

Prevalence of trigeminal neuralgia in Indian population visiting a higher dental care center in Chennai – A retrospective study

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ABSTRACT

Introduction and Aim: Pain is one of the most common symptoms in orofacial region. One such pain is due to trigeminal neuralgia that shows impact on the patient's quality of life. The aim and objective of the present study are to determine the most commonly involved branch and the affected side of the trigeminal nerve respectively.

Materials and Methods: The present retrospective study involves 72 patients diagnosed with trigeminal neuralgia and the data regarding the age of onset, gender, side of involvement and clinical presentations were retrieved from the clinical records of patients that have reported from October 2013 to October 2014.

Results: Out of the 72 patients, males were 42(58.3%) and females were 30(41.7%). The study population was divided to three age groups (<40 years, 41-60 years and > 60 years). In the present study, in the age group of 41-60 years 55.5% i.e., 40 patients were seen. 38.8% of the study population was above 60 years of age. In our study, a total of 56 % (i.e., 40) patients showed involvement on right side and 44% patients on the left side. In our study, mandibular branch (V₃) was the most commonly affected and involvement of all the three divisions V₁, V₂ and V₃ was seen in 16(22.3%) of patients.

Conclusion: Clinical similarities of trigeminal neuralgia that have an impact on different populations were demonstrated in this study. Further studies emphasizing the importance of correlation of gender with different age groups can be done.

Keywords: Trigeminal neuralgia; prevalence; pain.

INTRODUCTION

Pain is one of the most common symptoms in orofacial region. Amongst them is the pain due to trigeminal neuralgia (TN). Pain is defined by the task force on taxonomy of the International Association for the Study of Pain (IASP) as: "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage" (1). The IASP defines TN as "a sudden usually unilateral, severe, brief, stabbing, recurrent pain in the distribution of one or more branches of the fifth cranial nerve" and is prevalent in 2-3% of the population (2, 3). Trigeminal neuralgia is differentiated into two types by the International Headache Society as classic trigeminal neuralgia and symptomatic trigeminal neuralgia. While the classical trigeminal neuralgia is often caused by a microvascular compression at the trigeminal root entry zone of the brain stem, the symptomatic variant of trigeminal neuralgia is due to a structural lesion other than vascular compression (4). Trigeminal neuralgia is a comparatively rare disease with an estimated annual incidence of 12.6/100,000 persons/year the peak onset of the disease occurring in between 50-70 years of age (5). Also, trigeminal neuralgia has a strong preponderance in women and the involvement of right side (2).

A misdiagnosis of trigeminal neuralgia is sometimes encountered as a result of unclear physical and laboratory diagnosis. Consequently, such patients seek the help of numerous clinicians before a confirmed diagnosis is made. Several studies have shown the impact of trigeminal neuralgic pain on the quality of life despite its benign nature and being refractory to various treatment modalities (6). The aim and objective of the present study are to determine the most commonly involved branch and the affected side of the trigeminal nerve respectively.

MATERIALS AND METHODS

The present retrospective study involved 72 patients diagnosed with trigeminal neuralgia reporting to the Department of Oral Medicine and Radiology, at a higher dental care center in Chennai. Data regarding the age of onset, gender, side of involvement and clinical presentations were retrieved from the clinical records of patients that have reported from October 2013 to October 2014. Identification of the involved nerve branch has been done in accordance to the site of pain and confirmed by a diagnostic nerve block where a local anesthetic 2% lignocaine with adrenaline 1:200,000 injection at the identified site was given. The inclusion criteria are patients diagnosed with trigeminal neuralgia (both classic and symptomatic). The exclusion criteria are patients with history of any trauma and/or surgeries.

RESULTS

The total study population is 72 patients. The age range in this study is 29-90 years. The overall mean age group is 57.85 years. Mean age in females is 54.43 years. In males, the mean age was 61.28 years.

Out of the 72 patients, males were 42(58.3%) and females were 30(41.7%). The study population was divided into three age groups (<40 years, 41-60 years and > 60 years).

Table 1: Distribution of males and females according to age group

Age group	Males	Females	Total
<40 years	1	3	4 (5.6%)
41-60 years	18	22	40 (55.5%)
>60 years	21	7	28 (38.8%)
Total	40	32	72 (100%)

Table 1 shows the distribution of male and female patients in the study according to the age groups. In the age group of < 40 years, 3 females and 1 male were present. In the age group of 41-60 years, there were 18 males and 22 females. In the age group of >60 years there were 21 males and 7 females.

Table 2: Distribution of study subjects according to side involved in different age groups

Age group	Right side	Left side	Total
<40 years	3 (4.2%)	1 (1.4%)	4 (5.6%)
41-60 years	24 (33.3%)	16 (22.2%)	40 (55.5%)
>60 years	13 (18.05%)	15 (20.8%)	28 (38.8%)
Total	40 (56%)	32 (44%)	72 (100%)

Table 2 shows the distribution of study subjects according to the side involved in different age groups. In the age group of < 40 years 3 patients were affected on the right side and 1 on the left side. In the age group of 41-60 years 24 patients were affected on the right side and 16 on the left side. In the age group of >60 years 13 patients were affected on the right side and 15 on the left side.

Table 3: Distribution of males and females according to the side involved

Side involved	Males	Females	Total
Right	20 (28%)	20 (28%)	40 (56%)
Left	21 (29%)	11 (15%)	32 (44%)
Total	41 (57%)	31 (43%)	72 (100%)

Table 3 shows distribution of males and females according to the side involved in the study population. A total of 40 patients, affected on the right side 20 males and 20 females were present. On the left side, a total of 32 patients were affected and this included 21 males and 11 females.

Table 4: Distribution of nerve involvement on right and left sides

Nerve involvement	Right side	Left side	Total
Ophthalmic (V ₁)	2 (3%)	1 (1.38%)	3
Maxillary (V ₂)	4 (5.5%)	3 (4.16%)	7
Mandibular (V ₃)	11 (15.2%)	13 (18.05%)	24
V ₁ and V ₂	4 (5.5%)	2 (2.7%)	6
V ₂ and V ₃	8 (11%)	7 (9.7%)	15
V ₁ and V ₃	1 (1.4%)	0 (0%)	1
V ₁ and V ₂ and V ₃	10 (14%)	6 (8.3%)	16
Total	40 (56%)	32 (44%)	72 (100%)

Table 4 shows the distribution of nerve involvement on right and left sides in the study population. Ophthalmic nerve (V₁) alone was involved in 3 patients. Maxillary nerve (V₂) alone was involved in 7 patients. Mandibular nerve (V₃) alone was involved in 24 patients. Both V₁ and V₂ were involved in 6 patients. In 15 patients, both V₂ and V₃ were involved. In only 1 patient both V₁ and V₃ were involved. All the three nerve branches (V₁, V₂ and V₃) were involved in 16 patients. Most of the patients affected on the right side (i.e., 11) and left side (i.e.13) showed V₃ involvement in the study.

DISCUSSION

Also known as “Fothergill’s disease” or “tic douloureux”, trigeminal neuralgia is a rare disorder occurring in the area distributed by the trigeminal nerve and often characterized by a brief lancinating pain. Several studies have revealed that trigeminal neuralgia is more predominantly seen in women than men (7-10). In the present study, (58.3%) were males and 41.7% (30) were females. However, these results were similar to the findings of four studies where male predominance was reported (11-14). The onset

of trigeminal neuralgic pain in patients 50 years and older was supported previously by many studies (9, 10, 15). The peak age of onset of the disease is observed between fifth and eighth decades of life (16, 17). In the present study, among 41-60 years age group 55.5% patients were seen. 38.8% of the study population was above 60 years of age.

In our study, a total of 56 % (i.e., 40) patients showed involvement on right side and 44% patients on the left side. Neto *et al.*, and Rabinovich *et al.*, stated in their studies that right side is more frequently

involved than the left, the most possible reason being that the foramen rotundum and foramen ovale are narrower on the right side (18, 19). The findings from our study were similar to those of Shah *et al.*, (20). In our study, right side involvement was mostly seen in the 41-60 years age groups i.e., 33.3% of the total 72 patients were affected on right side. The left side involvement was mostly seen in 41-60 years old age group (22.2%), followed by patients aged above 60 years (20.8%). Bilateral presentation of the disease was not seen in our study. Both males and females showed equal predilection in right sided involvement in our study. Out of the total 56% right side involved patients, males were 20 and females were 20. 11 females and 21 males showed left side involvement out of the total 44%.

Wartenberg stated that paroxysms of pain limited to one or more of the three divisions of the trigeminal nerve could be the hallmark of trigeminal neuralgia (21). Several studies have shown that the mandibular branch is most commonly involved, followed by maxillary branch and usually the ophthalmic branch to be the least commonly involved (9,22-24). In our study, the mandibular branch V₃ was affected in almost 24(33.3%) patients and maxillary branch (V₂) was affected in 7 (10%) patients. Both V₂ and V₃ were affected in 15 (21%) of the patients. Shankland *et al.*, reported that a third of the patients presented with neuralgia pain involving V₂ and V₃ in their study (23, 24). In the study done by Kenneth F *et al.*, V₃ was affected in 15% while V₂ in 17% and a combination of V₂ and V₃ was seen in 32% of the patients. V₁ was rarely involved and a combination of V₁, V₂ and V₃ was seen in 17% of the patients in their study (6, 25). In our study, involvement of all the three divisions V₁, V₂ and V₃ was seen in 16 (22.3%) of patients. However, no specific reason was reported in the most common or less common involvement of the nerve in the disease process.

In our study, the mandibular nerve (V₃) was most commonly involved. This could be attributed to the inherent higher prevalence (V₃) in Asian population (9). Ophthalmic branch (V₁) was affected only in 3 patients in our study. One possible reason for this could be a hospital bias, where the patients with pain in V₁ might have preferred a visit to an ophthalmologist rather than going to a maxillofacial physician or a dentist. Likewise, in patients where the pain involved the V₃, would have a higher chance of first consulting a dentist to rule the possibility of a dental problem. Hence, a careful history and identification of affected nerve plays a crucial role in early diagnosis of the disease and a prompt referral to the concerned specialist.

CONCLUSION

Clinical similarities of trigeminal neuralgia that have an impact on different populations were demonstrated in this study. Further studies

emphasizing the importance of correlation of gender with different age groups can be done. Also, since chronic orofacial pain is often linked to systemic diseases like hypertension and depression, studies signifying their correlation with trigeminal neuralgia can be done.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

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