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Original Research

Comparison of carbamazepine and gabapentin in management of trigeminal neuralgia- A clinical study

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ABSTRACT:
Background: The present study was conducted to compare Carbamazepine (CBZ) and gabapentin (GBP) in management of TN. **Materials & Methods:** The present study was conducted on 46 patients of primary trigeminal neuralgia of both genders. Patients were randomly divided into 2 groups of 23 each. Group I patients were prescribed carbamazepine in the dose range of 400mg to 1200 mg and group II patients were prescribed gabapentin in the dose range of 600mg to 1800mg. Patients were recalled on 3rd day, 15th day, 1 month and 3 months period. **Results:** On 3rd day, VAS in group I was 7.2 and in group II was 7.4, on 15th day was 4.5 in group I and 4.2 in group II, on 1 month was 3.8 in group I and 3.1 in group II and on 3rd month was 2.6 in group I and 1.4 in group II. The difference was significant (P< 0.05). The therapeutic effectiveness after 15 days in group I was good in 56.2% in group I and 58.4% in group II. It was average in 43.8% in group I and 41.6% in group II. The difference was significant (P< 0.05). **Conclusion:** Authors found that gabapentin resulted in better management of cases of trigeminal neuralgia as compared to carbamazepine and can be effectively prescribed in such patients.
Key words: Carbamazepine, Gabapentin, Trigeminal neuralgia

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INTRODUCTION

Trigeminal neuralgia (TN) is a common type of neuropathic pain, which is characteristically sudden, usually unilateral, severe, brief, stabbing, and the recurrent electric shock-like episodes of pain lasts from a few seconds to < 2 minutes in the area of one or more branches of the trigeminal nerve.[1] The disease usually has trigger points and is often induced in the process of daily routines such as washing face, brushing teeth, talking, and even shaving.[2] The annual incidence is 5.9/ 100,000 women and 3.4/100,000 men. The incidence tends to be slightly higher among women at all ages, and even increases with age.[3]

Carbamazepine (CBZ) is recommended as the first-line medical treatment of TN. Gabapentin (GBP), a newer anti-epileptic drug, is widely used in clinical treatment of TN. Studies have demonstrated that GBP has broad application prospects in chronic pain syndromes, especially in the neuropathic pain.[4] Furthermore, GBP has been the first-choice drug therapy for all types of neuropathic chronic pain in several international pain control centers. Its effects contain relatively low rate of adverse reactions, lack of interaction with other drugs acting on the nervous system, and evident perception of its efficacy. And whenever CBZ fails to control TN, GBP can be used as an alternative for reducing its intensity. But in comparison with CBZ, its efficacy and safety remain controversial.[5]

The present study was conducted to compare Carbamazepine (CBZ) and gabapentin (GBP) in management of TN.

MATERIALS & METHODS

The present study comprised of 46 patients of primary trigeminal neuralgia of both genders. All were informed regarding the study and their written consent was obtained. Ethical clearance was obtained before starting the study.

Demographic data of all patients was recorded. Patients were randomly divided into 2 groups of 23 each. Group I patients were prescribed carbamazepine

in the dose range of 400mg to 1200 mg and group II patients were prescribed gabapentin in the dose range of 600mg to 1800mg. Patients were recalled on 3rd day, 15th day, 1 month and 3 months period. Response of the drug was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Drug	Carbamazepine	Gabapentin
Number	23	23

Table I shows that group I patients were prescribed carbamazepine and group II patients were prescribed gabapentin. Each group had 23 patients.

Table II Assessment of Pain on VAS in both groups

Duration	Group I	Group II	P value
3rd day	7.2	7.4	0.91
15th day	4.5	4.2	0.12
1 month	3.8	3.1	0.05
3rd month	2.6	1.4	0.01

Table II, graph I shows that on 3rd day, VAS in group I was 7.2 and in group II was 7.4, on 15th day was 4.5 in group I and 4.2 in group II, on 1 month was 3.8 in group I and 3.1 in group II and on 3rd month was 2.6 in group I and 1.4 in group II. The difference was significant (P< 0.05).

Graph I Assessment of Pain on VAS in both groups

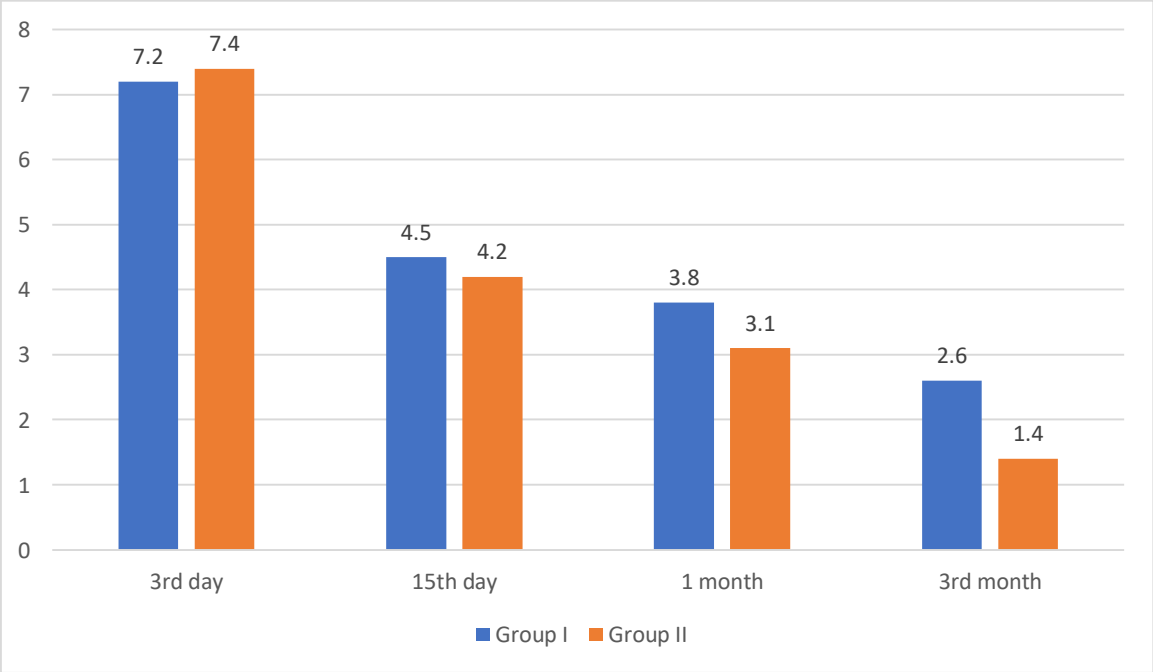
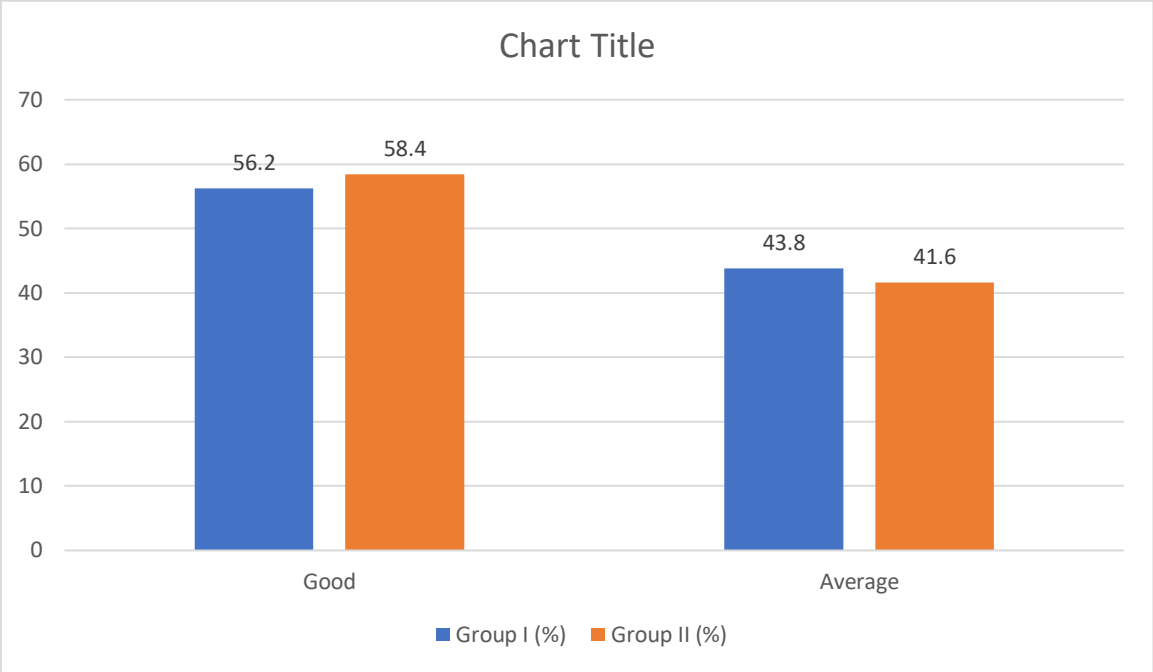


Table III Therapeutic effectiveness in both groups

Therapeutic effectiveness	Group I (%)	Group II (%)	P value
Good	56.2	58.4	0.01
Average	43.8	41.6	0.11

Table III. graph II shows that therapeutic effectiveness after 15 days in group I was good in 56.2% in group I and 58.4% in group II. It was average in 43.8% in group I and 41.6% in group II. The difference was significant (P< 0.05).

Graph II Therapeutic effectiveness in both groups



DISCUSSION

In the third edition of the ICHD-3, TN is sub-classified into classical, secondary, and idiopathic causes. In CTN, pain occurs along the distribution of TN without any obvious reasons other than neurovascular compression.[6] CTN has recurrent paroxysms of unilateral facial pain and involves pain-free periods or concomitant background facial pain. Persistent background pain, bilateral symptoms, the patient's age less than 50 years, focal neurological signs, and sensory impairment raise the suspicion for etiologies other than CTN.[7] Multiple sclerosis (MS), space-occupying lesions, and neuropathy are among the common causes of secondary TN (STN). STN is caused by underlining pathology, and frequently on clinical examination, sensory abnormalities could be elicited.[8] Patients experience unilateral facial pain in paroxysmal fashion and may have background continuous or near continuous pain. Multiple sclerotic plaques at the trigeminal root entry zone or in the pons, causing impairment in the TN pathway, are the most common cause of STN.[9] About 2% of patients with MS have TN. GBP has been the first-choice drug therapy for all types of neuropathic chronic pain in several international pain control centers. Its effects contain relatively low rate of adverse reactions, lack of interaction with other drugs acting on the nervous system, and evident perception of its efficacy. And whenever CBZ fails to control TN, GBP can be used as an alternative for reducing its intensity. But in comparison with CBZ, its efficacy and safety remain controversial.[10] The present study was conducted to compare Carbamazepine (CBZ) and gabapentin (GBP) in management of TN.

In present study, Patients were randomly divided into 2 groups of 23 each. Group I patients were prescribed carbamazepine and group II patients were prescribed gabapentin. Both groups had 23 patients each. Yuan et al[11] evaluated the safety and efficacy of gabapentin in comparison with carbamazepine in the treatment of trigeminal neuralgia. Sixteen randomized controlled trials that included 1,331 patients were assessed. The meta-analysis showed that the total effective rate of gabapentin therapy group was similar with carbamazepine therapy group. While the effective rate of gabapentin therapy for 4 weeks was higher than that of carbamazepine therapy the life satisfaction improvement is also better in the gabapentin therapy group after a 4-week treatment. Furthermore, our meta-analysis suggested that the adverse reaction rate of gabapentin therapy group was significantly lower than that of carbamazepine therapy group.

We found that on 3rd day, VAS in group I was 7.2 and in group II was 7.4, on 15th day was 4.5 in group I and 4.2 in group II, on 1 month was 3.8 in group I and 3.1 in group II and on 3rd month was 2.6 in group I and 1.4 in group II. Bhawandeep et al[12] evaluated the efficacy of Carbamazepine and Gabapentin in the management of Trigeminal Neuralgia. A total of 42 patients with a mean age of 52.78 years included in the study were randomly divided into two groups A and B and were given the tablets of carbamazepine in the dose range of 400mg to 1200 mg and gabapentin in the dose range of 600mg to 1800mg and recalled after 3rd day, 15th day, 1 month and 3 month period to evaluate the response to the drugs. The collected data was subjected to statistical analysis. The therapeutic effectiveness of carbamazepine recorded as good response in 52.38% of patients of group A after 72 hours of recall while 28.57% patients had an average response and 19% patients had not relieved off pain attacks at the dose of 400mg of

carbamazepine. The therapeutic effectiveness of gabapentin recorded as good response in 52.38% of group B patients after 72 hours of recall while 42.8% patients had an average response at the dose of 600mg of gabapentin. The study suggests that gabapentin can be effective as first or second line treatment of trigeminal neuralgia, even in cases resistant to traditional treatment modalities.

We found that the therapeutic effectiveness after 15 days in group I was good in 56.2% in group I and 58.4% in group II. It was average in 43.8% in group I and 41.6% in group II.

The shortcoming of the study was small sample size.

CONCLUSION

Authors found that gabapentin resulted in better management of cases of trigeminal neuralgia as compared to carbamazepine and can be effectively prescribed in such patients.

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