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Prevalence Of Trigeminal Neuralgia In Patients With Chronic Facial Pain in Neurology Lrh Hospital Peshawar.

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Abstract

Background: Trigeminal Neuralgia (TN) consist of brief periodic but severe and chronic facial pain in Facial region in single or multiple branches of the trigeminal nerve.

Objective: The objective of this study was to find the prevalence of TN in patients with chronic facial pain.

Methodology: This cross sectional observational study was conducted at Department of Neurology OPD Lady Reading Hospital, Peshawar. 46 patients with chronic facial pain were selected for the study. All data was taken on a structured Performa and was entered and analyzed using SPSS version 21. Using non probability consecutive sampling after taking approval from Ethical Committee of the hospital, study duration was 10 months from 25-1-2019 to 25-10-2019.

Results: Out of 46 patients, there were 18 (39.1%) males and 28 (60.9%) females. The mean age of the patients was 50.67, the Standard Deviation recorded was 11.56. Minimum age was 21 and maximum age was 67. 23. Out of 31 patients diagnosed with TN had history of tooth extraction and 8 had no extraction. Out of 31 patients presented with TN, right side was involved in 24 (52.2%) patients and left side was involved in 7 (15.2%) patients. Mandibular never was more common in the patients with TN which was 37% followed by maxillary nerve 21.7%, and ophthalmic nerve at 8.7%. Majority of the patients 28 (75.7%) belonged to the age group of 40 to 67. Females having TGN were 78% and males were 50%. Right side (52.2%) was more involved than left side. Mandibular division (37%) was more involved than maxillary and ophthalmic division.

Conclusion: We conclude that females are more at risk of developing TN than males. Increasing age has a higher chance of developing TN. Right side is more involved than left. Mandibular division is more involved than maxillary and ophthalmic.

Keywords: Prevalence, trigeminal neuralgia, chronic, facial pain.

Introduction

Trigeminal Neuralgia (TN) consist of brief periodic but severe and chronic facial pain in the orofacial region in single or multiple branches of the trigeminal nerve. This can be triggered sometimes by a simple touch and can be expressed as a sudden and frequent electric shock-like pain. Often it's is misdiagnosed and confused with dental-related problems¹⁻². A study showed that TN is commonly unilateral and more frequent in the older population. Its episode initially starts and end for a few seconds but in some serious cases, this pain may exist for minutes and seriously affects the day to day routine of the patient³⁻⁴.

According to the International Classification of Headache Disorders (ICHD) Trigeminal nerve is affected by paroxysms pain and there is no evidence of any neurologic disorder during clinical examination. All the patients' complaint about the same sort of attacks, the pain attacks are unexpected and has felt like stabbing, which is cursory and sudden. Causes behind facial pain are usually misdiagnosed i.e, TN is among facial pains which are often confused with other types of facial pain but for trained health care professionals it does not pose any difficulty during diagnosis⁵. According to the International Headache Society (IHS), TN has two different categories i.e, Classical TN & Symptomatic TN⁶. If the cause such as neurovascular compression at trigeminal root is found among the patients then those patients fall in the Classical TN category. On the other hand, causes like compression exerted by the tumor, multiple sclerosis, infarction fit in the category of Symptomatic TN. A study conducted in the United States suggested that the prevalence of TN is more frequent in women as compared to men and showed the incidence rate of 5 in 100000 annually⁷. The incidence rate in the UK becomes higher as much as 26.8 in 100000⁸. An increase in age raises the chances of the prevalence among patients age 50 years and older⁹⁻¹⁰.TN can be found in children as well.

Another study provided evidence that TN is more recurrent in females with a prevalence of 60%¹¹.TN affects either the right or left side of the face but most of the patients were found to be affected on the right side of the face¹². A study in Europe found a prevalence of 14% in patients having TN, complaining of neuropathic pain¹³. Misdiagnosis by health care practitioners confused TN with sinusitis and dental pain, and the prevalence of misdiagnosis touches 48%¹⁴⁻¹⁵. Another study revealed that patients having multiple sclerosis in association with TN has a prevalence of 2%¹⁶. Females and Males ratio are different among patients affected by TN, multiple studies observed that TN is found more frequent in females rather than males with a ratio of 2:1.In the common population, the prevalence of TN fluctuates between 0.01% and 0.3%, these numbers showed substantial increase depending upon health services, and the prevalence was observed 12% per 100000¹⁷.

Diagnosis of TN is made based on the patients' history and symptoms concerning the physical and neurological examination. Magnetic Resonance Imaging (MRI) is a popular and helpful diagnostic method to avoid any confusion in the treatment of TN, with the help of an MRI scan a health professional can rule out other causes i.e, multiple sclerosis and tumor that inflict pain. MRI imaging is effective to expose the seriousness of compression of the nerve by the blood vessel.

Health professionals usually prescribed carbamazepine (Carbatrol, Tegretol, etc), because of their promising results in treating TN as the first line of defense for treating TN. Other drugs like phenytoin, oxcarbazepine, and lamotrigine, baclofen, etc also showed positive results as well.

Surgical interventions like Microvascular Decompression is the recommended surgical procedure for TN, in this procedure, the problematic blood vessels are removed or relocated from the trigeminal root so that the nerve work normally. Glycerol injection is another way of treating TN, the doctor inject sterile glycerol into the trigeminal nerve in a small amount to relieve/block pain and damage the trigeminal nerve. The needle is usually inserted through the face. Brain stereotactic radiosurgery is a technique in which the trigeminal nerve is damage with the help of radiation, which is directed by the surgeon towards the root of the trigeminal nerve. This method helps relieve pain.

Methods and Materials:

This observational cross sectional study was conducted at Neurology OPD Lady Reading Hospital, Peshawar. The study was conducted after taking written permission from hospital's Ethical Committee. The duration of the study was 10 months, from 25-1-2019 to 25-10-2019. Patients were selected by non-probability consecutive sampling technique. A total of 46 patients having chronic facial pain were selected for the study. TN was diagnosed by clinical examination, taking proper neurological history and MRI scans. SPSS version 21 was used for statistical analysis. Frequency and Charts were used for categorical data like age groups, gender, TN, tooth extraction history, facial sides and nerve divisions, Mean and SD were computed for age. Chi Square test for used for statistical significance keeping $P < 0.05$.

Results:

Out of 46 patients, there were 18 (39.1%) males and 28 (60.9%) females as summarized in table 1. The mean age of the patients was 50.67, the Standard Deviation recorded was 11.56. Minimum age was 21 and maximum age was 67 as shown in table 2. There were total 31 (67.4%) cases of TN out of 46 patients. Majority of patients presented with TN belonged to the age group of 40 to 67, which were 28 (75.7%). Age groups and TN showed a significant association by applying Chi Square Test keeping $P < 0.05$ as indicated in table 3. Gender stratification showed that there were more females presented with TN than males. Twenty two out of 28 females (78.6%) females had TN and 9 out of 18 males (50%) had TN. Upon applying Chi Square Test, there was a statistically significance between gender and TN keeping $P < 0.05$ as shown in table 4.

Twenty three out of thirty one patients diagnosed with TN had history of tooth extraction and 8 had no extraction. Out of 31 patients presented with TN, right side was involved in 24 (52.2%) patients and left side was involved in 7 (15.2%) patients as indicated in figure 1. Mandibular nerve was more common in the patients with TN which was 37% followed by maxillary nerve 21.7% and, ophthalmic never 8.7% as shown in figure 2 .

Table 1: Gender Distribution

Gender	Frequency	Percent
Male	18	39.1
Female	28	60.9
Total	46	100.0

Table 2: Mean and SD of Age

Total Patients	Minimum	Maximum	Mean	Std. Deviation
46	21	67	50.67	11.564

Table 3: Age wise Stratification

Age groups	TN Presence		Total	P = 0.015
	Yes	Other Problem		
21 to 39	3	6	9	
	33.3%	66.7%	100.0%	
40 to 67	28	9	37	
	75.7%	24.3%	100.0%	

Table 4: Gender Stratification

Gender	TN Presence		Total	P = 0.044
	Yes	Other Problem		
Male	9	9	18	
	50.0%	50.0%	100.0%	
Female	22	6	28	
	78.6%	21.4%	100.0%	



Figure 1: Presence of TN on right side and left side of patients.

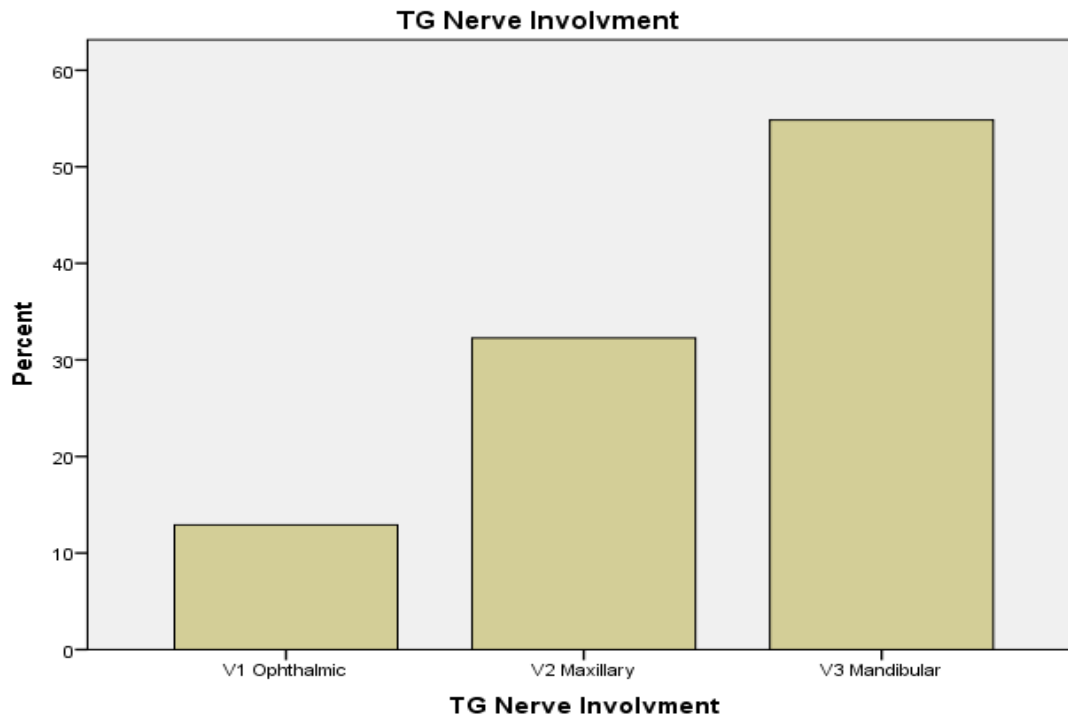


Figure 2: Presence of mandibular nerve, maxillary nerve, and ophthalmic never in patients.

Discussion:

TN is a rare neuropathic facial disorder which is brief in time span but causes quite severe and chronic pain in facial region of the trigeminal nerve. The pain may not last for longer durations but it can affect the quality of life on daily basis. The short episodes of TN pain can create problems in daily routines. The condition can psychological affect the patient.

This study showed a prevalence of 67.4% in total 46 patients. The prevalence of females with TN in the study was higher than the males with 78.6% as compared to males which was 50%. This finding is similar to a study conducted in India¹⁸ which showed a prevalence of 58.3% in urban location and 60 % in rural location as compared to male patients which showed a prevalence of 41.7% in urban and 40% in rural location. A study conducted in Egypt¹⁹ had also concluded the similar findings of females being more affected by TN than males. A Pakistani²⁰ study also had similar findings, it showed a prevalence of 62% females and 38% males having TN. This study showed a statistical significance ($p = 0.044$) between gender and TN.

In this study, the majority of patients belonged to the age group of 40 to 67. There were 28 (75.7%) patients in the age group of 40 to 67. Similar findings have been report in a study conducted in Pakistan²¹, the study reported that the 38 out of 50 patients belonged to the age group of >40 years. Similar results were also showed in another Pakistani study²⁰ having 38.3% patients in the age group of 50 to 59 years and 53.3% patients in the age group of 60 to 80 years. This study found TN and age groups to be statistically significant ($p = 0.015$).

Various studies^{19,21} have shown that TN is more common on the right side than the left side. Found that the right side (52.2%) was more affected than the left side (15.2%) which is in accordance to a Pakistani²⁰ study showing right side (78.3%) is more involved than left side (21.7%). The study further found that mandibular division (37%) was most commonly involved in our study tailed by maxillary (21.7%) and then ophthalmic division (8.7%). An Egyptian study also observed similar findings along with an Indian¹⁸ and Pakistani¹⁹ study. It is therefore suggested that careful clinical examination and history are important for proper diagnosis of TN and identifying the nerve involved which will lead to adequate treatment of TN.

Conclusion:

The study conclude that TN is more common in the increasing age group. Females were more at risk of developing TN than males. Right side of the face was more involved in TN than left. Mandibular Division was seen to be more involved than maxillary and ophthalmic division.

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