Awake Craniotomy

Purpose: awake craniotomies typically are reserved for tumors adjacent to or within the speech areas of the dominant cortex. Patients are sedated during cranial opening and are awakened once the dura is open. Direct cortical stimulation is performed to determine the relationship between the tumor and the speech centers. The surgeon then maps out eloquent and noneloquent areas of the brain prior to beginning the tumor resection. The patient continues to converse during the tumor resection to ensure that language function is not altered. (Jaffe et al.)

Anesthetic Considerations:

Medications

Drips: two Alaris brains

Anesthetics: Propofol gtt 25-50 mcg/kg/min, Dexmedetomidine 0.4 mcg/kg/hr

Uppers: phenylephrine gtt

Downers: sodium nitroprusside gtt, esmolol gtt

Carrier

Preop:

Midazolam 10 mg - diluted to 1mg/mL

Dexmedetomidine bolus syringe (1 mcg/kg),

PO caffeine if patient is avid coffee drinker – 200 mg PO from pharmacy

Local Anesthetics for scalp blocks (lido also used for field blocks for lines):

1. 2% lidocaine + 8.4% Sodium Bicarbonate – 9 mL of 2% lido per 1 mL of sodium bicarbonate (20 mL total)
2. Bupivacaine 0.5% with Epi 1:200,000 – 20 mL total
3. 27G Needles from nursing cabinet in OR

Other Drugs

Flumazenil – 1 vial, 0.1 mg/mL

Acetaminophen IV – 1000 mg

Ondansetron – 4mg

Monitoring/Lines

CVC – Subclavian CVC vs. PICC – field block with buffer lido prior to placement
Arterial line – field block with buffered lido prior to placement
Microphone (from anesthesia techs)
+/- precordial doppler depending on patient positioning
Large bore PIV in foot (16g +)

Airway

Nasal cannula with circuit adapter – turn pop off valve to 30 cm H20 (secure with Tegaderm on the cheek
6-0 reinforced ETT for emergent intubation
Fiberoptic scope available for emergent 180 intubation
Optiflow/Thrive for patients with OSA

Emergency Considerations:

Cold slushed saline in case of seizure
3 mL of propofol 10mg/mL connected to one port of CVC in case of seizure

Miscellaneous

Posey wrist restraints
Disposable oral swabs for dry mouth
IV poles x 2 in surgeon area for draping

Anesthetic timing for surgical steps

1. Preop: 1-2 mg midazolam, titrate to effect
2. Arrive to room, place patient on bed in 180 position (head away from anesthesia machine)
3. Attach monitors, apply nasal cannula, warming blanket on bed
4. Titrate in dexmedetomidine 4-8 mcg (1-2 mL of 4mcg/mL) at a time for total dose of 1mcg/kg; continue to titrate midazolam 1-2 mg at a time; start dex @ 0.4 mcg/kg/hr and Propofol at 25-50 mcg/kg/min
5. Median nerve block with 2% buffered lido (1-2 mL) for radial arterial line
6. Field block for Subclavian CVC or PICC
7. Scalp blocks – pre block with 2% buffered lido, return 5-10 min later to reinforce blocks with 0.5% Bupi with epi

    a. Supraorbital/Trochlear – extend to mideline
    b. Auriculotemporal
    c. Pin sites (ask surgeons to mark)
    d. Occipital; greater and lesser
8. Large bore PIV placement in the foot – don't forget to use local, patient is under MAC
9. Surgical incision
10. As soon as bone flap is removed; turn off dex and Propofol and start timer – within 20-30 minutes patient should be arousable; if not titrate in flumazenil 0.1 mg at a time every 2-3 minutes
11. Neurology will sit down on the right side of the patient and begin neuro testing; make sure microphone is attached to pin frame and on
12. When tumor is resected surgeons will tell you to put patient back to sleep, you can restart Propofol and dexmedetomidine and bolus midazolam and 10-20 mg of Propofol as needed