ORIGINAL ARTICLE

Role of Ethyl Alcohol in the Treatment of Trigeminal Neuralgia

MIRZA ABDUL RAUF, AQSA KAMAL, SUMAIR FAROOQ

ABSTRACT

The object of the study was to find a better treatment option and with respect to that, see the effects of ethyl alcohol in the treatment of trigeminal neuralgia. A prospective study was carried out on a total number of 17 patients, diagnosed with trigeminal neuralgia. The confirmation of involved branch was done with the help of diagnostic blocks. Counseling was done that pain will be relieved within next 3-14 days after injection of ethyl alcohol. In all patients 1cc of 70% ethyl alcohol volume by volume was injected in the affected branch of trigeminal nerve. In the mean time carbamazapine[1] was advised to them. There was clear difference in pain relief during first few days of injection and then complete elimination of pain after first and second week. Ethyl alcohol had the remarkable results in the treatment of trigeminal neuralgia

Keywords: Ethyl alcohol, trigeminal neuralgia

INTRODUCTION

The Trigeminal neuralgia is sudden, usually unilateral, severe brief stabbing recurrent pains in the distribution of one or more branches of the 5th cranial nerve .Trigeminal neuralgia (TN) is the most common among the neuralgias, is often described as "the most terrible pain known to man." It is also called as Tri facial neuralgia, Fothergill's disease, Tic-douloureux[2].

The cause is unclear but one hypothesis for idiopathic trigeminal neuralgia is that there may be compression around the trigeminal root in posterior cranial fossa, possibly due to the superior cerebellar artery becoming atherosclerotic and therefore, less flexible and then pressing on the roots of the trigeminal nerve, causing neuronal discharge[3]. It may occur at any age, it is usually seen in patients over the age of 50 years. Spontaneous recovery is rare, but remission for a variable interval from months to years may take place.[1] Pain may start on stimuli which include[4] chewing, drinking, draughts of wind, slight touching, washing of face, shaving of beard and applying make-up

The neuralgia tends to occur in bouts over a period of weeks or months, with subsequent spontaneous remission that may last months or years.

This pain rarely occurs during sleep and the patient maybe totally asymptomatic during the episodes. It may involve one or more branches of the 5th cranial nerve, the maxillary branch is more commonly involved, and the least involved is the ophthalmic branch, and when comparing right with left, the right side of the face was affected more commonly (ratio of 1.5:1), which could be explained that it could be due to the narrower foramens (rotundum and ovale) on the right side[5]. The trigger zones are usually present in the areas like cheekbone, nose, upper lip and upper teeth and in some people; it also extends to the lower lip, teeth, and chin[6].

The best treatment is the one which is convenient for patient, the convenience is elaborated as the treatment which is affordable and has most favorable results. Our aim for this study was to find the best treatment option.

Maxillofacial Department, Sharif Medical and Dental College, Lahore

Correspondence to Dr. Mirza Abdul Rauf, Assistant Professor

METHODOLOGY

This study was conducted in oral & maxillofacial surgery department of Sharif Medical and Dental College Lahore; from 14/1/2011 to 30/1/2014, on a total of 17 patients. Diagnostic criteria were same as proposed by IHS[7]:

Classic:

A. Paroxysmal attacks of pain lasting from a fraction of a second to two minutes, affecting one or more divisions of the trigeminal nerve, and fulfilling criteria B and C.
B. Pain has at least one of the following characteristics:
- Intense, sharp, superficial, or stabbing
- Precipitated from trigger zones or by trigger factors

C. Attacks are stereotyped in the individual patient
D. There is no clinically evident neurologic deficit
E. Not attributed to another disorder

Symptomatic:

1. Paroxysmal attacks of pain lasting from a fraction of a second to two minutes, with or without persistence of aching between paroxysms affecting one or more divisions of the trigeminal nerve, and fulfilling criteria B and C
2. Pain has at least one of the following characteristics
3. Intense, sharp, superficial, or stabbing.
4. Precipitated from trigger zones or by trigger factors
5. Attacks are stereotyped in the individual patient
6. A causative lesion, other than vascular A compression, has been demonstrated by special investigations and/or posterior fossa exploration.

Informed consent was taken from the patients after telling them about the merits and demerits of treatment.

Lignocaine blocks were given to patients for 3 consecutive days to confirm the branch of trigeminal involved. After confirmation, 1cc of 70% ethyl alcohol volume by volume was injected. Patients were informed that the significant effect of injection will be after 1-2 weeks and for till then 'carbamazapine' was prescribed to them. Follow-up was done in these patients after one week. The patients in which pain was partially relieved were reviewed after further one week.

RESULTS

Out of 17 patients 9 were males and 8 were females. There was no notable effect of gender on treatment.

Patients were ranging from 3rd decade to 8th decade of age. There was also not any notable effect of age on treatment. Out of 17, 2 patients were given injection for mental nerve, 2 patients were given for long buccal nerve and 13 patients were given for inferior alveolar nerve- showing high inferior alveolar nerve involvement frequency. There was no notable effect of site on treatment. 30% patient's i-e a number of 5 patients were completely cured after one week. Rests of the patients were completely cured after 2 weeks. Patients were instructed to come after every 2 months for follow-up; to see if there were any side effects but there were no side effects or complications at all- both during and after treatment.

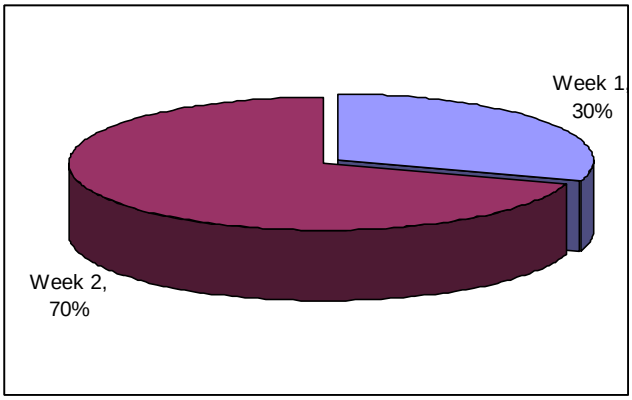
The effect duration noted of 1cc of 70% ethyl alcohol (volume by volume) for trigeminal neuralgia lasts for 6 months to 2 years.

1cc of 70% ethyl alcohol (v/v) had most significant and remarkable effect on trigeminal neuralgia with no side effects at all; showing:

- No trauma
- No prolong treatments like prescribed drugs
- No expensive surgical/patient discomfort procedures like peripheral neurectomy and cryosurgery.
- Outpatient procedure

This treatment showed comfort for patient, affordable procedure and long significant results which resulted in patient's satisfaction.

Percentage of patients cured after 1 & 2 weeks of treatment



DISCUSSION

Ethyl alcohol has been used in pain management for many years, Labat and Greene reported in 1933 that an injection of 33.3 percent alcohol produced satisfactory analgesia in the treatment of painful disorders. It is generally available as a 95 percent solution. Alcohol causes destruction of neural tissue by extracting phospholipids, cholesterol and cerebroside from it and precipitates mucoprotein and lipoprotein. Although 50 to 100 percent alcohol is used as a neurolytic agent, the minimum concentration required for neurolysis has not been established[8]. We have used 70% v/v ethyl alcohol in the treatment of trigeminal neuralgia.

In 2002 Marshall Devor, Ruth Govrin-Lippmann and Z. Harry Rappaport analyzed the 'mechanism of trigeminal neuralgia: an ultrastructural analysis of trigeminal root specimens obtained during microvascular decompression surgery'. Findings were consistent with the ignition hypothesis of TN. This model can be used to explain the major positive and negative symptoms of TN by axonopathy-induced changes in the electrical excitability of afferent axons in the trigeminal root and of neuronal somata in the trigeminal ganglion. The key pathophysiological changes include ectopic impulse discharge, spontaneous and triggered after discharge, and cross excitation among neighboring afferents[9]. In 2007 McLeod NM and Patton DW worked on 'peripheral alcohol injections in the management of trigeminal neuralgia', they explained

that the peripheral alcohol injections lasted for a mean of 11 months. Their effectiveness and complication rates were not affected by age or repeated administration. Their use did not affect, nor was their effectiveness affected by the use of other surgical treatments[10].

According to Shah SA, Khan MN, Shah SF, Ghafoor A and Khattak A in 2010 after their analysis of 100 cases in 'is peripheral alcohol injection of value in the treatment of trigeminal neuralgia. An analysis of 100 cases' they explained that the combination of efficacy and reduced morbidity makes this procedure preferable for the treatment of TN. Alcohol injections are useful in those who are refractory to drug therapy, the elderly, medically compromised patients, unwilling to undergo neurosurgical procedures and in whom surgery is delayed for any reason[11].

Our results are also showing the success of this treatment, as 17 patients were treated with 70% ethyl alcohol which relieved the trigeminal neuralgia pain ranging from 6 months to 2 years.

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