Surfactant Administration through Laryngeal or Supraglottic Airways (SALSA) Guideline

Recommended Population

- Infants born at or greater than 32 weeks gestational age and =>1500g
- First 48 hours after birth
- Respiratory distress syndrome (RDS) on non-invasive support (CPAP, NIPPV, or HFNC)
- Clinical decision to provide surfactant without plans to initiate invasive mechanical ventilation

Equipment (Figure 1)

- #1 iGel supraglottic airway (LMA)
- 16G 133 mm Angiocath
- Jet swivel
- CO2 detector
- Suction catheter and tubing
- Syringe for surfactant
- Neo-tee
- Airway box, in case procedure is converted to intubation
- Neck roll (if indicated)

Surfactant (Poractant alfa/ Curosurf)

- Initial dose: 2.5 mL/kg birth weight
- Repeat dose (after 12 hours from the first dose surfactant): 1.25mL/kg birth weight

Pre-medication

- Atropine (0.02mg/kg/dose), IV
- Oral/buccal 24% sucrose (Sweet ease) can be used for comfort/analgesia
- Routine use of sedatives is not recommended
- Calculate rapid onset paralytic dose but do NOT draw up or administer unless necessary to treat laryngospasm (ie. Rocuronium dose: 0.6 mg/kg IV via rapid push)

Procedure

1. Medical team to prepare the LMA
    a. Remove inner needle stylet from catheter
    b. Attach the jet swivel to the LMA. Attach CO2 detector to the top of the jet swivel (Figure 2)
2. Respiratory therapist to prepare surfactant in a 3-5mL syringe

3. Airway provider to perform time-out
4. Prepare infant
    a. Position infant with head to the side of the bed, head midline in a “sniffing” position
    b. Aspirate stomach contents.
    c. Remove NG/OG
    d. Leave Flexi trunk mask in place
    e. Turn on Neo-Tee flow to 10L and adjust Fio2 on blender to patient needs. With red cap over t-piece, adjust PEEP dial so manometer shows appropriate PEEP. Occlude t-piece to adjust PIP to 20 cmH20.
5. Confirm suction catheter, Neo-Tee, and airway box are ready and accessible
6. Administer pre-medication, Atropine and/or sweet ease
7. SALSA procedure
    a. Open patient’s mouth and grasp tongue with left thumb
    b. Insert LMA with right hand using the index finger to guide the LMA along the hard palate
    c. Once fully inserted, hold LMA in place and attach the Neo-Tee to CO2 detector adaptor
    d. Look for color change on CO2 detector. If not seen, readjust LMA by applying light pressure and advancing further, or pull back slightly. If that does not work, remove, and replace
    e. Once color change is evident, keeping flexitrunk in place, create leak or turn off flow to CPAP. Insert the 16G angiocath into the capped side of the jet swivel and place in as far as it will go
    f. Attach syringe with surfactant and give in 1 ml aliquots with Neo-Tee holding PEEP until surfactant has cleared from the LMA. Only provide PIP/Ventilation if the patient cannot maintain Spo2 >94% and HR >100
    g. Allow Neo-Tee to hold PEEP on patient for 30 seconds after last aliquot and then remove LMA. Reseal flexitrunk or turn on flow to CPAP.
    h. Replace NG/ OG. Aspirate stomach contents, note amount of surfactant in stomach (if any)
8. If significant desaturation or bradycardia, remove LMA, bag-mask ventilate until SaO2 >94% and HR≥ 100, then reattempt LMA placement
9. The attempt should be abandoned if there is severe bradycardia or desaturation, or if >3 attempts are required. At that point, the infant should be intubated with an endotracheal tube

Post-Procedure

- Establish monitoring plan for labs, X-rays as indicated
- Medical provider to reassess infant at least hourly for the first 3 hours post-procedure

Documentation:

- Medical provider to complete procedure note in EPIC and complete N4N SALSA form

Figure 1. Essential equipment

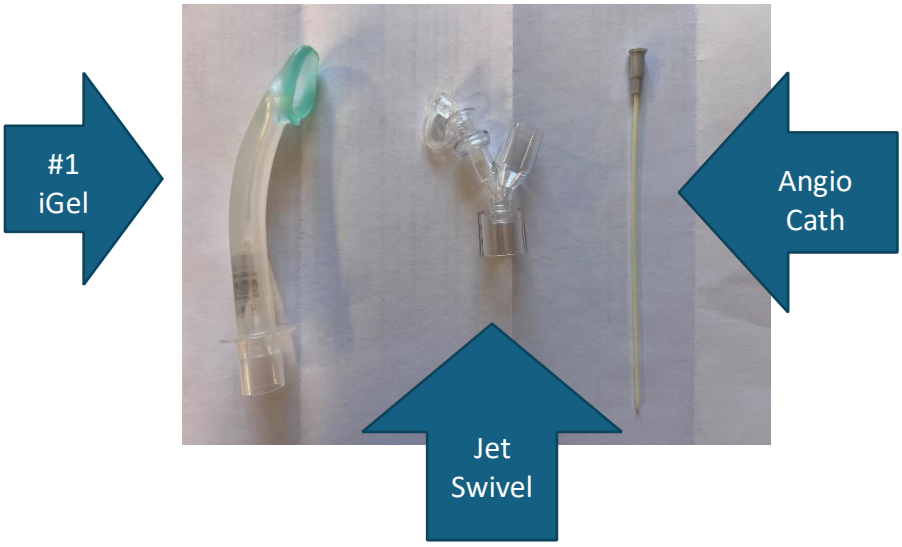

Figure 2. Setup with iGel, Jet swivel, CO2 detector and angiocath