

Prevalence Of Trigeminal Neuralgia Among Patients Treated For Orofacial Neuralgia - An Institutional Based Retrospective Study

Research Article

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Abstract

Trigeminal neuralgia is one of the most excruciating pain syndromes afflicting the orofacial region. Neuropathic pain is the result of a lesion or disease of the somatosensory system in the peripheral or central nervous system. It usually happens in short, unpredictable attacks that can last from a few seconds to minutes. The attacks stop as suddenly as they start. The trigeminal nerve carries sensation from the face to the brain. It's most common in women aged over 50. Symptoms range from mild to severe facial pain, often triggered by chewing, speaking or brushing teeth. The aim of the study was to check the prevalence of trigeminal neuralgia among patients treated for orofacial neuralgia. A total of 36 patients were taken and analysed for orofacial neuralgia. The data collection was done from the patient management software. The data was reviewed by two reviewers. The results were tabulated and analysed using SPSS software by IBM. Chi square test was performed to compare the data and check for its distributions. The statistical significance of p value is set at 0.05. Out of 36 patients, 66.7% of the patients had trigeminal neuralgia and 33.3% of the patients did not have trigeminal neuralgia. 61.1% of the patients were males and 38.9% of the patients were females. The most prevalent age group for trigeminal neuralgia was 41 to 50 yrs with the prevalence of 27.8%. Prevalence of trigeminal neuralgia in the patients treated for orofacial neuralgia is at a higher rate. It is more prevalent in males than in females. The most prevalent age group for the trigeminal neuralgia is 40 to 50 yrs.

Keywords: Prevalence; Orofacial Neuralgia; Trigeminal Nerve; Trigeminal Neuralgia.

Introduction

Neuropathic pain is the pain caused by somatosensory nervous system injury or disease. It may be classified based on its temporal aspect as episodic or continuous. Previous studies on effectiveness of chlorhexidine and biomedical waste management have been done, which let us gain experience to work on the present study [1, 2]. It is characterized by a short duration electric shock pain lasting from seconds to minutes. Previously we have done studies on pterygomaxillary disjunction and oral squamous cell carcinoma, which were helpful to work on the current study [3, 4]. In general there is a zone of trigger point which may be intra or extra oral and when provoked by mild non-traumatic stimulus is able to

produce moderate to severe paroxysmal pain. Pain management is an emergency procedure followed by the dentist [5, 6]. In the latter, pain originates in the neural structures, is constant, continuous and burning, with different and fluctuating levels of intensity, sometimes without total remission. Dental anxiety is seen in a maximum number of patients [7, 8]. Trigeminal neuralgia is an extremely painful yet rare orofacial pain condition, and clear understanding of its mechanism and management remains an enigma. Maxillofacial trauma might occur in different patterns [9, 10].

Originally known as "tic douloureux" due to its characteristic facial tics, this disorder may be described as a paroxysmal unilateral facial pain along the distribution of one or more branches of the trigeminal nerve. Viral infections like varicella zoster can also lead

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to trigeminal neuralgia [11, 12]. The maxillary and mandibular branches of the trigeminal nerve are most commonly affected, followed by the ophthalmic branch. Patients with severe pain can be diverted with the help of virtual reality method for ease of the treatment [13-15]. Trigeminal neuralgia has a variety of etiologies, mass effect from metastases, viral infection, trauma, auto-immune processes are considered to lead to impaired trigeminal nerve function, often attributed to demyelination. Previously we have worked on 3D changes in pharyngeal airway, which helped us gain experience to work on the current study [16]. Pain associated with trigeminal neuralgia is described as severe, sharp, electric and stabbing, is unilateral and usually remains within the anatomic distribution of the affected nerve branch, regardless of remissions and exacerbations [17].

Trigeminal neuralgia pain is often triggered by chewing and swallowing, and may even be triggered by light touch to the face [18]. The pain is often relieved by sleep and may have periods of remission lasting from weeks to years [19]. While symptoms of trigeminal neuralgia are limited to pain, the quality of life for patients is profoundly worsened, which puts them at a high risk of depression and other psychological disorders [20]. Patients with trigeminal neuralgia tend to be asymptomatic when asleep, suggesting a bidirectionality between neuropathic pain and sleep. As sleep quality improves, pain sensitivity will decrease [21, 22]. The severity of pain associated with trigeminal neuralgia and its devastating psychological effects make a prompt diagnosis and treatment essential. Without a proper understanding of its clinical features and medical course, it may go undiagnosed for years [23, 24]. The aim of the study was to check the prevalence of trigeminal neuralgia among patients treated for orofacial neuralgia.

Materials And Methods

This study was done under a university setting. And it is a single centered retrospective study. The similar ethnicity of the study is that it is done with pro available data of the population. The disadvantage of this study could be the geographic locations, limitations and trends.

Two reviewers are involved in this study. The samples were taken from the patients who underwent treatment from June 2019 to March 2020. We reviewed patient records and analysed the data of 86000 patients between June 2019 and March 2020. The total number of patients reported with orofacial disorder were short-listed to 36, based on inclusion criteria of patients treated for

orofacial neuralgic disorder. The study was commenced after approval from the scientific review board, and the ethical clearance was obtained from the ethical committee of the university with the following ethical approval number - SDC/SIHEC/2020/DI-ASDATA/0619-0320.

The patient list was identified and the case sheets were verified with the help of treatment notes.

The data is obtained from the category "orofacial neuralgia treatment". The data was collected, verified, tabulated and analysed. The data was imported to SPSS and the statistical Chi square test was done by using SPSS software by IBM. The type of analysis done in this study is descriptive and association.

Results And Discussion

Orofacial neuralgia is an unpleasant sensation caused by a noxious stimulus that is mediated only along a specific nerve pathway into the central nervous system, where it is interpreted as pain. This pain can be etiologically classified into three groups as somatic pain, neuropathic pain psychological pain. There are many types of orofacial neuralgia, namely trigeminal neuralgia, glossopharyngeal neuralgia, sphenopalatine ganglion neuralgia, postherpetic neuralgia, etc. Among all those mentioned earlier, Trigeminal neuralgia accounts for overall orofacial neuralgic disorder. Trigeminal neuralgia is a painful, chronic condition involving the trigeminal nerve. The pain caused due to trigeminal neuralgia can be brought on by mild stimulation of the face, such as brushing.

Trigeminal neuralgia occurs in the age groups ranging from 40 to 80 years and it is most common among 35 to 84yrs in males and 37 to 85yrs in females. The present study shows that the most prevalent age group for Trigeminal neuralgia was 41 to 50 yrs (red) and 51 to 60 yrs (white) with the percentage of 27.8%, followed by 61 to 70 yrs (black) with 22.2%, as depicted in Figure 1. A study by Derafshi R, et.al, 2019 [25], also found that Trigeminal neuralgia has been more common among 50 to 70 yrs (32%). Underlying disease predisposing Trigeminal neuralgia could be due to multiple sclerosis related neuralgia, traumatic neuroma, Cerebero-pontine tumor and vascular lesion compressing trigeminal ganglion.

Out of the patients treated for Trigeminal neuralgia, 61.1% of the patients were males (green) and 38.9% of them were females (blue) as shown in Figure 2. According to the results, males show higher

Figure 1. The bar graph represents the age group prevalence in patients treated for trigeminal neuralgia in a scale of 1-36. X axis represents the various age groups and Y axis represents the number of patients treated for trigeminal neuralgia. Patients from age 41 to 60 years show the highest prevalence for trigeminal neuralgia.

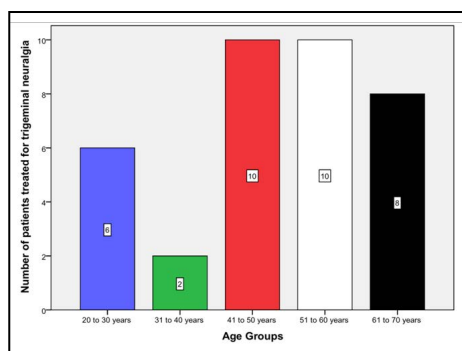


Figure 2. The bar graph represents the gender prevalence of patients treated for trigeminal neuralgia in scale of 1-36. X axis represents the gender and Y axis represents the frequency of number of patients treated for trigeminal neuralgia. Males show the highest prevalence for trigeminal neuralgia.

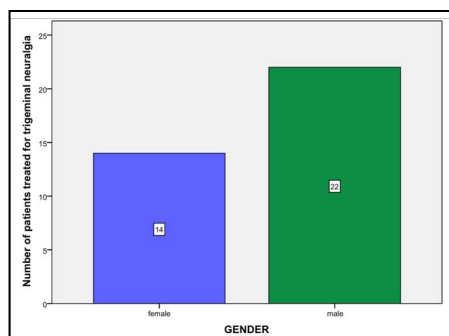


Figure 3. The bar graph shows the prevalence of trigeminal neuralgia in patients treated for orofacial neuralgia in a scale of 1-36. X axis represents the prevalence of various orofacial neuralgia and Y axis represents the frequency of number of people treated for orofacial neuralgia. The prevalence of trigeminal neuralgia is high in the patients treated for orofacial neuralgia.

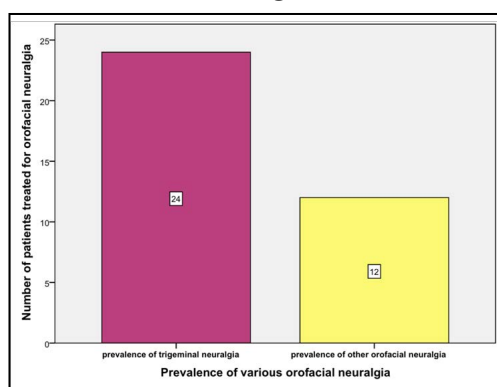


Table 1. Table shows the crosstabs between prevalence of trigeminal neuralgia and age groups. Prevalence of trigeminal neuralgia in patients of the age group 41 to 50 years show the highest prevalence.

TRIGEMINAL NEURALGIA	20 to 30 yrs	31 to 40 yrs	41 to 50 yrs	51 to 60 yrs
YES	5	2	9	4
NO	1	0	1	6
TOTAL	6	2	10	10
P value = 0.78,	P>.0.05,	Statistically insignificant		

Table 2. The table shows the cross tabs between the prevalence of trigeminal neuralgia and gender. Prevalence of trigeminal neuralgia in males shows the higher than females.

TRIGEMINAL NEURALGIA	FEMALE	MALE
YES	9	15
NO	5	7
TOTAL	14	22
P value = 0.809,	P>.0.05,	Statistically insignificant

prevalence with 61.1% and females with 38.9%. Hence males are more prevalent to Trigeminal neuralgia than females. When the association analysis was done between age and prevalence of trigeminal neuralgia, it was found patients from the age group of 41 to 50 yrs (red) showed the highest prevalence for trigeminal neuralgia in our institutional patient's data. A study conducted by Arpita Rai, et.al, 2017 [26], had similar results where the most prevalent age group showing trigeminal neuralgia is 50 to 60 yrs (33%) is in consensus with the present study.

Association of gender and the prevalence of trigeminal neuralgia, was assessed in the present study. Though it was found not statistically significant, as shown in Table 2 and Figure 5, Males (green) showed higher prevalence with 62.5% than females (blue) with 37.5%. A study given by Siqueira SR, et. al, 2009 [27], shows that females are more prevalent to trigeminal neuralgia (65%). A study by Katheriya, et. al, 2019 [28], shows that females are more prevalent (58.3%) to trigeminal neuralgia than

Figure 4. The bar graph represents the association between the prevalence of trigeminal neuralgia and age. X axis represents the prevalence of trigeminal neuralgia and Y axis represents the number of patients treated for trigeminal neuralgia. Majority of the patients with Trigeminal neuralgia are aged between 41 to 50 years than the others. However, there is no significant difference statistically.(Pearson Chi Square test;P = 0.78 which is statistically insignificant, P>.005).

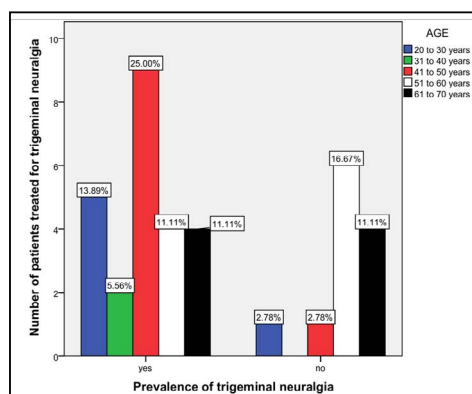
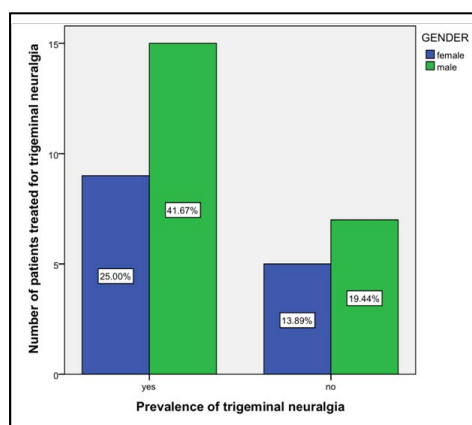


Figure 5. The bar graph represents the association between prevalence of trigeminal neuralgia and gender. X axis represents the prevalence of trigeminal neuralgia and Y axis represents the frequency of number of patients treated for trigeminal neuralgia. Prevalence of Trigeminal neuralgia is higher in males than females. However the difference is not significant statistically.(Pearson Chi Square test ;P = 0.809 >.005).



males (41.7%). Previous studies are not in consensus. Out of 36 patients, the prevalence of trigeminal neuralgia is 66.7% (pink) and 33.3% (yellow) of the patients did not have trigeminal neuralgia as shown in Figure 3. In this study, prevalence of trigeminal neuralgia is high (66.7%) among patients treated for orofacial neuralgia.

Zakrzewska JM, Linskey ME, 2009 , in their study have described that trigeminal neuralgia has the highest occurrence rate (43%) in patients treated for orofacial neuralgia. The present study where most of the patients reported with Orofacial neuralgia were finally diagnosed with Trigeminal neuralgia is in consensus with the previously mentioned study [29].

Hence it is very evident from the present study that the prevalence of trigeminal neuralgia is highly in the patients treated for orofacial neuralgia in the present study center. The most common age group affected is 41 to 50 yrs (red). Studies on more population should be done to explore the clinical features and treatment modalities in patients with trigeminal neuralgia.

Conclusion

From this retrospective study it can be concluded that prevalence of trigeminal neuralgia in the patients treated for orofacial neuralgia is at a higher rate. It is more prevalent in males than in females.

The most prevalent age group for trigeminal neuralgia is 40 to 50yrs. Further a large sampled randomised control trial is necessary to generalize the outcome of this study.

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