

An Audit of Trigeminal Neuralgia Patients Visiting the Tertiary Care Hospital of Lahore

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ABSTRACT

Objective: This study aimed to know the prevalence of trigeminal neuralgia in patients presenting to the University College of Medicine and Dentistry, University of Lahore, the side of involvement, most common nerve involved and the age of onset of disease. **Study Design:** observational cross-sectional study. **Settings:** Department of Oral & Maxillofacial Surgery, University College of Dentistry, University of Lahore, Lahore Pakistan. **Duration:** January 2018 to December 2019. **Methodology:** After approval from the ethical committee, the record of all patients was checked over a period from January 2018 to December 2019 who presented the oral and maxillofacial department of University College of Dentistry, University of Lahore. The total number of patients presented in this period was noted to calculate prevalence and the confirmed cases of trigeminal neuralgia were selected. The spreadsheet was prepared to collect the data. The descriptive statistics were calculated using SPSS version 21. **Results:** During this study period 17155 patients visited the oral and maxillofacial surgery department. Out of 17155, only 80 patients (0.46%) of trigeminal neuralgia presented to the oral and maxillofacial surgery department. Females are affected more than males. The right facial side is more involved than the left. It affects more the middle age (41%-50%) patients. In our population, the mandibular branch was more affected than the maxillary branch of the trigeminal nerve. **Conclusion:** Trigeminal neuralgia is a rare disease; its prevalence is 0.46% in our institution. It has a propensity for middle-aged females. The mandibular branch (V3) of the trigeminal nerve is more affected than the maxillary branch (V2) followed by ophthalmic branch (V1).

Keywords: Trigeminal neuralgia, Clinical audit, Facial pain.

INTRODUCTION

The word neuralgia stands for neuropathic pain, due to the damage of somatosensory fibers of the nerve.¹ Thus, the word trigeminal neuralgia signifies neuropathic pain in the 5th cranial nerve distribution. In 1756 Andrea provided the first detailed definition of the trigeminal neuralgia, and he claimed it was a convulsive condition and named it "tic douloureux".^{2,3}

Trigeminal neuralgia or tic douloureux is a condition having manifestations of immediate, intense, lancinating, paroxysmal neuropathic pain in the one or two divisions of the 5th cranial nerve distribution region.²⁻⁵ The most common is the V3>V2>V1.⁴ Lasts for a few seconds to less than 1-2 min. It is more common in the older population.⁴ Trigeminal neuralgia develops at about 4.5 per 100,000.⁶ Neuralgic pain may be trigger spontaneously or by such

stimuli which are usually not painful like smiling, face washing, face shaving can precipitate the pain this phenomenon is known as Allodynia.⁵

Trigeminal neuralgia is divided into three types based on its cause, classical and symptomatic and idiopathic.⁵ In classical, the cause is compression of the nerve by some pulsating vessel most commonly by a superior cerebellar artery in 80-90% cases.^{3,7,8} In symptomatic, the cause is compression of the trigeminal nerve by tumors or mass occupying lesions in the brain.^{3,8,9}

Trigeminal neuralgia can be treated both by medical and surgical interventions. Most common is the medical treatment which includes carbamazepine as a first-line drug medical treatment.^{3,10} It is effective in 75% of cases.^{11,12} But when it fails we look for the surgical treatment i.e., cryosurgery, alcohol injection, peripheral

neurectomy, intracranial microvascular decompression (MVD), glycerol rhizolysis, and posterior cranial fossa exploration and more recently gamma knife radiosurgery, radiofrequency thermal rhizotomy (RTR) and auricular electric stimulation (auriculotherapy).^{2,3,11,12} The goal of this research is to estimate the prevalence of trigeminal neuralgia (TN) in patients who visit Lahore's tertiary care hospital.

METHODOLOGY

Study Design: Retrospective cross-sectional study.

Settings: Department of Oral & Maxillofacial Surgery, University College of Dentistry, University of Lahore, Lahore Pakistan.

Duration: January 2018 to December 2019.

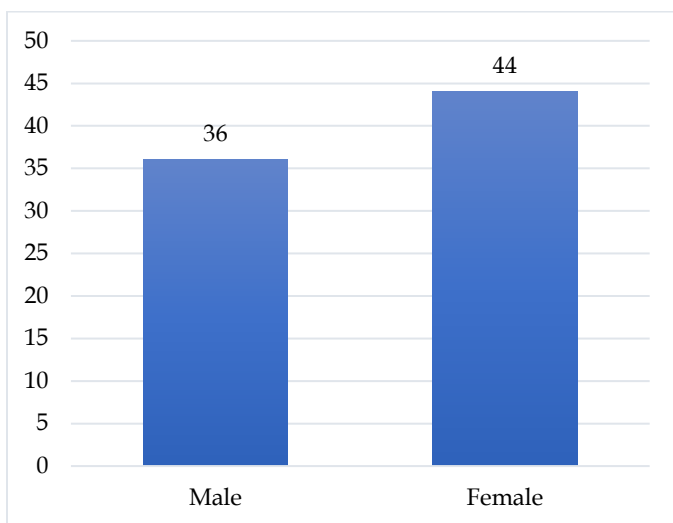
Data Collection Procedure: The total number of patients presented in this period was noted to calculate prevalence and the confirmed cases of trigeminal neuralgia were selected. The diagnosis was mainly on clinical presentation and confirmed by diagnostic nerve block by local anesthetics. All patients, already diagnosed with trigeminal neuralgia were also included irrespective of gender.

Data Analysis: Their demographic record including age, gender, nerve involvement, side of face involved, was reviewed and enter in the datasheet. Data analysis was done using SPSS version 21.

RESULTS

Out of 80 patients, there were 44 females (55%) and 36 male patients (45%). Females suffered more than males. (Figure 1)

Figure 1: Gender distribution



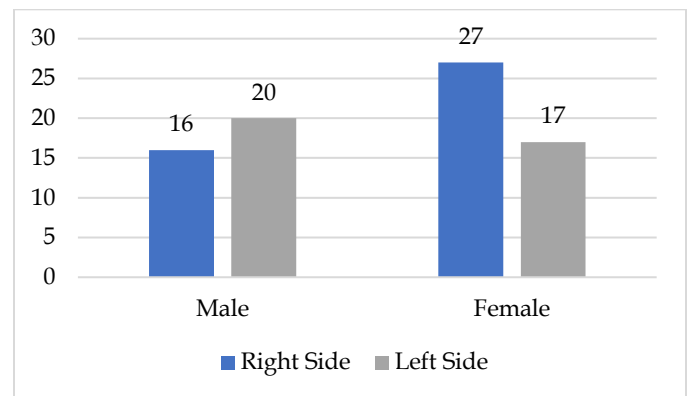
The age range was from 21-80 years with the mean age of 45 years and the high incidence is seen in the fourth and fifth decade of life. (Table 1).

Table 1: Age of patients

Age in years	Number of patients	Percentage
21-30	3	3.75%
31-40	15	18.75%
41-50	26	32.5%
51-60	18	22.5%
61-70	13	16.25%
71-80	5	6.25%

The right side was involved in 43 patients (53.75%) while the left side was involved in 37 patients (46.25%). (Figure 2)

Figure 1: Site distribution



The mandibular branch was involved in 52 (65%) patients. The maxillary branch involvement was 33.75% followed by 1.25% involvement of the ophthalmic branch of the trigeminal nerve. (Table 2).

Table 2: Branch distribution of trigeminal neuralgia

Involved branch of the trigeminal nerve	Number of Patients	Percentage
Mandibular branch	52	65%
Maxillary branch	27	33.75%
Ophthalmic branch	1	1.25%

DISCUSSION

Trigeminal neuralgia (TN) is a disorder of old age and more common in women than men.^{9,13} All preceding studies have shown that the 5th and 8th decades of life are more prone to trigeminal neuralgia.^{6,14} This study also backed previous studies with the peak age of the fourth and fifth decades of life. Though in the sixth decade of life, a reasonable number of patients were affected.

Jannetta reported that with aging arteries become elongated and the brain dips resulting in pulsatile compression, resulting in hyperactive nerve

dysfunction.^{7,15} This study also supported trigeminal neuralgia is more common in the older population.

The mean age of the TN patients according to this study is 45 years. But according to the Loh H S study on 44 patients in Singapore and Malaysia the mean age was 54.9 years which is much higher.¹⁴ This shows that Trigeminal neuralgia is common in a younger age group in this part of the world, i.e., Southern Asia.

Katusic et al published predominance of females with a ratio of 5.9:3.4.^{14,15} This study also shows that a total of 36(45%) patients were males and 44 (55%) were female patients. The percentages show that the disease has a higher incidence in females as compared to males which support the finding of Katusic *et al.*^{6,13}

The difference between the perception of pain between males and females is still unclear, but it may be linked to the female brains responding more to the affective dimension of pain.^{19,13} Gardner and colleagues in their roentgenographic research concluded the hypothesis that osteoporosis after menopausal with increasing basilar impression could be perceived as the source of increased trigeminal neuralgia in older women.¹⁶

The National Institute for Neurological Disorders and Stroke confirmed that women are more likely to develop trigeminal neuralgia than males. This research further confirms the incidence of trigeminal neuralgia in women (55%) as opposed to men (45%) Additionally, there is proof that the condition exists in families, possibly due to the genetic structure of the blood vessels.¹⁷

The study is in agreement with the other reviewers concerning site involvement, which also shows that the usual pain site for Trigeminal neuralgia is the right side (18, 19). According to this study out of 80 patients, in 43 patients (53.75%) the right side was involved while in 37 patients (46.25%) the left side was involved.

Humberto Santo Neto *et al* proposed that due to variations in the human skull and narrowing of the foramen ovale and rotundum on the right side than on the left side could be a reason for the more involvement of trigeminal neuralgia on the right side than on the left side.^{3,20-23} Also in bilateral trigeminal neuralgia, the right-sided pain is more prevalent (62.5% of the cases).^{24,25} This research has backed this theory since there is a greater prevalence of trigeminal neuralgia on the right side (53.75%) than on the left side (46.25%).

The pain of trigeminal neuralgia can be triggered spontaneously. The most common trigger points in the present study are lower and upper alveolar ridges, nasolabial folds, the commissure, lateral boundaries of the lips, and the area below the eyelids. The common triggering stimuli were talking, washing, chewing, mouth opening, touching and shaving.

Although trigeminal neuralgia is a rare disorder when it happens it affects the patient's quality of life. Trigeminal neuralgia may limits everyday functions like eating, smiling, face washing, face shaving so the nature and

frequency of this pain bring to the low quality of life and it may result in depression.^{4,5,26}

CONCLUSION

Trigeminal neuralgia has a prevalence of 0.46%. it is more prevalent in women than in males, which generally develops in the fourth or fifth decades of life and the right side is more affected side than the left side. The mandibular branch is affected more than the maxillary branch of the trigeminal nerve.

LIMITATIONS OF STUDY AND WAY FORWARD

As this is the single institutional study so for estimation of the prevalence of trigeminal neuralgia more studies are needed to conduct in private and public institutes of Pakistan with larger sample size.

CONFLICT OF INTEREST / DISCLOSURE

None.

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