UC DAVIS HEALTH | CHILDREN'S HOSPITAL

Less Invasive Surfactant Administration

UC Davis Protocol

Less Invasive Surfactant Administration Protocol (LISA)
V3: 6/21/2022

Eligibility Criteria

- Preterm infants **28w0d GA to 34w0d GA**
- Infants on CPAP with FiO2 requirement >30% to maintain saturations >90% SpO_2
- Suspected RDS with signs of respiratory distress
- CXR obtained to rule out pneumothorax

Exclusion Criteria

- Suspected or known airway or pulmonary anomaly
- Infants with persistent apnea
- Concern for pneumothorax
- Meconium aspiration syndrome

Supplies

- 16g 5.25 inch angiocath with needle discarded
- T-connector
- 3mL or 6mL syringe
- Face mask and T piece or flow-inflating bag (emergency equipment)
- Suction
- Neo View Video Laryngoscope (kept in AN2 office) or direct laryngoscope

- Paper measuring tape or use gauze package.
- Tape for marking angiocath (ETT table or cloth tape)

Surfactant

- Infasurf® (calfactant) at 3ml/kg plus 0.5ml to prime t-connector and angiocath.
- Interval between dosing: 12 hours (if needed)

Providers for procedure

- Laryngoscopy: NICU fellow, NNP, Transport RN, or NICU attending who has been trained in LISA administration
- Instillation of surfactant: Respiratory therapist, fellow/attending/NNP/transport RN
- Additional assistance: Bedside RN

Preparation for LISA

1. Prioritize non-pharmacologic approaches to analgesia such as swaddling, and sucrose solution. Use atropine to blunt reflex bradycardia. Pharmacologic sedation to be used at the discretion of the attending physician.
2. Position infant supine with CPAP/NIPPV in place, similar to positioning for standard intubation. Rotate CPAP tubing over infant's right ear to allow more space for laryngoscope insertion.
3. Ensure needle is removed from angiocath and discarded.
4. Wrap the tape around the angiocath at target depth (7cm)

a. Tape should indicate distance at the lip

5. If desired, bend angio-cath into hockey-stick shape to facilitate placement.
6. Draw up the surfactant (3ml/kg of calfactant + 0.5ml for priming the line and angiocath)
7. Prime the T-connector and angiocath with 0.5ml of surfactant

8. Prepare team for procedure: Read LISA Timeout Script

Performing LISA

1. With CPAP in place, perform video laryngoscopy and tracheal cannulation using angiocath.
    a. If the CPAP is removed during visualization of airway, replace as soon as angiocath is inserted, ideally within 10 seconds.
2. Once catheter is just through the vocal cords, hold angiocath securely in position
3. Remove laryngoscope blade.
4. Connect primed T-connector/syringe to angiocath hub
5. Instill surfactant two aliquots infusions given over 10 to 30 seconds
    a. Aspirate stomach contents after each aliquot to check for inadvertent esophageal administration of surfactant.
    b. Anticipate small amounts of surfactant bubbling from lips with correctly placed angiocath.
6. Infant remains supine and midline, no turning necessary
7. Once instillation complete, remove angiocath and continue CPAP/NIPPV

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Procedure Notes

- Please document as a procedure note in EPIC using the dot phrase .NICULISA
- If first attempt at tracheal catheterization is not possible within 60 seconds or with a desat >20 points below baseline, remove laryngoscope and allow infant to recover on CPAP.
- Total of 3 attempts allowed for LISA until need to transition to intubation for surfactant

- Increase FiO2 10-20% at start of procedure.
- Wait longer than 30 seconds for next bolus of surfactant if bradycardia <80bpm for > 5 seconds OR desaturation to <70% SpO2 for >10 seconds.
- If mild apnea, can give breaths on vent, if prolonged or severe transition to PPV per NRP. Ok to give PPV while angiocath is in place. Insure mouth is closed.

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