

ORIGINAL RESEARCH

Medical Management of Trigeminal Neuralgia with Carbamazepine, Gabapentin and Pregabalin: A Randomized Placebo Controlled Trial

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ABSTRACT

Trigeminal neuralgia (TN) or Tic douloureux is a disorder characterized by stabbing or electric-shock-like pain in parts of the face. The presented research evaluates the use of gabapentin and pregabalin with carbamazepine to relieve neuropathic pain in this condition.

Keywords: Trigeminal neuralgia, Neuralgia, Tic douloureux, Carbamazepine, Gabapentin, Pregabalin.

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INTRODUCTION

Trigeminal neuralgia (TN) or Tic douloureux is a disorder characterized by stabbing or electric-shock-like pain in parts of the face. The most accepted medical management of trigeminal neuralgia is antiepileptic drugs and carbamazepine is widely prescribed and used for the same. Among the antiepileptic drugs advised, gabapentin and pregabalin have been evaluated as a medication to relieve neuropathic pain with variable results.¹⁻³ This study evaluates carbamazepine for controlling pain in trigeminal neuralgia individually and in combination with gabapentin and pregabalin.

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MATERIALS AND METHODS

Forty patients with clinically proven TN were included in this study with a written informed consent from all the study patients. Ten of each study patient were randomly allocated to the four study groups, summarized in Table 1. A base line total blood cell count and a differential blood cell count was performed for all patients. All the study group patients were given five point pain scale chart, every week, for 4 weeks for evaluation. All patients filled a pain scale chart after a week. All the study medication were given in twice daily dosage for the study period and no adjustments in the dosage was done within the study period. The mean of four pain scores readings for 4 weeks was calculated for each patient. Finally mean pain score for each study group (mean of 10 patients) with standard deviation was calculated for intergroup comparisons.

RESULTS

The pain score values in the four study groups are summarized in Table 2. The mean pain score values with standard deviation is shown in Table 3. The pain scores were found maximum in the placebo group (Group IV) and minimum

Table 1: Study groups

Group	Medication
I	Carbamazepine (100 mg BD)
II	Carbamazepine (100 mg BD), Gabapentin (300 mg BD)
III	Carbamazepine (100 mg BD), Gabapentin (300 mg BD) and Pregabalin (75 mg BD)
IV	Placebo

Table 2: Pain scores

Group I	Group II	Group III	Group IV
2.5	2.25	1.5	4.25
1.75	2.5	2.25	3.5
2	1.75	2.25	5
1.25	1	4.25	3.25
2.75	2.5	2.5	4
3.25	1.75	2	2.25
4.25	2.75	1.75	3
2.75	3	2.5	3.5
2.25	4.25	1.75	1.25
4	2.25	2.75	4.25

Table 3: Mean pain scores (\pm SD)

Group I	2.67 \pm 0.95
Group II	2.40 \pm 0.86
Group III	2.35 \pm 0.77
Group IV	3.42 \pm 0.08

in Group III where a combination of Carbamazepine (100 mg BD), Gabapentin (300 mg BD) and Pregabalin (75 mg BD) indicating a benefit of adding additional drug to carbamazepine for pain control. Group II showed a better pain control than patients only on carbamazepine in group I. Total blood cell count and a differential blood cell count for all the study patients were within normal limits at the end of the study.

DISCUSSION

Management of trigeminal neuralgia with pharmacotherapy is instituted for all patients with this disorder before any interventional therapy is attempted for pain relief. Carbamazepine, an antiepileptic, is a well established drug in the treatment of TN. Various studies and authors have reported variable benefit and relapse rates in patients with TN with carbamazepine. There is evidence that pregabalin and gabapentin are effective in the neuralgic pain.^{3,4} We designed a randomized placebo controlled trial to assess the efficacy of pregabalin and gabapentin in addition to carbamazepine.

Pérez C et al studied pregabalin as a pain alleviating medication and concluded on the benefits of this drug in neuropathic pain.⁵ Similarly Cheshire in his retrospective study and suggested that gabapentin can be effective as first

or second line treatment of trigeminal neuralgia, even in cases resistant to traditional treatment modalities.³ Present study highlights the additive effect of both pregabalin and gabapentin to carbamazepine. The study group with pregabalin and gabapentin added to carbamazepine demonstrated minimum weekly episodes of pain with lesser intensity. The exact *in vivo* mechanism of this synergistic effect of the study drugs needs evaluation.

The study sample evaluated the study groups in a single center setup, for validation of these findings a multicentric placebo controlled trial is recommended. Addition of pregabalin and gabapentin to carbamazepine showed better clinical response in terms of reduction of weekly episodes of pain with reduced intensity with each additional drug added to carbamazepine.

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