Awake Fiberoptic Intubation
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I. Preparation
   A. Glycopyrolate 0.4 mg IV
   B. Fentanyl 25 mcg IV (VERY little opioid—apnea will ensue!)
   C. Midazolam 0.5 mg IV (titrated to effect—“high dose midazolam, low dose opioid”)
   D. Topicalization with 4% lidocaine, 5% cocaine, or airway blocks
      i. 4% lidocaine = 40 mg per mL
      ii. Maximum dose of lidocaine is 5 mg/kg
      iii. For 70 kg adult, this would be 8.5 mL (350 mg)
      iv. Use atomizer hooked up to machine O₂ source
   E. Dexmedetomidine
      i. 10 minute loading infusion 0.5-1.0 mcg/kg
      ii. 0.2-0.7 mcg/kg/hr continuous infusion
      iii. Dilute in 0.9% normal saline
      iv. Will start to see effects within 5-10 minutes

II. Cart set-up
   A. Adult vs. pediatric fiberoptic scope
   B. Large ETT (8.0+) vs. smaller ETT
   C. Lube shaft of scope with surgilube or silicone solution
   D. Warm ETT with hot air (Bair Hugger) or warm saline
      i. For nasotracheal intubation
   E. Long suction tubing: hook up to scope (scope suction)
   F. Maintain your short suction tubing from the machine for intraoral suction
   G. Check scope compatibility with light source / video tower
   H. Gauze pads 4x8 or 4x4

III. In the OR...
   A. Nasal cannula with capnography capability
      i. Spike cannula tubing with 14g catheter for CO₂ sampling
   B. MAINTAIN SPONTANEOUS VENTILATION AT ALL TIMES
** This is key! SEDATE with midazolam, use little to no opioid!
C. Maintain meaningful contact with the patient at all times
D. Continue to topicalize to blunt airway reflexes

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**The Gottschalk Method of Topicalization**

1. Put 2-3 mL of 5% lidocaine OINTMENT on tongue depressor and apply to area of glossopharyngeal nerve. May require 2 applications. This should topicalize the **glossopharyngeal nerve**.
2. Place nasal cannula with capnography capability as well as ASA monitors.
3. This method requires MINIMAL midazolam (0.5 to 1.0 mg) and minimal fentanyl (25 to 50 mcg).
4. Next obtain 4% lidocaine for injection and place 1-2 vials (comes in glass vials of 5 mL) in a specimen cup.
5. Place cotton balls, preferably the ones that OHNS/ENT use with strings attached, in the container. Allow them to soak up the lidocaine. The cotton balls should become “sloppy wet.”
6. Using either a Magill forceps, or preferably a right angle tonsil holder (hard to find), grab the cotton balls and gently and slowly introduce them (don’t let go of them) deep in the pyramid sinus. The patient will initially gag, but this will go away. Hold the cotton balls in place on EACH side for 60-90 seconds. The patient will report that their “throat feels numb.” Provide reassurance. A few mild coughs are OK. This technique numbs the **superior laryngeal nerve**.
7. Place an oral airway (prevents biting the scope and tests to make sure your gag reflexes are gone) and introduce the fiberoptic scope. If there is any significant gagging, reapply the cotton balls as above. Squirt 1-2 mL of 1% or 2% lidocaine down the fiberoptic once you see the cords (spray the cords). The patient should cough with this. This numbs the **recurrent laryngeal nerve**.
8. Place the tube. You can supplement any of the above with the blocks described below, but always be cognizant of the upper limit of lidocaine with regards to toxicity.

The drug totals for this technique are:
- 3 mL 5% lidocaine ointment = approximately 150 mg of lidocaine
- 5-10 mL 4% lidocaine = 200 to 400 mg of lidocaine
- 1-2 mL of 1-2 % lidocaine = 10 to 20 mg of lidocaine
Total amount usually used=about 350 mg, but realize that not all is absorbed and much is swallowed
(Named for Allan Gottschalk, MD, PhD, Johns Hopkins Department of Anesthesiology)

IV. Intubation

A. Sweep tongue with Macintosh #3 blade (use short handle)
   a. This is what is meant by a “DL-assisted” fiberoptic
   b. A video laryngoscope may be used as well
B. Pull up on tongue with gauze (requires assistant)
C. Visualize airway
D. Pass through rima glottis (vocal cords) during full inspiration
E. Insert oral airway
F. Check ETCO₂, breath sounds BEFORE adding more induction agents
G. Remember to push induction agents before paralytics!
V. Airway blocks

A. Glossopharyngeal (CN IX) block
   i. Identify anterior tonsillar pillars (very thin)
   ii. 2 mL 2% lidocaine
   iii. Use 21 g spinal needle
   iv. Sweep tongue to side with tongue depressor
   v. Inject 0.5 mL 2% lidocaine bilaterally
   vi. It will feel tight since the tissue is thin and resistance is high
   vii. Remember to aspirate before injection
      1. If air is aspirated, you have pushed the needle too deep
      2. If blood is aspirated, redirect medially
   viii. This block may be painful and may cause a hematoma

B. Superior laryngeal nerve (CN X) block
   i. Identify hyoid bone in neck
      1. It is omega shaped
   ii. Walk off the greater cornu in a caudal direction
   iii. Aspirate first, then inject 2-3 mL of 2% lidocaine
      1. Use 23 or 25 g needle
   iv. Firmly displace hyoid bone towards side to be blocked
      1. This may be uncomfortable for the patient
      2. If blood aspirated, superior laryngeal artery or vein has likely been penetrated
C. Transtracheal / recurrent laryngeal nerve (CN X) block
   i. Identify landmarks: cricothyroid cartilage
   ii. Use 20 g needle
   iii. Aspirate air, inject
   iv. You can leave the catheter/needle in place if more anesthetic is required, but usually only 1-2 mL is required
   v. The patient will cough forcefully