Radiofrequency Gangliolysis Anesthesia
Anesthesia Guidelines
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Overview

Gangliolysis is a procedure done for tic douloureux or trigeminal neuralgia. This pain syndrome is defined as unilateral facial pain that is lancinating and shock-like, with clear-cut pain-free intervals, triggered by non-noxious stimulation. The distribution is 20% V1, 44% V2 and 36% V3.

The first line of treatment is medical with anticonvulsants such as phenytoin, carbamazepine, baclofen or gabapentin. If these are unsuccessful, surgical treatment is an option. The goal of surgical treatment is the longest duration of pain relief with the least amount of facial numbness. The surgical treatment considered in this guideline is either balloon or radiofrequency gangliolysis. Both have similar success rates of 80% of one year without pain, 50% of five years without pain and a 10% chance of a ten-year pain-free interval. In both balloon and radiofrequency gangliolysis instrumentation of the Gasserian Ganglion can lead to massive vaso-vagal response, therefore prior vagal blockade with IV glycopyrrolate or atropine is a necessity.

For balloon gangliolysis, the lesion is made with the patient under general anesthesia. For radiofrequency gangliolysis the needle is positioned with the patient asleep, testing is done with the patient awake, and the lesion is made with the patient asleep. The C-arm fluoroscope is used for both procedures.

The Procedure

- With the patient asleep, a needle is inserted percutaneously in the cheek and advanced under fluoroscopic control until its tip lies within the foramen ovale.
- With the patient awake, the needle is electrically stimulated and the patient is asked to localize the stimulation.
- With the patient asleep, a lesion is then created in the Gasserian ganglion using radiofrequency current for a 90 second period.
- With the patient awake, pinprick testing is carried out to determine the adequacy of the lesion. If the lesion is adequate, the needle is removed. If another lesion is necessary, the needle is adjusted, the patient is again given propofol and another lesion made.
Preparation for the Procedure

- No premed – allows for faster awakening and more accurate testing.
- Start IV preferably in left arm as surgeon stands on right side.
- Prior to starting procedure, give glycopyrrolate 0.2 mg IV, may have to repeat dose if heart rate response is not adequate – reduces incidence of vagal response to gangliolysis. Also restrain arms. Attach nasal O2 prongs and precordial stethoscope.
- Position yourself outside fluoroscope ring at head of patient. Bed will be at 90-degree angle to anesthesia machine.
- Surgeon preps patient’s skin and makes skin wheal.
- Preoxygenate patient for 3-5 minutes on 100% oxygen with anesthesia mask.

Anesthesia Procedures

First Propofol Induction

- Inject propofol IV slowly to induce sleep. Remove mast from patient’s face. Surgeon then inserts needle under x-ray control. Needle placement may take 1 to 10 minutes, usually 2-4 minutes. Carefully monitor patient especially for degree of oxygenation during this time.
- Give repeat doses of propofol, i.e., 40 mg boluses, every minute or so as needed to maintain light anesthesia. May need to perform jaw thrust to maintain airway and may have to mask ventilate if patient becomes apneic or hypoxic.
- After needle placed, allow patient to awaken for testing.

Second Propofol Induction

- After testing complete, repeat pre-oxygenation and then give propofol IV to induce sleep for 90 seconds during which time lesion is made. Wait 1 minute (60 sec) after injection before giving surgeon go ahead.
- Give esmolol or nicardipine or nitroprusside boluses IV pm for hypertension. May need longer acting antihypertensives if hypertension persists after radiofrequency ablation.
- After lesion made, allow patient to awaken for testing.

When adequate lesion has been made, needle is removed from patient’s face without additional anesthesia.

Billing

- The CPT code is 61790