Percutaneous trigeminal radiofrequency rhizotomy

Indications

Percutaneous radiofrequency trigeminal rhizotomy is a standardized percutaneous trigeminal rhizotomy for trigeminal neuralgia in whom pharmacologic therapy is either ineffective or not tolerated, with low side effects which are well tolerated [1)], especially in the elderly, in terms of low morbidity and mortality rates and high rate of satisfactory pain relief [2)].

Steps

Finding the pain source.

During this step, the patient is awakened to help identify in which trigeminal division the pain occurs. A low current of electricity, stimulating the nerve, reproduces the location of the pain. Based on your feedback, the surgeon inserts the electrode so that tingling occurs where your painful attacks are located

Destroy the pain-causing fibers with mild anesthetic again to block any pain or discomfort.

Test for pain or numbness

The patient is awakened to help the surgeon determine if the heating current has disrupted the pain. Areas of your face are tested for sensitivity by needle prick. Based on the amount of pain or numbness you feel, the surgeon determines how much of the nerve should be treated.

After the procedure, the patients will recuperate in a hospital room for 4 to 6 hours. An ice pack, placed on your jaw, reduces swelling caused by the operation. Patients go home the same day.

While adjusting to the numbness, you should be careful when shaving, eating or drinking hot foods/liquids, and chewing. A soft diet is often recommended for the first few weeks. Dentures, if used, can be worn at any time. Patients taking anticonvulsant or pain medication for trigeminal neuralgia prior to PSR will be weaned off the medications according to a schedule to decrease risk of withdrawal and side effects.

Discharge instructions

Eye care is important. Do not rub your eyes. Use 2 eye drops three to four times a day in the affected eye. Inspect your eye daily for signs of redness, irritation, or blurring of vision. If any of these conditions occur, notify your surgeon and eye doctor.

Perform jaw exercises at least 4 times a day for 2 weeks, opening your jaw against the resistance of your hand.

Eat slowly and avoid tough foods. You may find it helpful to chew on the opposite side of your mouth. Avoid foods or fluids that are very hot or cold. Avoid biting your lip on the numb side of your mouth.

Use caution if shaving your face with a safety razor.

Meticulous mouth care is important. Use dental floss, rinse your mouth after meals, and inspect your gums daily for irritation or ulceration.

Technique

Percutaneous trigeminal radiofrequency rhizotomy technique.

Results

For trigeminal neuralgia, 98% of patients have immediate pain relief after PSR. About 20% of those who undergo PSR experience some recurrence of pain within 15 years; about half of these patients will require medication or undergo another procedure to control pain. For a comparison of the PSR procedure with other treatments.

For trigeminal neuralgia, numbness, the most common side effect of PSR, is necessary for pain relief. Numbness usually occurs in the cheeks, gums, teeth, or tongue. Dysesthesia (troublesome numbness) is reported in 7% of patients after PSR. The loss of corneal reflex is reported in 6% of PSR procedures, primarily in patients with V-1 nerve pain. Complications (e.g., bleeding or infection) are rare. Other possible side effects include blurred or double vision, as well as weakness in the jaw (e.g., making chewing difficult); these symptoms usually resolve within 6 months. Some patients may develop fever blisters that will heal in 1–2 weeks.

Taha JM, Tew JM Jr, Buncher CR: A prospective 15-year follow-up of 154 consecutive patients with trigeminal neuralgia treated by percutaneous stereotactic radiofrequency rhizotomy. J Neurosurg 83:989-993, 1995.

Taha JM, Tew JM Jr: Comparison of surgical treatments for trigeminal neuralgia: reevaluation of radiofrequency rhizotomy. Neurosurgery 38:865-871, 1996.

Recurrence

Recurrent pain after percutaneous radiofrequency trigeminal rhizotomy

1)
Nanjappa M, Kumaraswamy SV, Keerthi R, Ashwin DP, Gopinath AL, Reyazulla MA, Hemavathi KB. Percutaneous Radiofrequency Rhizotomy in Treatment of Trigeminal neuralgia: A Prospective Study. J Maxillofac Oral Surg. 2013 Mar;12(1):35-41. doi: 10.1007/s12663-012-0365-7. Epub 2012 May 17. PubMed PMID: 24431811; PubMed Central PMCID: PMC3589509.
2)
Bozkurt M, Al-Beyati ES, Ozdemir M, Kahilogullari G, Elhan AH, Savas A, Kanpolat Y. Management of bilateral trigeminal neuralgia with trigeminal radiofrequency rhizotomy: a treatment strategy for the life-long disease. Acta Neurochir (Wien). 2012 May;154(5):785-91; discussion 791-2. doi: 10.1007/s00701-012-1311-7. Epub 2012 Mar 6. PubMed PMID: 22392016.