Anesthetic Management of Vocal Cord Medialization

Anesthesia Protocol University of Washington Medical Center Department of Anesthesiology

Overview

Rationale

This procedure requires close cooperation between the patient, surgeons, speech therapist, nurses and anesthesia personnel. The following protocol has been designed to facilitate this process.

Synopsis of Procedure

Patients present for this procedure with either vocal cord paralysis or paresis. The object of the surgery is to make a window in the lateral wall of the thyroid cartilage and insert a silastic block that will push the true vocal cord medially so it opposes the opposite cord. The procedure is done with the patient awake so that they can phonate and test the size of the block the surgeons put in. The desired result is a stronger voice.

A speech therapist is present for the case to speak with the patient to help determine the proper size block and degree of medialization. The speech therapist shares the position at the head of the bed and will often talk with the patient during procedures to instruct them on voicing, or comfort them. (He/she knows the patient well from prior clinical contact). The speech therapist is an integral member of the team and often assists with additional suctioning, application of topical anesthestic or flexible laryngoscope adjustments.

The nose and nasopharynx are sprayed with 0.05% oxymetazoline in preop holding and then immediately preoperatively by the surgeons, along with 4% topical lidocaine. The surgeons will place their flexible fiberoptic laryngoscope through the nasopharynx and a view of the larynx is projected on a monitor at the head of the bed for the duration of the case. The laryngoscope is mounted on an adjustable bracket at the head of the bed. The speech therapist will often adjust the position of the tip of the laryngoscope.

The skin over the larynx is infiltrated with 8-10 mls of 1% lidocaine + 1/100K epinephrine. A window is cut in the wall of the thyroid cartilage on the weak side and a silastic block is cut and inserted through the window to medialize the weak cord. The voice is tested for effectiveness of the block and if inadequate is sutured in position. Vocal cord edema resolves over the next several days so the initial voice may sound strained. On some occasions, bilateral medializations are performed.

WRITTEN BY: AL HILLEL, MD, NICOLE MARONIAN, MD, PETER COLLEY, MD, GENE PETERSON, MD, 7/2003 REVIEWED BY: DR. JOANNA DAVIES, MB BS FRCA, 11/30/06 APPROVED BY DR. KAREN DOMINO, 12/04/06 FOR MODIFICATIONS AND SUGGESTIONS, PLEASE WRITE TO ANESTH@U.WASHINGTON.EDU Often, in addition to the medialization with the silicone block, an arytenoids adduction (AA) is performed. The AA is a more technical procedure and often requires greater sedation while the surgical exposure is achieved. With an AA, the posterior portion of the thyroid cartilage is removed to expose the arytenoids. A stitch is placed in the muscular process of the arytenoids to rotate it and reposition the posterior portion of the vocal cord. This posterior portion of the larynx is highly innervated and often more sensitive to the patient. It is a difficult area to inject with more local anesthetic, since it can diffuse into the contralateral posterior crico-arytenoid, thereby resulting in temporary bilateral vocal cord paralysis and stridor. During this portion of the patient needs to be awake so that the stitch and the silicone block can be adjusted. The skin is then closed and the patient taken to the recovery room and then to the ward for overnight observation.

The Procedure

OR Logistics

- The anesthesia team shares the head of the bed with the surgeons and speech therapist.
- The OR table reversed, meaning the support pedestal is placed at the foot end.
- The patient's arms are removed from the gown and mummy wrapped. Soft wrist restraints are placed and loosely secured.
- The patient's hair is wrapped to keep it clean.
- A shoulder roll is placed by the surgeon to extend patient's neck.
- The patient's head is placed on a foam doughnut.

Anesthetic Management

Dexmedetomidine is used as the sole sedative agent – it is an α 2-agonist which provides adequate sedation with good operative conditions and minimal side effects.

- 1) Start a small IV either hand limit iv fluids as procedure can take 2-3hrs
- 2) Do NOT give any midazolam (not necessary & some elderly patients get confused)
- Do NOT give any glycopyrrolate initially, as a dry mouth can make phonation difficult – have 0.2mg ready in case salivation becomes a problem.
- **4)** Give dexamethasone 10mg iv and antibiotics (usually cefazolin 1g) iv 30 minutes preoperatively but not more than 60 minutes preop. (vancomycin can be given up to 120 minutes preoperatively). Advise starting antibiotics just before leaving the holding area.
- 5) The patient receives Afrin (oxymetazoline) nasal spray preop.
- 6) Surgeons will spray the patient's nose with 4% lidocaine in the OR.
- **7)** Dexmedetomidine (dex) is checked out from pharmacy you need to complete a non-formulary drug order.
- 8) Dex comes as a 2ml vial of 100 mcg per ml (total 200mcg)

- 9) Dilute 200 mcg dex in 48 mls N Saline to give final conc of 4mcg/ml in 50 ml (0.004 mg/ml).
- 10) The "Protégé" syringe pumps are the easiest to program for infusions and boluses
- 11) Once in the room with monitoring and BIS attached give a bolus of Dex.
- 12) Start with a 0.4 0.5 mcg/kg bolus (program this into the pump) and may repeat x1 if necessary (↓ bolus dose if patient frail).
- 13) Start infusion at 0.2mcg/kg/hr
- 14) Often need to increase the infusion to a max of 0.8mcg/kg/hr.
- 15) Additional boluses can be given judiciously (0.2 0.4mcg/kg)

Precautions

Dexmedetomidine should be used very cautiously or not at all in the following patients:

- 1) Elderly, frail patients
- 2) Patients with arrythmias, chronic hypertension or severe cardiovascular disease
- 3) Patients taking vasodilators or negative chronotropic agents
- 4) Patients with severe asthma
- 5) Renal or hepatic insufficiency (usually a decreased dose is fine)

In these cases, a low dose propofol infusion (25 mcg/kg/min or less) and/or small doses of fentanyl (25 mcg or less) can be used and titrated to effect.

Additional information about Dexmedetomidine can be found on:

www.thomsonhc.com/hcs/librarian

Put "dexmedetomidine" in the search box and then click on the "DRUGDEX Evaluations" option.

Billing

ICD9

- 478.31 unilateral paresis
- 478.32 unilateral paralysis
- 478.33 bilateral paresis
- 478.34 bilateral paralysis

СРТ

- 31588 vocal cord medialization
- 31400 external arytenoidopexy