MEDICAL CHANNEL

Original Article

THE EFFICACY OF INTERFERENTIAL CURRENT ON TRIGEMINAL NEURALGIA

1. NABILA SOOMRO
2. MUHAMMAD HAMID
3. FAISAL YAMIN
4. RUKHSANA BIBI

1. ***Head of the Department***
   Institute of Physical Medicine and Rehabilitation
   Dow University of Health Sciences, Karachi.
2. **Senior Physiotherapist**
   Rabia Moon Institute of Neurosciences
3. **Senior Physiotherapist**
   Institute of Physical Medicine and Rehabilitation
   Dow University of health Sciences, Karachi.
4. **Neuropsychologist**
   Institute of Physical Medicine and Rehabilitation
   Dow University of Health Sciences, Karachi.

Correspondence Address:
NABILA SOOMRO
Head of the Department
Institute of Physical Medicine and Rehabilitation
Dow University of Health Sciences, Karachi.

ABSTRACT

Objective: To prove the effectiveness of Interferential therapy (IFC) in trigeminal neuralgia.
Methods: This was a prospective analytical study, conducted at Institute of Physical Medicine &Rehabilitation and Rabia Moon Institute of Neuro Sciences over a period of six months. Thirty one patients who were diagnosed with trigeminal neuralgia and were not responding to medicineswere subjected to interferential therapy. Pain was assessed on visual analogue scale before andafter fifteen days of therapy.
Result: Out of 31 patients, 20 males and 11 females, with a mean age of 50.1±11 years, 26 (83.7%) improved significantly with application of IFC .Only 5 (16.3%) patients remained unresponsive to IFC Using an unrelated t test on the data (t=0.19, df = 28).The results were found to be significant at P > 0.05 for the one tailed hypothesis. This means that Interferential current is more effective than medication for reducing pain in trigeminal neuralgia.
Conclusion: Interferential therapy is an effective, easy to use therapy with minimal side effects in patients suffering from trigeminal neuralgia not responding to conventional treatment.

Keywords: Trigeminal Neuralgia (TN), Interferential Therapy (IFC)

INTRODUCTION

Trigeminal neuralgia is an extremely painful disorder involving the face. [3]The symptoms of trigeminal neuralgia may includesevere stabbing or piercing pain on the face which starts suddenly around cheek or jaw area and triggered by touch, chewing and shaving predominantly.TN is more common on right side of the face than left with a ratio of 3: 2.[5]Pain may be bilateral with tingling or numbnessleading to spasms which may last from few seconds to minutes each time.[4]It involves the maxillary and mandibular division of the trigeminal nerve characterized by exacerbations and remissions. Its cause is still unknown, though it is assumed that hypertension may be an associated feature in females. It occurs at all ages usually around 50 [1]more common in females witha ratio of 1:2 - 2:3.[2,]

Studies across different region do not indicate the exact prevalence rate of trigeminal neuralgia worldwide. However approximately 4-5/100000 in United States, 26.8/100,000 person in UK and 3-5/100.00 in Turkey are reported annually.[3,19,24] Furthermore life time prevalence rate in Germany and Iran is 0.3%.[23]

American academy of Neurology and European Federation of Neurological societies recommended carbamazepine, oxcarbazepine, baclofen, lamotrigine, and pimozide as an effective pharmacological treatment of pain in patients with TN. Due to drug-related adverse effects in the treatment of neuropathic pain, Other treatments like early percutaneous procedures on the Gasserian ganglion, non-pharmacological treatment like gamma knife and micro vascular decompression may be considered[23,24]. Furthermore among these non-pharmacological treatments Interferential current therapy is an anti-inflammatory based treatment producing a wide range of physiological effects within the body It istranscutaneous application of alternating medium-frequency electrical currents which

modulates amplitude at low frequency for therapeutic purpose. Interferential current therapy is an inexpensive, noninvasive and self-administered technique [27].

Number of studies demonstrated the effectiveness of inferential current therapy in order to reduce neuropathic pain. Babu,R and Murali.R (2010) and Burchiel KJ(2001) analyzed anti analgesic effects of IFC in chronic and acute neuropathic pain.[13] Natarajan M.(2001) also found positive results of interferential currents in diabetic neuropathy and post-herpetic neuralgia[8, 16].

Moreover many other researchers suggested IFC as a first line treatment for trigeminal neuralgia.Additionally studies revealed that sensory changes by IFC in the distribution area of the stimulated nerve reduced the local threshold and relieved the pain[12].

In Pakistan conventional therapy is used to treat the trigeminal neuralgia; furthermore as far as author knowledge is concerned no local study is done that can validate the effectiveness of IFC. Hence the aim of present study is to prove the effectiveness of IFC so that it can be adopted by physicians to give an economical, effective and noninvasive treatment to patients suffering with trigeminal neuralgia

METHODOLOGY

The purpose of this study was to assess the effect of interferential current stimulation on Trigeminal Neuralgia patients and to determine the effectiveness. This was a prospective analytical study conducted at Institute of Physical Medicine & Rehabilitation and Rabia Moon Institute of Neurological Sciencesover a period of six months. Thirty one patients, 20 males and 11 femaleswith a mean age of 50.1±11 alreadydiagnosed with trigeminal neuralgiawererandomly selected. Pain was assessed on visual analogue scale before and after fifteen days of therapy.A score of zero indicated no pain, 1-3mild pain, 4-6moderate pain and 7-10 severe pain. Intensity of the impulse varied according to the patient's tolerance whereas frequency, pulse width and duration were fixed, i.e. Two hundred and fifty Hz frequency was used with a pulse of 120µ, it was applied for duration of thirty minutes. One electrode was placed just below the ear and the other one was at the end of the respective nerve.

Results were evaluated using SPSS 16. Unrelated t test was used to find out the difference between two groups; p-value of >0.05 was considered statistically significant with confidence interval of 95%.

RESULT

Using an unrelated t test on the data (t = 0.19, df = 28).The results were found to be significant at P > 0.05 for the one tailed hypothesis. This means that Interferential Current is an effective treatment for reducing pain in Trigeminal Neuralgia. Before treatment 27(87.09%) patients had severe pain, 4(12.9%) had moderate pain but after IFC therapy 26(83.8%) had no pain and 5(16.1%) had reduced to moderate pain, see table no. 1.

DISCUSSION

The results of present study indicate the successful and immediate pain management in trigeminal neuralgia by using interferential stimulation. The analysis of data demonstrated a significant result with (P > 0.05) as the nonresponsive ratio is not more than five percent.

Patients taken in this the study were with mean age of 50 years as literature and researches indicate that the onset of trigeminal neuralgia is more common around the age of 50.[1].

Treatment procedure involves 250 Hertz frequency pulse on depending on patient's tolerance, given for 30 minutes, it was proved to be effective in present study for TN. Other resources do support these results.

Further more results indicate that patients who were not responding with medicines can respond with IFC and their pain reduced. These results correlate with other study conducted by Eriksson MB, Sjölund BH, Sundbärg GIn (1984), concludes that IFC therapy represents a valid alternative to surgery when pharmacological therapy fails, especially in the elderly and in patients with atypical facial pain[28].

Moreover, IFC proved to be an effective treatment by researchers for the management of osteo arthritis and other Neuro muscular conditions[29, 30, 31]. Hence it is proved that IFC is useful for pain management in different diseases that is why it is strongly recommended for research that would help the physicians and rehabilitationist to adopt this new form of treatment which is noninvasive and inexpensive for pain management.

CONCLUSION:

Interferential therapy is an effective, easy to use therapy with minimal side effects in patients suffering from trigeminal neuralgia not responding to conventional treatment.

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Table: 01

No. Of Participants	Unrelated t-test	Degree Of Freedom	Significant level
31	0.19	28	p>0.05

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