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Original Article

# Decision analysis for management of trigeminal neuralgia

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## ABSTRACT

To formulate evidence-based decision analysis tree that briefly summarizes systematically, various methods for the management of trigeminal neuralgia (TN). TN is a relatively rare condition which causes severe, intermittent, and electric shock-like pains on the face. Little is known about the decision process in the treatment of TN, and management with antiepileptic drugs or surgical procedures carries risks of side effects, recurrence, and complications. Decision analysis in the healthcare context combines evidence and helps to determine the optimal strategy under given circumstances. When used to analyses decisions, this method helps establish the "best" treatment from the patient perspective. This information can help determine how an individual patients' own idiosyncratic values affect treatment decision-making. TN has a huge psychological effect that can affect the quality and lifestyle of a person. A definitive diagnosis of TN is one of the greatest problems among clinician and patients.

**Keywords:** Trigeminal neuralgia, decision analysis, medicinal management, surgical management

## Introduction

TN is defined as sudden, usually unilateral, severe, brief stabbing, lancinating, and recurring pain in the distribution of one or more branches of 5th cranial nerve.

TN is a rare form of neuropathic facial pain characterized by severe, paroxysmal pains in the face. Little is known about the decision process in the treatment of TN, and management with antiepileptic drugs or surgical procedures carries risks of side effects, recurrence, and complications.

TN is a relatively rare condition which causes severe, intermittent, and electric shock-like pains on the face. Recent UK incidence rate is reported as 8 / 100,000 and the peak age of the disease is 50–60 years with a slight female predominance.[1] Anxiety and depression are common consequences, in addition to deterioration in the quality of life.[2] There is a lack of certainty regarding the etiology and pathophysiology of TN[3] and there is a wide range of treatments available. The condition is not itself life-threatening,[4] and therefore, a decision to have surgery is not a matter of life or death in the conventional sense. However, the pain and its effect on quality of life is distressing[2] and treatments can be costly.[5] As a result, patients and clinical practitioners encounter considerable uncertainty when making treatment decisions for TN. Medication is often the first-line treatment. Traditionally, it is only when medications fail or severe side effects develop that patients are offered surgical options. Medical management with anticonvulsant (antiepileptic) drugs carries debilitating side effects and the drugs eventually tend to lose effectiveness.

Surgery for TN is either destructive (ablative)where the trigeminal nerve sensory function is intentionally destroyed or nondestructive where the trigeminal nerve is decompressed, with normal function usually preserved. Surgeries at the level of the Gasserian ganglion are all destructive and include radiofrequency thermocoagulation, balloon compression, and percutaneous glycerol rhizolysis. Gasserian ganglion therapies require short-acting anesthetics are primarily overnight procedures and are classified as minor procedures. Microvascular decompression, on the other hand, is a major neurosurgical procedure requiring full anesthesia and on average a 5-day stay in hospital.[6] All surgeries carry risks of complications either in the immediate perioperative period or in the long term. There is also a very small risk of mortality for each of the treatments.[7] A growing body of literature supports the use of a systematic and "evidence-based" approach to healthcare,[8] but little is known about the patient decision process in the treatment of TN. Decision analysis in the healthcare context combines evidence and helps to determine the optimal strategy under given circumstances.[9] When used to analyses decisions, this method helps establish the "best" treatment from the patient perspective.[10] This information can help determine how an individual patients' own idiosyncratic values affect treatment decision-making.

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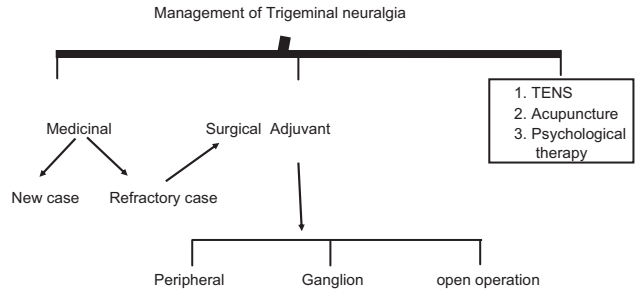
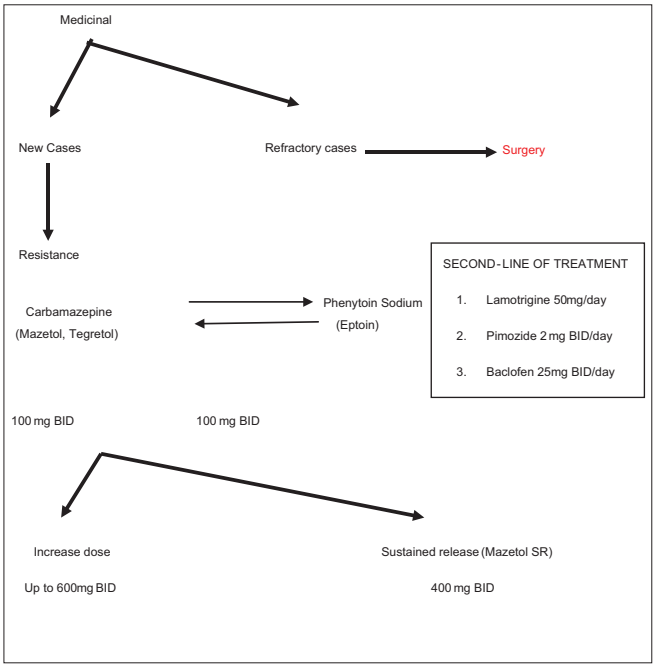
## Decision analysis tree for the management of TN

- Patient walks in OP with symptoms of unilateral severe lancinating, stabbing, and extremely intensive pain along the route of trigeminal nerve.
- Patient complains of unable to sleep.
- There is the presence of trigger zone on the face such as vermillion border, ala of nose, cheeks, and area around the eyes.
- Clinical sensory examinations are normal.

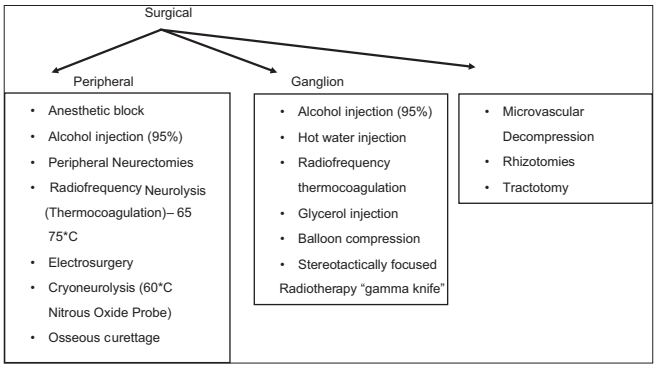



Increase dose Sustained release (Mazetol SR).
Up to 600 mg BID 400 mg BID.
Combined therapy Carbamazepine.

1. Carbamazepine 50 mg + Phenytoin sodium 100 mg
2. Oxcarbazepine 300 mg BID/day up to 1200 mg/day

Gabapentin 300 mg 1st day, 300 mg/BID 2nd day, 300 mg/TDS 3rd day maintain the dose up to 2400 mg/day




## Conclusion

TN has a huge psychological effect that can affect the quality and lifestyle of a person. A definitive diagnosis of TN is one of the greatest problems among clinician and patients. TN is a very rare condition, and the clinician may only encounter few cases in their dental practice career. Diagnosis of TN is made clinically with the help of characteristic signs and symptoms. Certain imaging modalities such as MRI can be used to rule out the underlying cause of TN including tumor and multiple sclerosis. A clinician must be aware of proper diagnosis and management of this type of craniofacial pain disorder.

## References

1. MacDonald BK, Cockerell OC, Sander JW, Shorvon SD. The incidence and lifetime prevalence of neurological disorders in a prospective community-based study in the UK. Brain 2000;123:665-76.
2. Zakrzewska JM, Jassim S, Bulman JS. A prospective, longitudinal study on patients with trigeminal neuralgia who underwent radiofrequency thermocoagulation of the gasserian ganglion. Pain 1999;79:51-8.
3. Nurmikko TJ, Eldridge PR. Trigeminal neuralgia-pathophysiology, diagnosis and current treatment. Br J Anaesth 2001;87:117-32.
4. Rothman KJ, Monson RR. Survival in trigeminal neuralgia. J Chronic Dis 1973;26:303-9.
5. Berger A, Dukes EM, Oster G. Clinical characteristics and economical costs of patients with painful neuropathic disorders. J Pain 2004;5:143-9.
6. Ashkan K, Marsh H. Microvascular decompression for trigeminal neuralgia in the elderly: A review of the safety and efficacy. Neurosurgery 2004;55:840-8.
7. Sweet WH. Complications of treating trigeminal neuralgia: An analysis of the literature and response to questionnaire. In: Rovit RL, Murali R, Jannetta PJ, editors. Trigeminal Neuralgia. Maryland: Trigeminal Neuralgia; 1990. p. 251-79.
8. Freemantle N, Mason J, Eccles M. Deriving treatment recommendations from evidence within randomized trials. The role and limitation of meta-analysis. Int J Technol Assess Health Care 1999;15:304-15.
9. Bonari L, Koren G, Einarson TR, Jasper JD, Taddio A, Einarson A. Use of antidepressants by pregnant women: Evaluation of perception of risk, efficacy of evidence based counseling and determinants of decision making. Arch Womens Ment Health 2005;8:214-20.
10. Fyffe HE, Kay EJ. Assessment of dental health state utilities. Community Dent Oral Epidemiol 1992;20:269-73.