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Original Research Article

Clinical profile and demographic characteristics of patients with trigeminal neuralgia in a Nigerian tertiary hospital

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ABSTRACT

Background: Trigeminal neuralgia (TN) is a chronic neuropathic pain disorder characterized by recurrent episodes of sudden, electric shock-like facial pain affecting one or more branches of the trigeminal nerve. Its varied presentation may pose diagnostic challenges for dental practitioners. This study aimed to assess the clinical profiles and demographic characteristics of patients with trigeminal neuralgia in a Nigerian tertiary hospital.
Methods: A five-year retrospective study was conducted on all patients diagnosed with TN at the Oral Medicine Clinic, Lagos University Teaching Hospital, Idi-Araba, between August 2020 and August 2025. Data were analysed using IBM SPSS version 27. Categorical variables were presented using frequencies and percentages, while associations were assessed using Fisher's exact test. Statistical significance was set at $p<0.05$.
Results: Of 563 patients seen during the study period, 35 were diagnosed with TN, giving a frequency of 6.2%. The mean age was 51.2±14.9 years, with 51.4% aged 40-59 years. Females accounted for 60.0% of cases. Right-sided involvement (62.9%) was more common than left-sided involvement (37.1%). Age group was significantly associated with laterality ($p=0.036$), whereas sex was not ($p=0.568$).
Conclusions: Trigeminal neuralgia occurred predominantly among females, individuals aged 40–59 years, and those with right-sided involvement. These findings were consistent with global trends and will provide valuable local epidemiological data that may enhance recognition and management of TN in Nigeria.

Keywords: Neuropathic pain, Orofacial pain, Trigeminal neuralgia

INTRODUCTION

Trigeminal neuralgia (TN), also known as "tic doulourex" or Fothergill disease, is a chronic neuropathic pain disorder characterized by spontaneous and elicited paroxysms of electric shock-like or stabbing pain in the distribution of one or more branches of the trigeminal nerve.[1,2] It has been described as one of the most painful conditions known to mankind.[3] The pain characteristics significantly disrupt daily activities, associated with increased levels of anxiety and depression, thereby impairing patients' quality of life.[4,5] Currently, vascular compression of the trigeminal nerve at the root entry zone is the most well-accepted cause of TN. Although aetiological factors have been identified, the underlying pathophysiology of TN remains largely unknown.[6] The annual incidence of TN ranges from 4 to 29 per 100,000 persons. The condition is more prevalent in females than males, with a female-to-male ratio of approximately 3:2.[7] The incidence increases with advancing age, with a mean age of onset between 53 and 57 years, although paediatric cases have been reported.[8,9] Studies, particularly from Nigerian teaching hospitals, report a 3% to 4.9% prevalence among patients.[3,10]

It has also been documented that the mandibular and maxillary divisions of the trigeminal nerve are mostly affected, while the ophthalmic division is least affected.[11] Variations in the gender distribution and laterality patterns of trigeminal neuralgia (TN) have been identified across different populations. Female predominance has also been reported in studies done in India and African studies from Ethiopia[13] and Lagos, Nigeria.[12,14] As regards laterality, research has documented a higher occurrence of TN on the right side of the face.[15,16] This pattern was also observed in studies done in Ethiopia and Nigeria.[13,3,14] This right-sided predominance has been attributed to anatomical differences, with the foramen rotundum and foramen ovale being narrower on the right side than the left.[17] However, another study done in Nigeria found a higher prevalence of left-sided TN, affecting about 58% of patients.[10] These differences in the clinical patterns of TN across different geographic regions have been attributed to possible environmental or genetic influences.[10,18] The varied clinical presentations associated with TN may pose a diagnostic challenge to dental practitioners. Therefore, an accurate diagnosis requires a comprehensive clinical evaluation to exclude other possible differential diagnoses that may mimic the condition.[19]

Although trigeminal neuralgia has been widely studied in high-income countries, there is a paucity of local data from Nigeria and sub-Saharan Africa describing its prevalence and clinical patterns of presentation.[20] The findings from this study are expected to provide baseline epidemiological data relevant to oral medicine practice, thereby contributing to the body of knowledge. The aim of this study is to assess the clinical profiles and demographic characteristics of patients with trigeminal neuralgia in a Nigerian tertiary hospital.

METHODS

This study was a 5-year retrospective study of all cases of trigeminal neuralgia seen at the Oral Medicine clinic of Lagos University Teaching Hospital, Idi-Araba, between August 2020 and August 2025. Ethics approval for this study was obtained from the hospital's Health Research and Ethics Committee before commencement of the study.

Inclusion criteria

Male and female patients aged 18 years and above, diagnosed with Trigeminal Neuralgia according to the International IHS Diagnostic Criteria, who attended the Oral Medicine Clinic of the Lagos University Teaching Hospital, Idi- Araba during the study period.[21]

The criteria included the following 1) Recurrent unilateral facial pain in one or more distributions of the trigeminal nerve with no radiation beyond, 2) Pain lasting from a fraction of a second to 2 minutes, severe intensity, electric shock-like, shooting, stabbing, or sharp in quality and precipitated by innocuous stimuli within the affected trigeminal distribution.

Exclusion criteria

Patients with other orofacial pain disorders not consistent with the HIS diagnostic criteria and patients younger than 18 years were excluded.

A total of 563 case notes were reviewed, and out of these, 35 patients met the inclusion criteria and were recruited into the study. The following data were collected from the patients' case notes: socio demographics (name, gender, age) and side of the face affected. The collected data were entered into Microsoft Excel, cleaned, and analyzed using the Statistical Package for the Social Sciences (SPSS) software version 27. The prevalence was calculated using the formula: Prevalence = Number of TN cases/total population of patients x100. Continuous variables like age and sex were analysed using mean and standard deviation, while categorical variables were presented in proportions and percentages. Fisher's exact test was used to assess association between categorical variables, and the level of statistical significance was set at $p<0.05$ at a 95% confidence interval. The data were stored on a password-protected computer.

RESULTS

A total of 563 patients were seen in the Oral Medicine Clinic, and 35 diagnosed cases of Trigeminal Neuralgia were recruited into the study. Therefore, the prevalence of Trigeminal neuralgia in this study was 35/563x100= 6.2%.

Table 1 shows the age distribution of the participants. Trigeminal neuralgia was more common among adults aged 40 and above, with over half of the participants (51.4%, n=18) falling within the 40 to 59 years age group. Among the male population, the majority (64.3%, n=9) were aged 40-59 years, whereas the majority of females (42.9%, n=9) were also aged 40-59 years. The overall mean age of the participants was 51.20±14.9 years, with males having a slightly higher mean age (54.21±11.6) than females (49.16±16.7).

Table 1: Age distribution of participants with trigeminal neuralgia.

Age group (years)	Male (n=14), N (%)	Female (n=21), N (%)	Total (n-35), N (%)
<40	1 (7.1)	6 (28.6)	7 (20.0)
40-59	9 (64.3)	9 (42.9)	18 (51.4)
≤60	4 (28.6)	6 (28.6)	10 (28.6)
Mean±SD	54.21±11.6	49.19±16.7	51.20±14.9

Figure 1 illustrates the gender distribution of participants with trigeminal neuralgia and reveals a female

predominance in the study population. Females accounted for 60.0% (n=21) of the participants, while males represented 40.0% (n=14).

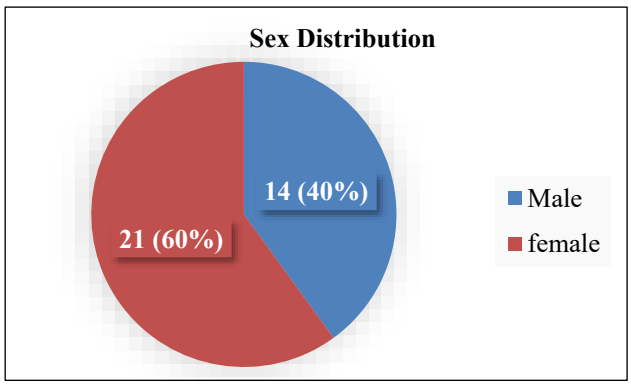


Figure 1: Gender distribution of participants with trigeminal neuralgia.

Figure 2 shows the laterality pattern of trigeminal neuralgia among the participants. Right-sided involvement was more common than left-sided involvement. 62.9% (22) of the patients had trigeminal neuralgia affecting the right side, whereas 37.1% (13) of the participants had left-sided trigeminal neuralgia.

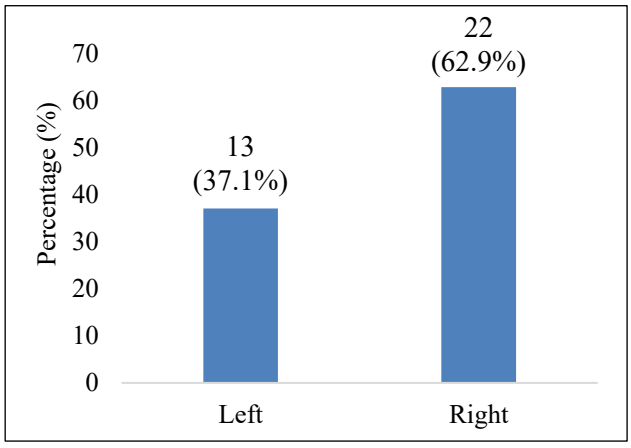


Figure 2: Laterality pattern of trigeminal neuralgia among participants.

Table 2 demonstrates the association between the laterality pattern of trigeminal neuralgia and participants' age and sex. A statistically significant association was observed between age group and laterality (p=0.036). Participants aged 40–59 years were more likely to have right-sided trigeminal neuralgia, while those aged 60 years and above were more represented among left-sided cases. However, there was no statistically significant association between sex and laterality (p=0.568).

Figure 3 shows the yearly trend of trigeminal neuralgia cases from 2020 to 2025. A total of 35 cases were recorded between 2020 and 2025. The number of cases increased progressively from 2020 from 1 to 7 in 2022. It peaked in 2022 (9) and declined slightly in 2023 (7). A slight increase was observed in 2024 (8) before a reduction to 3 cases in 2025.

Table 2: Association between laterality pattern of trigeminal neuralgia and age/sex.

	Left (n=13), N (%)	Right (n=22), N (%)	P value
Age group (years)			
<40	4 (30.8)	3 (13.6)	0.036*
40-59	3 (23.1)	15 (68.2)	
≤60	6 (46.2)	4 (18.2)	
Sex			
Male	6 (46.2)	8 (36.4)	0.568
Female	7 (53.8)	14 (63.6)	

*Significant

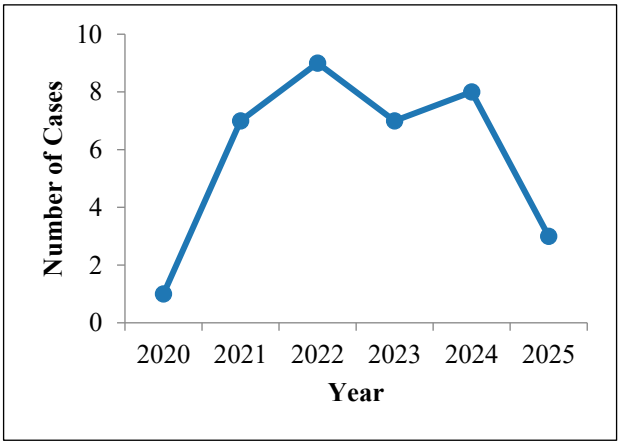


Figure 3: Yearly trend of trigeminal neuralgia cases (2020-2025).

DISCUSSION

This study sought to establish the clinical presentation and demographic characteristics of trigeminal neuralgia (TN) among individuals presenting to the Oral Medicine Clinic at the Lagos University Teaching Hospital (LUTH). Over the five-year study period spanning 2020 to 2025, a definitive diagnosis of TN was established in 35 out of 563 evaluated patients, yielding an institutional prevalence rate of 6.2%. This figure represents a notable increase compared to the 3% prevalence previously documented in a comparable tertiary healthcare center in Ile-Ife, South-West Nigeria.[10] This epidemiological variance may be heavily influenced by the distinct demographic characteristics of the two study locations; Lagos is a highly dense, multicultural metropolis with a greater concentration of health-literate populations actively seeking specialized tertiary dental care, whereas Ile-Ife is a less populated semi-urban town. Furthermore, this relatively high institutional burden aligns conceptually with global epidemiological frameworks, such as a recent systematic review that established the pooled global annual prevalence of trigeminal neuralgia

at 45.38 cases per 100,000 individuals, underscoring that TN remains a significant, non-negligible facial pain pathology within urban African populations.[20]

Regarding the demographic distribution of the disease, the findings of this study demonstrate a clear predominance of trigeminal neuralgia among individuals in their fourth decade of life and older. Specifically, more than half of the diagnosed cohort (51.4%) was concentrated within the 40–59 years age bracket. Advancing age cohorts, specifically those aged 60 years and above, comprised 28.6% of the sample, whereas younger patients under the age of 40 represented the smallest proportion at 20.0%. This strong trend toward an older demographic mirror existing regional literature; for instance, a comparable Nigerian study documented that individuals older than 50 years made up the majority (58%) of the presentation pool.[10] Furthermore, this age distribution aligns closely with international data, including a Pakistani study that isolated the 41–50 age range as the peak period of vulnerability, accounting for 57.1% of all evaluated cases.[22] Collectively, these data reaffirm the widely accepted clinical understanding that the incidence of trigeminal neuralgia rises sharply with advancing age, showing a consistent global pattern regardless of geographical location.

In terms of sex distribution, the data from this study indicate a distinct female preponderance among the diagnosed trigeminal neuralgia cohort. Female patients constituted 60.0% of the sample, whereas male patients made up the remaining 40.0%. This observed female-to-male ratio stands in contrast to some regional reports in the literature, including a Pakistani study where a male majority of 59.4% was observed, as well as an Ethiopian study that documented a slight male predominance of 50.8%.[22,13] Conversely, our findings align closely with a comprehensive global systematic review and meta-regression analysis, which confirmed that both the incidence and prevalence of trigeminal neuralgia are systematically elevated in women compared to men.[20] This alignment with broader global trends suggests that while local hospital-based studies may occasionally exhibit variations due to regional healthcare-seeking behaviors, the overall biological or epidemiological susceptibility of the condition leans consistently toward the female demographic.

With respect to the laterality of the condition, our results demonstrated a higher frequency of right-sided facial involvement compared to left-sided presentation within the study cohort. Right-sided trigeminal neuralgia was observed in approximately 62.9% of the participants, whereas the remaining 37.1% exhibited left-sided symptoms. This higher prevalence on the right side corresponds closely with regional data from an Indian study, which reported that 56.8% of patients presented with right-sided involvement.[23] Furthermore, this distribution is strongly supported by a comprehensive systematic review focused on the anatomical side preference of TN, which similarly concluded that the right side of the face is predominantly affected.[15] While the precise physiological mechanisms driving this right-sided dominance remain a subject of ongoing clinical discussion, the anatomical distribution observed in this Nigerian population reinforces a well-documented global pattern of the disease. A statistically significant association was observed between age group and laterality of trigeminal neuralgia (p=0.036). Participants aged 40-59 years presented with right-sided disease (68.2%), whereas those aged 60 years and above were more frequently represented among left-sided cases (18.2%). While increasing age is a primary risk factor for the onset of Trigeminal Neuralgia, there is no documented evidence of this directly influencing laterality pattern.[8]

The limitation of this study was that it was conducted in a single tertiary healthcare institution; therefore, the findings may not be fully representative of the general Nigerian population.

CONCLUSION

This study found that trigeminal neuralgia is a notable cause of orofacial pain among patients attending the Oral Medicine Clinic at Lagos University Teaching Hospital, with an institutional prevalence of 6.2%. The condition occurred more frequently among individuals aged 40 years and above, females, and patients with right-sided facial involvement. Further multi centre studies with larger sample sizes should be conducted across different regions of Nigeria to provide more representative epidemiological data that may enhance understanding, diagnosis, and management of the condition within the population.

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Ethical approval: The study was approved by the Lagos University Teaching Hospital (LUTH) Health Research and Ethics Committee (Registration No: NHREC: 19/12/2008a)

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