ORIGINAL ARTICLE

Early response to medical treatment of trigeminal neuralgia in a Nigerian population

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ABSTRACT

Background: This study evaluates the clinical profile of patients suffering from trigeminal neuralgia (TN) and correlates the findings with early response of the patients to medical treatment. **Patients and Methods:** A 4-year prospective study in which patients diagnosed of TN were treated medically and followed up weekly for 8 weeks to determine early treatment outcome, in the University of Benin Teaching Hospital, Benin City, Nigeria. **Results:** Of the 287 patients seen during the study period, a total of 14 (4.9%) patients were diagnosed of TN. Thirteen (4.5%) of the cases were selected based on compliance to the 8-week follow-up visits, consisting of 8 (61.5%) males and 5 (38.5%) females, giving a ratio of 1.6:1. The mean age of the patients was 50 ± 1.5 years. The mandibular (n = 6, 46.2%) and maxillary (n = 5, 38.5%) divisions of the trigeminal nerve were mostly affected. The lesion was slightly more common on the right side of the face (n = 7, 53.8%) than the left side (n = 6, 46.2%). Talking (n = 4, 30.8%) and chewing (n = 3, 23.1%) were the most frequent trigger factors. The patients mostly described the pain as severe, spontaneous, and sharp (n = 5, 38.2%). Most patients became stable on tablets carbamazepine 200 mg 12 hourly, folic acid 5 mg daily, and phenytoin 100 mg daily. Good response was observed in most patients within 2 weeks (n = 6, 46.2%) of medical treatment, especially in patients at the seventh decade of age (n = 3, 23.1%) and those with lesions involving the mandibular division of the trigeminal nerve (n = 3, 23.1%). **Conclusion:** This study shows early response of TN to medical treatment. We recommend combination therapy of carbamazepine and folic acid in the treatment of patients, especially elderly patients with lesions involving the mandibular division of the trigeminal nerve.

Key words: Medical treatment, trigeminal neuralgia, trigger factor

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INTRODUCTION

Trigeminal neuralgia (TN) is defined by the International Headache Society (IHS) as "unilateral disorder characterized by brief electric shock-like pains, abrupt in onset and termination. The pain is limited to the distribution of one or more divisions of the trigeminal nerve."[1] The IHS classifies TN as either classic (essential or idiopathic) type (CTN) or symptomatic TN type with pain indistinguishable from that of CTN but caused by a demonstrable structural lesion other than vascular compression. The diagnosis of CTN requires the absence of a clinically evident neurological deficit. CTN starts in the second or third divisions, affecting the cheek or the chin.[1]

TN may involve one or more branches of the trigeminal nerve with the maxillary branch involved mostly, and the ophthalmic branch is the least affected.[2,3] The right side of the face is affected more commonly than the left (ratio of 1.5:1), which may be because of the narrower foramen rotundum and foramen ovale on the right side.[2-4] TN has been described among the most painful conditions known to mankind.[5] It is characterized by lancinating, unilateral, and paroxysmal pain occurring in

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the distribution of the fifth cranial (trigeminal) nerve. It is often triggered by movements of the mouth or eating. Usually, there is a trigger zone.[6-8] The annual incidence of TN has been reported as 4.3/100,000 populations, with a slight female predominance.[2]

The initial treatment of choice for TN is medical therapy, and most patients have at least temporary relief with the use of selected agents.[9] Patients who have no response to or who relapse with medical therapy should be considered for surgical treatment.[10] Surgery may also be considered for patients who are intolerant of medical treatment. The general recommendation is to start with medical therapy and consider surgical procedures in patients who are refractory to medical treatment.[11,12] First-line therapy should be carbamazepine (CBZ; 200–1200 mg/day) and oxcarbazepine (OXC; 600–1800 mg/day) according to current evidence-based treatment guidelines.[13,14] Other medications may be tried if carbamazepine is unsuccessful or provides only partial relief. These may be substituted or added to carbamazepine as necessary. Baclofen (Lioresal) in dosages of 10–80 mg daily has been shown to be useful.[15] Additional medications with reported success in smaller studies or case reports include phenytoin (Dilantin), lamotrigine (Lamictal), gabapentin (Neurontin), topiramate (Topamax), clonazepam (Klonopin), pimozide (Orap), and valproic acid (Depakene).[9,16-21] Most patients will respond, at least temporarily, to single or combination therapy with these agents.

Since medical treatment is the most frequent treatment approach for TN reported worldwide,[9-12] it may be the most effective treatment option for TN in Nigerians. There is dearth of literature that evaluates the medical treatment of TN in Nigeria; this study, therefore, evaluates the clinical profile of patients suffering from TN and correlates the findings with early response of the patients to medical treatment of this condition in a Nigerian population.

PATIENTS AND METHODS

This was a 4-year prospective study between May 2008 and April 2012 in which patients diagnosed of TN were treated medically and followed up weekly for 8 weeks; to determine early treatment outcome, in the Department of Oral Pathology and Oral Medicine, University of Benin Teaching Hospital, Benin City, Nigeria. Demographic data, information concerning history, and treatment outcome were obtained from patients' medical records. Treatment outcomes were analyzed in terms of immediate response of patients to medical treatment within 8 weeks of management.

Data obtained from the study were analyzed using the IBM Statistical package for social sciences (IBM SPSS; version 16.0, Chicago, USA). Statistical significance levels of the treatment outcome were assessed through Chi-square distribution. A number of patients' characteristics were analyzed for a possible correlation with treatment outcome. $P \leq 0.05$ was considered significant.

RESULTS

Of the 287 patients seen within the study period, a total of 14 (4.9%) patients were diagnosed of TN. Thirteen (4.5%) of the cases were selected for this study based on compliance to the 8-week follow-up visits, consisting of 8 (61.5%) males and 5 (38.5%) females, giving a ratio of 1.6:1. The age range of the patients was 27–73 years, with a mean age of 50 ± 1.5 years and the peak age group were the 5–7 decades (n = 9, 69.2%). The mandibular (n = 6, 46.2%) and maxillary (n = 5, 38.5%) divisions of the trigeminal nerve were mostly affected. The lesion was slightly more common on the right side of the face (n = 7, 53.8%) than the left side (n = 6, 46.2%). Most of the patients (n = 8, 61.5%) had no known trigger zone. Talking (n = 4, 30.8%) and chewing (n = 3, 23.1%) were the most frequent trigger factors [Table 1].

The patients mostly described the pain as severe, spontaneous and sharp (n = 5, 38.2%), and the duration was between 2 weeks and 5 years. There was no history of previous medical (n = 8, 61.5%) or dental (n = 6, 46.2%) problems in most of the patients. The most common

Table 1: Summary of patients clinical profile

Parameters	Frequency *n* (%)
Age	
21-30	2 (15.4)
31-40	1 (7.7)
41-50	3 (23.1)
51-60	3 (23.1)
61-70	3 (23.1)
>70	1 (7.7)
Sex	
Female	5 (38.5)
Male	8 (61.5)
Side	
Right	7 (53.8)
Left	6 (46.2)
Dominant branch	
V_2	5 (38.5)
V_3	6 (46.2)
V_1 and V_2	2 (15.4)
Trigger zone	
Yes	5 (38.5)
No	8 (61.5)
Trigger factor	
Not specific	2 (15.4)
Talking	4 (30.8)
Chewing	3 (23.1)
Air/breeze	2 (15.4)
Fever	1 (7.7)
Tooth brushing	1 (7.7)

clinical differential diagnosis was atypical odontalgia (n = 3, 23.1%).

Most patients became stable on tablet carbamazepine 200 mg 12 hourly and tablet folic acid 5 mg daily. About 92.3% of patients responded well to medical treatment within the 8 weeks follow-up period [Table 2].

Good response was observed in most patients within 2nd week (n = 6 46.2%) of medical treatment, especially in patients at the seventh decade of age (n = 3, 23.1%) and those with lesions involving the mandibular division of the trigeminal nerve (n = 3, 23.1%) (P = 0.001). The patients with severe, sharp, and spontaneous pain were significantly associated with good response to treatment within 2 weeks (P = 0.016) [Table 3].

DISCUSSION

This study showed that 92.3% of the patients with TN responded to medical treatment, which affirms the previous report that states the initial treatment of choice for TN is medical therapy.[9] Carbamazepine is considered first-line therapy for TN.[22] Carbamazepine acts by inhibiting the neuronal sodium channel activity thereby reducing the excitability of neurons. Hence, predictable and powerful is the relief that if the patient does not respond at least partially to carbamazepine, reconsider the diagnosis of idiopathic TN.[22,23] In this study, all the patients were given Carbamazepine with a starting dose of 100–200 mg daily and tablet folic acid 5 mg to prevent the anemic effect of carbamazepine. The dose of Carbamazepine was adjusted according to the degree of pain. On the whole, most patients became stable on tablet carbamazepine 200 mg 12 hourly and tablet folic acid 5 mg daily. Dosages used from literature have ranged from 100 to 2400 mg/day, with most patients responding to 200–800 mg/day in two or three divided doses. A patient in this study, who failed to achieve maximum relief with carbamazepine, had sodium phenytoin 100 mg 12 hourly added to it. Phenytoin has the same mechanism of action as carbamazepine and poses a similar risk panel, except for the risk of aplastic anemia. It has been reported that for those patients who fail to attain relief with carbamazepine alone, an additional 8–20% of the patients may have an adequate response if phenytoin is added to the treatment regimen.[24]

A study reported that the right side of the face is affected more commonly than the left.[9] The symptoms of TN are confined to the trigeminal nerve distribution, and most cases involve the second or third division, or both.[9] Similarly, this study observed that the lesion was slightly commoner on the right with the mandibular (V3) and maxillary (V2) divisions of the trigeminal nerve mainly affected. In addition, early response was observed in this

Table 2: Treatment regimen and outcome

	n (%)
Medication	
Carbamazepine + folic acid	10 (76.9)
Carbamazepine + sodium phenytoin + folic acid	1 (7.7)
Carbamazepine + amitriptyline + folic acid	2 (15.4)
Outcome of treatment	
Good response in 1 week	1 (7.7)
Good response in 2 weeks	6 (46.2)
Good response in 3 weeks	1 (7.7)
Good response in 4 weeks	2 (15.4)
Remission after 6 weeks	2 (15.4)
Lost to follow-up	1 (7.7)

Table 3: Outcome of treatment against patients' age, sex, and the dominant branch affected

	Treatment outcome				Remission after 6 weeks	Lost to follow-up	Total
	1 week response	2 weeks response	3 weeks response	4 weeks response			
Age							
21-30	0	1	0	0	1	0	2
31-40	1	0	0	0	0	0	1
41-50	0	1	1	1	0	0	3
51-60	0	1	0	1	0	1	3
61-70	0	3	0	0	0	0	3
>70	0	0	0	0	1	0	1
P							0.627
Sex							
Male	0	3	1	2	2	0	8
Female	1	3	0	0	0	1	5
P							0.828
Dominant branch							
V2	1	2	0	0	1	1	5
V3	0	3	0	2	1	0	6
V1 and V2	0	1	1	0	0	0	2
P							0.001

study in most patients within the 2nd week of medical treatment, especially in elderly patients and those with lesions involving the mandibular division of the trigeminal nerve.

Talking, smiling, chewing, teeth brushing, and shaving have all been implicated as triggers for the pain. Even breeze touching the face may cause a paroxysm of pain in some patients.[3] In this study, talking and chewing were the most frequent trigger factors. In trigger zones (small areas near the nose or mouth in patients with TN), minimal stimulation initiates a painful attack. Patients with TN can pinpoint these areas and will assiduously avoid any stimulation of them. Not all patients with TN have trigger zones, but trigger zones are nearly pathognomonic for this disorder.[3,9] About 38.5% of patients in this study had known trigger zones and avoided touching those areas.

CONCLUSION

This study supports previous reports that medical treatment is effective in the treatment of TN. We recommend combination therapy of carbamazepine and folic acid in the treatment of patients with TN, especially elderly patients with lesions involving the mandibular division of the trigeminal nerve.

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Conflicts of interest
There are no conflicts of interest.

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