

11 EMERGENCY PROCEDURES

11.1 RESUSCITATION IN LATE PREGNANCY

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11.1 Resuscitation in Late Pregnancy
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11.1 RESUSCITATION IN LATE PREGNANCY

BACKGROUND INFORMATION

Cardiac arrest occurs in approximately one in 30,000 women in late pregnancy.¹ Maternal mortality is caused by venous thromboembolism, severe preeclampsia or eclampsia, sepsis, amniotic fluid embolism, haemorrhage, trauma, iatrogenic causes including anaesthesia and drug errors or allergy, and congenital or acquired heart disease.²

Consideration of urgent hysterotomy or Caesarean section should be made for the pregnant woman who has a cardiac arrest. If early resuscitation fails, birth of the fetus may improve maternal and fetal chance of survival. Infants over 24-25 weeks gestation have the best chance of survival if birthed within 5 minutes of maternal cardiac arrest. It is recommended that hysterotomy or Caesarean section be commenced 4 minutes after a cardiac arrest unless there has been a successful resuscitation and maternal perfusion restored within that time.³

Obesity exaggerates the risks and physical changes in pregnant women.¹

PHYSIOLOGICAL AND ANATOMICAL CHANGES IN PREGNANCY

Cardiovascular changes

- Increased heart rate – rises in late pregnancy to 20% higher than the pre pregnancy rate.
- Cardiac output increases – by the end of the first trimester it rises up to 40% higher than pre pregnancy state.
- Increased uteroplacental blood flow – by term gestation the uterus receives up to 25% of the cardiac output.
- Aortocaval compression – in the second half of pregnancy the weight of the gravid uterus reduces venous return to the heart if the woman is lying in the supine position.⁴

Respiratory changes

- Increased oxygen demand – oxygen requirements increase by up to 21% in pregnancy. This makes the mother more likely to become hypoxic during cardiac arrest.
- Decreased functional residual capacity – as gestation increases the gravid uterus puts pressure on the diaphragm, which results in a fall in the lung capacity.
- Decreased chest compliance – the enlarging uterus displaces the diaphragm and viscera.
- Increased ventilation – hyperventilation causes partially compensated respiratory alkalosis.⁴

Gastrointestinal changes

- Gastric emptying is slower – in pregnancy women have reduced gastrointestinal motility.
- An incompetent gastro-oesophageal sphincter leads to gastro-oesophageal reflux with greater danger of aspiration of gastric contents into the trachea.
- Increased intragastric pressure in late pregnancy⁴

Other changes in pregnancy

- Flared ribs
- Breast hypertrophy¹ (may impede effective resuscitation)

KEY POINTS WITH RESUSCITATION MANAGEMENT IN LATE PREGNANCY

POSITION OF THE PREGNANT WOMEN

- Position the women on her back with the shoulders flat. Place padding/wedge under the right buttock to give an obvious pelvic tilt to the left.⁵
- The thighs of a rescuer may be used for resting the women on, and providing a lateral tilt.¹
- An assistant may move the uterus further off the vena cava by lifting the uterus with two hands to the left and towards the woman's head.¹
- The seat of an upturned chair may be used to provide a left lateral tilt if other measures are not available.

AIRWAY MANAGEMENT

- The woman should be inclined laterally for suction, removing ill-fitting dentures or foreign bodies, and inserting airways.¹
- Mouth to mouth or bag and mask ventilation is done with the head and neck fully extended.
- Under direction from the anaesthetist apply cricoid pressure until the airway is protected by a cuffed tracheal tube if sufficient staff are available to do this – this decreases risk of gastric aspiration.³
- As soon as possible tracheal intubation should be inserted – ensures adequate ventilation with increased intra-abdominal pressure.³
- Consider using a smaller tracheal tube if the airway is narrowed due to oedema and swelling.³
- Positioning for intubation - using one pillow helps to flex the neck and extend the head.¹

CIRCULATION MANAGEMENT

- Hand position higher than the normal position for chest compressions may be needed to adjust for the elevation of the diaphragm and abdominal contents due to the gravid uterus.³
- Raising the woman's legs will assist venous return.¹
- Apply defibrillator pads. This may be more difficult due to the larger breasts in the pregnant woman.³
- If a CTG monitor is in situ, remove the monitor leads.

INITIATING CAESAREAN SECTION

Immediately a pregnant woman collapses and requires resuscitation a staff member should collect the Caesarean Section Perimortem pack.

These packs are located in the bottom drawer of the Resuscitation Trolleys in all clinical areas

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