

PREGNANCY AND CARDIAC ARREST

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The dramatic alterations in maternal cardiovascular physiology induced by pregnancy make cardiopulmonary resuscitation of expectant mothers unique. During pregnancy, maternal blood volume and cardiac output increase by up to 150% more than nonpregnant levels. Uterine blood flow increases between 20-30% during the last trimester of pregnancy to accommodate the needs of the fetus. In order to permit this marked, but essential increase in flow, the utero-placental vascular bed must be maximally dilated. In addition, when the mother is supine, the gravid uterus may compress the iliac vessels, the inferior vena cava, and the abdominal aorta, resulting in hypotension and as much as a 25 times reduction in cardiac output.

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MANAGEMENT OF CARDIAC ARREST DURING PREGNANCY: When cardiac arrest occurs in a pregnant woman before the 24th week of gestation (the putative onset of fetal viability), the rescuer's primary concern should be directed towards saving the mother, whose chances of survival are far better than those of the fetus. Conventional therapy and procedures applicable to any arrest situation should be used as indicated and appropriate.

Beyond the 24th week of gestation, the rescuer must consider the life of the potentially viable fetus as well as that of the mother. Precipitating events for cardiac arrest include arrhythmia, congestive heart failure, myocardial infarction, or intracranial hemorrhage in a toxemic patient. Spontaneous bleeding, including intrahepatic bleeding, may occur, resulting in hypovolemia.

Most of the standard resuscitation procedures can and should be applied without modification. For example, if **ventricular fibrillation** is present, it should be treated with defibrillation according to the ventricular fibrillation algorithm. Closed-chest compressions and support of ventilation may be done conventionally. To obviate the effects of the gravid uterus on venous return, a wedge, such as a pillow or other similar device, should be placed under the

right abdominal flank and hip to gently push the uterus to the left side of the abdomen.

AHA RECOMMENDATIONS:

- ✓ Do not delay defibrillation
- ✓ Give typical ACLS drugs and dosages
- ✓ Ventilate with 100% oxygen
- ✓ Monitor waveform capnography and CPR quality
- ✓ Provide post cardiac arrest care as appropriate

MATERNAL MODIFICATIONS:

- ✓ Start IV above the diaphragm
- ✓ Assess for hypovolemia and give fluid bolus when required
- ✓ Anticipate difficult airway; experienced provider preferred for advanced airway placement

COMPLICATIONS FROM CPR: Maternal complications that can occur when CPR is performed during pregnancy include laceration of the liver, uterine rupture, hemothorax, and hemopericardium.