Cesarean Section
Legal and Ethical Considerations

The emergency physician has the legal right and responsibility to provide the unborn fetus with every possible chance of survival when there is no hope of maternal survival.

Permission for the operation should be obtained from the family when possible but not at the expense of delaying the procedure.

Should be performed within 5 minutes of maternal demise.

Neonatal resuscitation should be carried out as necessary.
In Summary

- To treat the critically ill pregnant patient:
  - Place the patient in the left lateral position.
  - Give 100% oxygen.
  - Establish intravenous (IV) access and give a fluid bolus.
  - Consider reversible causes of cardiac arrest and identify any preexisting medical conditions that may be complicating the resuscitation.
Reference