Pain Society of the Philippines

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Algorithm for the Diagnosis and Treatment of Trigeminal Neuralgia

1. Patient with facial pain

2. History

3. unilateral, stabbing, severe pain distributed along the branches of the Vth cranial nerve present?

4. PE NE* MMSE**

5. Y Normal findings?

6. Y Dental Clearance

7. N Consider Trigeminal neuralgia

8. N Refer to Dentist

9. N Refer to Neurologist or to Psychiatrist

10. N Normal findings?

11. Y Refer to Neurologist or to Psychiatrist

12. Y Consider Trigeminal neuralgia

*NE - neurological examination
**MMSE (Mini Mental Status Examination) - employed by the physician to evaluate the mental status of the patient in a concise manner
Trigeminal neuralgia

Baseline laboratories
a. CBC
b. Liver function tests
c. MRI* of the brainstem

MRI* findings positive?

Y

Tumor AV malformation

N

Pharmacologic treatment with
• Anticonvulsant

good response?

Y

continue therapy
CBC every 2 months
Carbamazepine level determined every 4 months

N

Persistent pain

Figure 3

Treat accordingly

*MRI - magnetic resonance imaging
TRIGEMINAL NEURALGIA

FIGURE 3

1. Persistent pain

2. Shift to another anticonvulsant
   - Phenytoin
   - Gabapentin

3. Pain persists?
   Y: Add antidepressants
      - Amitriptyline
      - Imipramine
      - Clomipramine

4. Pain persists?
   Y: Add another antidepressants
      - Baclofen
      - Gabapentin

5. Pain persists?
   N: Treat at maximum dose with anticonvulsants and antidepressants

6. Good response?
   Y: Continue therapy (A)
   N: Pharmacologic treatment
      - Anticonvulsant
      - Carbamazepine

7. Good response?
   Y: Continue therapy (A)
   N: Surgery

8. Pain recurs?
   Y: End treatment
   N: CBC determined every 2 months

9. Continue therapy (A)

(A) CBC every 2 months Carbamazepine level determined every 4 months
Guidelines for the Treatment of Trigeminal Neuralgia

Introduction

Pain syndrome restricted to the distribution of a specific cranial nerve or its branches is termed typical neuralgia. The most common typical neuralgia is tic douloureux, often called "classic trigeminal neuralgia" or "major trigeminal neuralgia".

Tic douloureux is often seen in the elderly, although it also occurs in young adults. The peak incidence is between ages 50 and 70. Early literature claims a strong preponderance in women but current data suggests that only 60% of the patients are female.

Etiology

Mechanical compression of the trigeminal nerve as it leaves the pons and traverses the subarachnoid space toward the Meckel's cavity. The most common finding is cross compression by a major artery, usually the superior cerebellar, but occasionally the posterior inferior cerebellar vertebral or anterior inferior cerebellar artery is involved.

There are two generic schemes for the explanation of tic douloureux, the "centralist" and "peripheralist". The former is based on the similarities of tic douloureux to focal epilepsy and emphasizes the role of deafferentation in the genesis of neuronal hyperactivity. The peripheralist concept notes that changes in the trigeminal nerve myelin and axons can lead to altered peripheral nerve sensitivity to chemical and mechanical stimuli and ties the pain syndrome to the suspected peripheral causes.

Calvin and colleagues concluded that both peripheral and central mechanisms are required for the production of tic douloureux. Their studies indicated that a peripheral nerve lesion (in the trigeminal root or distal) is the first event in a process that leads to central synaptic changes.

Signs and Symptoms

Tic is characterized by the following electric shock-like stabbing pains; unilateral pain during any one episode; abrupt onset and termination of pain, pain-free intervals between attacks; non-noxious stimulation triggering the pain, which is often in a different area of the face; minimal or no sensory loss in the region of pain; and pain restricted to the trigeminal nerve.

Diagnosis and Treatment

Newly Diagnosed Case
Old Case
1. Presently on medication
2. Without medication for 1 month or more

I. Newly Diagnosed Cases

- Lab Work-up before the start of therapy:
  A. Dental Clearance
  B. Skull X-ray APL &/or CT Scan of the Head
  C. CBC
  D. Liver function test - SGPT, SCOT, Alkaline phosphatase

- Medical Management (First Choice)
  A. Carbamazepine
     1. Starting Dose -100 mg/day.
     2. Increase the dose by increments of 100 mg every 2 days until a daily dosage of 600 mg daily is reached.
        a. if pain relief is noted at a lower dose the amount should not be increased.
        b. if no pain relief - maintain the drug at this dose for 1 week - if no relief is noted increase the dose by 200 mg & maintain this dose for 1 week. If still with no relief the process may be repeated until the daily dose of 1800 mg is reached, provided the patient can tolerate the side effects.
     3. If with intolerable side effects or no relief at 1800 mg/day, discontinue the drug.
  B. (Phenytoin) Dilantin
     When to use:
     1. When patient has intolerable side effects with carbamazepine.
     2. If the max dose of carbamazepine has been given & the patient did not respond.

Follow-up of patients on chronic carbamazepine therapy

a. Monthly CBC for the first year the quarterly thereafter - discontinue drug if the WBC count is less than 3,500 cells/mm³.

b. Quarterly liver function determination - discontinue drug if liver function test is 2x the normal value.

c. Serum carbamazepine level determination - after patient has been on therapy for 1 month.

B. (Phenytoin) Dilantin
When to use:
1. When patient has intolerable side effects with carbamazepine.
2. If the max dose of carbamazepine has been given & the patient did not respond.
Dose:
1. 300-400 mg/day given in 2 doses.
2. Satisfactory pain relief will be achieved at serum level of 15-35 ug/mL. Serum determination should be done after 3 weeks of taking the medication because adequate serum level could only be attained after 3 weeks of intake of this medication. If no relief of pain after 3 weeks of intake of this medication with the serum level at 15-25 pg/mL the drug should be discontinued.

When do we use a combination of drugs?
1. If patient shows some relief with Tegretol but is complaining of side effects once you increase the dose.

What drugs to use?

a. Baclofen - 5 mg daily then increase by 5 mg every 2 days until pain relief or drug toxicity occurs. Max 80 mg/day
b. Limbitrol (Amitriptylline HC112.5 mg, Chlordiazepoxide) - start with 1 capsule once a day may increase to 3x a day.
c. Anafranil (Clomipramine HC1) or Tofranil (Imipramine HC1) If patient shows some relief with the combination of drugs but the relief is still not acceptable - then do low level laser therapy for 7 to 10 days daily.

If Medical Treatment fails then subject patient to surgical procedures.

II. For Old Patient

• On medications
  A. Review the medications.
  B. If with carbamazepine - do serum level determination.
  C. Review all work-up done, if no CT scan - request for one.
  D. If serum carbamazepine level is still low then may proceed with Medical Management outline for Newly diagnosed cases.
  E. If serum carbamazepine level is high & patient claims to have some but not satisfactory relief with carbamazepine then may proceed with combination therapy.

• Off Medication for 1 month or more
  A. Review all lab work-ups - (-) CT Scan of the Head - request for one.
  B. Proceed with Medical Management outlined in the previous page.

Bibliography
## Drugs Mentioned in the Treatment Guideline

The following index lists therapeutic classifications as recommended by the treatment guideline. For the prescriber’s reference, available drugs are listed under each therapeutic class.

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