Cranial neuralgias may present to the neurology clinic as a localized head or facial pain or coexist with other headache syndromes, such as migraine. They can be an important factor in patients with chronic refractory headaches. Nerve irritation/damage can present in multiple anatomic areas including the occipital nerves, trigeminal nerves, and sphenopalatine ganglion. Direct trauma, vascular compression, fibrous entrapment, infection, and iatrogenic from cranial surgery are common causes of neuralgias.

**TREATMENT OPTIONS**

Neurologists have numerous conservative treatment options for cranial neuralgias. Non-pharmacologic treatments such as physical therapy, traction, or manual therapy may be particularly helpful for some neuralgias such as occipital neuralgia. Topical treatment with ice, anesthetic creams, or capsaicin cream may be used adjunctively especially in facial pain. Treatment with medications tends to be the mainstay for neurologists, especially for those that do not perform injections. Oral steroids can be used effectively as an initial treatment in attempt to break the pain cycle. Neuromodulating agents (tricyclic antidepressants, serotonin-noradrenaline reuptake inhibitors, anti-epileptic, and loioresal) can give patients long-term relief and potentially result in temporary remission of symptoms. Evidence also suggests that botulinum toxin injections may be helpful in neuralgias. The majority of supportive data on pharmacologic treatments is seen for trigeminal neuralgia. According to the Subcommitte of the American Academy of Neurology and the European Federation of Neurological Societies, level A evidence supports the use of carbamazepine, while oxcarbazepine’s evidence is level B and loioresal/lamotrigine demonstrate level C. Other medications suggesting efficacy include topiramate, levetiracetam, gabapentin, pregabalin, and botulinum toxin A.

Tramadol and fentanyl may be considered the best narcotic option for breakthrough or refractory pain, given their dual anti-nociceptive and anti-neuropathic effects. Neurologists are well equipped to perform minimally invasive extra-cranial nerve blocks with anesthetic and steroids in clinically appropriate patients. This in-office procedure has been demonstrated to reduce the frequency, intensity, and duration of cranial pain for not only neuralgias but also secondarily in migraines, cervicogenic headaches, hemi-craniases continua and cluster headaches. Nerve blocks can be used as an abortive or prophylaxis treatment. However, neurologists may consider referrals to a surgeon or interventionalist for more invasive treatments, such as radiofrequency ablation, decompression, rhizotomy, or neurostimulation in the refractory clinically appropriate or refractory patient.

**OCCIPITAL NEURALGIA**

**DIAGNOSTIC CRITERIA**

- Paroxysmal stabbing pain, with or without persistent aching between paroxysms, in the distribution(s) of the greater, lesser and/or third occipital nerves
- Tenderness over the affected nerve
- Pain is eased temporarily by local anesthetic block of the nerve
or as an adjunct to medications and non-pharmacologic treatments. A single injection may provide pain relief for up to several weeks or even resolution. The predominance of the literature analyzes treatment of the greater occipital nerve which may be why many clinicians block this nerve alone. The clinician needs to pay particular attention to the distribution of pain as one or more nerves may be involved. All three occipital nerves originate from C2-C3 but the cranial pain distribution of each nerve is quite distinct. The lesser nerve distribution extends laterally over the ear, the greater extends more medial and towards the crown of the head, and the third nerve supplies a central and more inferior portion of the scalp.

TRIGEMINAL NERVE BLOCKS

The typically paroxysmal electric shock-like pains of trigeminal neuralgia can occur in one or all of the divisions but is most common in V2 and V3. Herpes zoster on the other hand occurs 80 percent of the time in V1. Extracranial infraorbital and mental nerve blocks can quickly and easily be performed in the office for acute and chronic pain relief in these regions. Supraorbital, supratrochlear, and zygomatic facial blocks may be useful after facial trauma, while zygomaticotemporal or auriculotemporal nerve blocks can be utilized in the patient with temple pain particularly associated with bruxism for temporomandibular dysfunction. The use of steroids in facial injections needs to be considered judiciously because of the possibility of fat atrophy causing an untoward cosmetic side effect.

- **Opthalmic (V1):** Suprorbital, supratrochlear, and infratrochlear branches innervate the forehead, orbits, and nose.
- **Maxillary (V2):** Zygomaticotemporal, zygomaticofacial, and infraorbital branches innervate the upper temple, cheek and upper lip/teeth.
- **Mandibular (V3):** Auriculotemporal, buccal, and mental branches innervate the temple, mandible, lower teeth, and chin.

Sphenopalatine ganglion blocks offer another in office procedure to the neurologist for the patient with facial pain or headache. Relief has been demonstrated in sphenopalatine neuralgia, trigeminal neuralgia, atypical facial pain, and cluster headaches. Acute relief of migraine headaches has
MEDIATION TREATMENT FOR TRIGEMINAL NEURALGIA

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Medication</th>
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<tbody>
<tr>
<td>A</td>
<td>Carbamazepine</td>
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<tr>
<td>B</td>
<td>Oxcarbazepine</td>
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<tr>
<td>C</td>
<td>Lioresal, lamotrigine topiramate, levetiracetam, gabapentin, pregabalin, and botulinum toxin-A</td>
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