SURFACANT REPLACEMENT THERAPY

- Together with antenatal corticosteroid administration, surfactant replacement therapy is the most important therapeutic advance in neonatal care in the last decade
- Early administration of selective surfactant decreases risk of acute pulmonary injury and neonatal mortality
- Multiple doses result in greater improvements in oxygenation and ventilatory requirements, a decreased risk of pneumothorax, and a trend toward improved survival

INDICATIONS

Prophylaxis (administration within 15 min of birth)

Babies born ≤26 weeks gestation
- Electively intubate and give surfactant as prophylaxis

Babies born at 27–28+6 weeks’ gestation
- If require intubation for respiratory support during resuscitation/stabilisation, give surfactant as prophylaxis

Early rescue treatment

Babies born at 27–28+6 weeks’ gestation
- If require intubation for respiratory distress, give surfactant early (within 2 hr of birth)

All other babies requiring intubation and needing FiO₂ >0.3 for surfactant deficiency disease i.e. continuing respiratory distress AND evidence of RDS on chest X-ray
- Give rescue surfactant

Other babies that can be considered for surfactant therapy (after senior discussion)
- Ventilated babies with meconium aspiration syndrome
- Term babies with pneumonia and stiff lungs

CONTRAINDICATIONS

- Discuss use in babies with massive pulmonary haemorrhage with neonatal consultant

EQUIPMENT

- Natural surfactant, Poractant alfa (Curosurf®) 100–200 mg/kg (80 mg/mL) round to nearest whole vial; prophylaxis and rescue doses of Curosurf can differ, check dose with local policy
- Sterile gloves
- Trach Care Mac catheter [do not cut nasogastric (NG) tube]

PROCEDURE

Preparation
- Calculate dose of surfactant required and warm to room temperature
- Ensure correct endotracheal tube (ETT) position
- Check ETT length at lips
- listen for bilateral air entry and look for chest movement
- if in doubt, ensure ETT in trachea using laryngoscope and adjust to ensure bilateral equal air entry
- chest X-ray not necessary before first dose
- Refer to manufacturer’s guidelines and Neonatal Formulary
- Invert surfactant vial gently several times, without shaking, to re-suspend the material
- Draw up required dose
Surfactant 2011-13

- Administer via Trach Care Mac device (note: it is no longer acceptable to administer surfactant via a nasogastric feeding tube as this contravenes European conformity (CE marking) and NPSA 19)

Instillation
- With baby supine, instil prescribed dose down tracheal tube; give 2 boluses of Poractant alfa
- Wait for recovery of air entry/chest movement and oxygenation between boluses

Post-instillation care
- Do not suction ETT for 8 hr [suction is contraindicated in Surfactant Deficiency Disease (SDD) for 48 hr]
- Be ready to adjust ventilator/oxygen settings in response to changes in chest movement, tidal volume and oxygen saturation
- Take an arterial/capillary blood gas within 30 min

SUBSEQUENT MANAGEMENT
- If baby remains ventilated at FiO\textsubscript{2} >0.3 with a mean airway pressure of >7 cm of water, give further dose of surfactant
- Poractant alfa after 6–12 hr
- 3\textsuperscript{rd} dose can be given only at the request of the attending neonatal consultant

DOCUMENTATION
- For every dose given, document in case notes:
  - indication for surfactant use
  - time of administration
  - dose given
  - condition of baby pre-administration, including measurement of blood gas unless on labour ward when saturations should be noted
  - response to surfactant, including measurement of post-administration blood gas and saturations
  - reasons why second dose not given, if applicable
  - reason(s) for giving 3\textsuperscript{rd} dose if administered