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# Clinical Manifestations and Assessment of Quality of Life in The Differentiated Treatment of Patients with Trigeminal Neuralgia

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**Abstract:** The article details the historical aspects of such a serious illness as trigeminal neuralgia, dynamic development of ways and methods of conservative and surgical treatment. In connection with the development of medicine and the emergence of modern diagnostic methods, the analysis and importance for determining the severity of trigeminal neuralgia are given. The advantages of the methods of treatment of trigeminal neuralgia are given, the validity of a differentiated approach, taking into account the severity of the disease. Studies of the quality of life of patients using questionnaires, based on the analysis of the data obtained, the choice of a method for treating trigeminal neuralgia and improving results.

**Keywords:** Trigeminal neuralgia, diagnosis, quality of life, differentiated approach, severity of neuralgia.

**Introduction:** The symptoms of trigeminal neuralgia were first described in detail and proposed to treat this disease by English philosopher John Locke in 1677, when he encountered seizures in the right side of his face. For treatment, he prescribed laxatives, and after several weeks of use, he noted a significant decrease in neuralgia attacks [1,2,4,5,7,8,10,12,13]. About a century later, in 1756, Nicolas André described the pain syndrome in trigeminal neuralgia, calling it "tic doloreux." He believed that this syndrome arises from mimic contractions of facial muscles caused by irritation of the branches of the trigeminal nerve. Based on his hypothesis, André applied an alkaline solution for local application to destroy the second branch of the nerve through the infraorbital opening, injecting it for several days until the root was completely destroyed. [1,2,7,8,10,11,13]. Currently, the quality of life (QoL) based on the patient's subjective sensations is becoming an important criterion for evaluating treatment effectiveness in clinical trials. Individual approach to treating patients, taking into account the severity of trigeminal nerve neuralgia, allows for improved treatment outcomes and improved quality of life [3,6,9,13]. A differentiated approach to treating patients, taking into account the severity of trigeminal nerve neuralgia, allows us to improve treatment outcomes and quality of life.

**Purpose of the study**: To improve the treatment

outcomes of patients with trigeminal nerve neuralgia by a differentiated approach, taking into account the severity of the course and quality of life assessment.

## METHODS

The study is based on the observation results of 171 patients with trigeminal nerve neuralgia who were treated at the Tashkent Medical Academy hospital, multidisciplinary clinic, and neurosurgery department during the period from 2019 to 2024. To establish a diagnosis and choose a treatment method, all patients underwent a comprehensive examination, including clinical-neurological and instrumental research methods. During the initial examination of patients, attention was paid to the presence of the following symptoms as the main criteria for trigeminal nerve (TRN) neuralgia: unilateral seizure-like facial pain; presence of a trigger zone; painful Valerian points (pressure on which causes an attack), intensification of pain during food and conversation; positive effect of Finley's psyn treatment in the initial stages of the disease. The presence of such symptoms as chewing muscle hypertonus, autonomic disorders, hypesthesia of the innervation zones of individual branches or the entire face half was also checked. Short attacks (2-15 min) are characteristic of TPN, which can recur frequently (up to 30 times a day). An important place in establishing the diagnosis and determining the further treatment tactics was occupied by the magnetic resonance imaging (MRI) data from 1.5 to 3.0 tesla, according to T2 (3D-FIESTA, DRIVE or CISS), the time of the intermediate magnetic resonance angiography (MRA) (3D-TOF), as well as the contrast of the enhanced balanced T1 mode for determining the nervous-vascular conflict. In our studies, electroneuromyography (ENMG) was used, which determines the level of nerve branch damage, i.e., irritation of the central or peripheral type with 75% reliability, which allows us to choose the tactics of surgical or conservative treatment of trigeminal nerve neuralgia, taking into account the level of damage. The quality of life of patients was assessed using questionnaires developed by the Republican Specialized Scientific and Practical Medical Center of Neurosurgery, "Assessment of Quality of Life in Trigeminal Neuralgia" and "Assessment of Pain Syndrome in Trigeminal Neuralgia."

## RESULTS AND DISCUSSION

We studied the results of observations of 171 patients with trigeminal nerve neuralgia who were treated at the Tashkent Medical Academy hospital, multidisciplinary clinic, and neurosurgery department during the period from 2019 to 2024. All patients were divided into three groups according to the treatment methods, severity of trigeminal nerve neuralgia, and the state of their somatic status. The first group included 55 (32.2%) patients who underwent conservative treatment, blockade of the peripheral branches of the trigeminal nerve. The second group consisted of 57 (33.3%) patients who underwent Gasserian ganglion blockades and trigeminal nerve branch exures. The third group consisted of 59 (34.5%) patients who underwent microvascular decompression of the trigeminal nerve root (1-table).

**Table 1**

**Distribution of the studied patients by groups, n=171**

| Groups | Abs. | % |
|---|---|---|
| 1 group | 55 | 32,2 |
| 2nd group | 57 | 33,3 |
| 3nd group | 59 | 34,5 |
| Total: | 171 | 100 |

By age, patients were distributed according to WHO classification, which provides for age groups: young age 14-19 years; younger average age 20-44 years; older average age 45-59 years; elderly age 60-74 years; elderly age 75-89 years; In our observations, the patients were between 24 and 79 years old, taking this into account, the distribution of patients by age groups is as follows (Table. 2).

**Table 2**

**Distribution of patients with TPN by age and sex, n=171**

| Age groups | Gender | | | | Number of patients | |
|---|---|---|---|---|---|---|
| | Man | % | Woman | % | abs. | % |
| 25-35 years | 7 | 9,9 | 4 | 4,5 | 11 | 6,4 |
| 36-45 years | 13 | 19,3 | 20 | 19,5 | 33 | 19,3 |
| 46-60 years | 29 | 42,3 | 42 | 40,7 | 71 | 41,5 |
| 60-74 years | 17 | 24,8 | 35 | 33,7 | 52 | 30,4 |
| 75-89 years | 2 | 3,7 | 2 | 1,6 | 4 | 2,4 |
| 90 and older | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 |
| Total | 68 | 39,5 | 103 | 60,5 | 171 | 100 |

Distribution of patients by age and sex showed that among the patients, women prevailed - 103 (60.2%), men - 68 (39.8%), which is 1.5 times less than women. The majority of patients (71 (41.5%) were elderly and senile, the maximum number of patients was in the age group 60-74 years, 52 (30.4%), which corresponds to the data of world scientists. When examining the somatic status, it was found that among 171 patients, 69 (40.5%) patients had somatic pathology manifested as arterial hypertension in 53 (31.0%) patients, and coronary heart disease in 13 (7.8%) patients. In 19 (11.2%) observations, diabetes mellitus was noted, in 4 (2.6%) patients - liver pathology, and in 1 (0.9%) - renal failure.

**Table 3**

**Pain-inducing factors in the studied patients n=171**

| Factors | abs | % of total number of patients |
|---|---|---|
| Chewing/Eating | 159 | 93,1 |
| Conversation | 159 | 93,1 |
| Touch | 14 | 8,3 |
| Cold | 8 | 4,9 |
| Tooth cleaning | 5 | 2,9 |
| Washing/shaving | 2 | 1,2 |
| Opening of the mouth | 1 | 0,7 |

Upon examination of patients, the following symptoms were identified as the main criteria for trigeminal nerve neuralgia: unilateral, seizure-like facial pain, the presence of a trigger zone in 171 examined patients, the localization of the trigger zones gave the following results, with only 33 (19.3%) observations, among 33 patients with trigger points by localization, the nasolabial triangle ranks first in 16 (48.5), the mental region in second place in 8 (24.3%), the maxillofacial region in third place in 3 (9.1%), the remaining zones - oral cavity, cheek, parotid region, Valle's points, neck in the area of the spinous processes of the III-IV cervical vertebrae in 3% to 6% of

**Table 4**

**Location of trigger points in the studied patients, n=33 (19.3%)**

| Trigger point localization, n=33 | abs | % |
|---|---|---|

| | | |
|---|---|---|
| Nasolabial triangle | 16 | 48,5 |
| Mental area | 8 | 24,3 |
| Phanomandibular region | 3 | 9,1 |
| Oral cavity | 2 | 6,1 |
| Cheek | 1 | 3,0 |
| Periauricular region | 1 | 3,0 |
| Valle Points | 1 | 3,0 |
| Neck in the area of the spinous processes of the III-IV cervical vertebrae | 1 | 3,0 |
| Total: | 33 | 100 |

The presence of symptoms of chewing muscle hypertonus, autonomic disorders, and hypesthesia of the innervation zones of individual branches or the entire face half were also checked. At the same time, we were convinced that trigeminal nerve neuralgia is characterized by the presence of short attacks (2-15 min), which can recur frequently (up to 30 times a day). The study of sensory disturbances in the zone of innervation of the trigeminal nerve branches yielded the following results. This can be clearly observed in the table (5-table).

**Table 5**

**Presence of sensory disturbances in the examined patients upon admission, n=92 (54%)**

| Neurological symptoms | 1st group | 2nd group | 3rd group | Total cases, abs | % |
|---|---|---|---|---|---|
| Hypesthesia | 11 | 17 | 20 | 48 | 52,2 |
| Hyperesthesia | 1 | 2 | 3 | 6 | 6,5 |
| Anesthesia | - | - | 1 | 1 | 1,1 |
| Paresthesia | 9 | 13 | 15 | 37 | 40,2 |
| Total: | 21 | 32 | 39 | 92 | 100,0 |
| Total: % | 22,9 | 34,7 | 42,4 | 100,0 | |

In our study, out of 171 patients, 92 (54%) had sensory disturbances in the area of the trigeminal nerve branches in 52.2% of cases of hypesthesia, 40.2% of cases of paresthesia, 6.5% of cases of hyperesthesia, and 1 observation of anesthesia as a result of previous surgical interventions. This case was observed among patients in the third group. As a result of repeated exceresis operations, sensation in the innervation zone was completely lost, and trophic changes occurred in the facial mimic muscles on the affected side of the trigeminal nerve branches.

Vegetative disorders in our patients were observed in 18 (10.5%) cases, out of 18 cases, hyperemia was most common in 50.1%, tearing in 33.3%, and salivation in 16.6% if we consider the groups: 55.6% in the third group, 27.7% in the second group, and less commonly in 16.7% in the first group, after treatment, vegetative disorders were restored, which is clearly presented in the table (6-table).

**Table 6**

**Disruption of vegetative disorders in the examined patients upon admission, n=18 (10.5%)**

| Vegetative | 1st group | 2nd group | | Total cases, | % |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| disorders | | | 3rd group | abs | |
| Hyperemia | 1 | 2 | 6 | 9 | 50,1 |
| Salivation | 1 | 1 | 1 | 3 | 16,6 |
| Tearing | 1 | 2 | 3 | 6 | 33,3 |
| Abs | 3 | 5 | 10 | 18 | 100,0 |
| % | 16,7 | 27,7 | 55,6 | 100 % | |

Analysis of 171 examined patients, by the location of the affected branches of the trigeminal nerve, showed the following results. In 134 (78.4%) patients, trigeminal nerve neuralgia was observed on the right, in 34 (19.8%) on the left, and in 3 (1.8%) observations on both sides. In the examined patients in our observations, the second (33.3%) and second + third branches (4.6%) were more commonly affected, and, as noted above, in most cases, right-sided neuralgia was noted, which proves its typical nature. Thus, in our observations, the 2nd branch was most often affected simultaneously in 50.9% of patients. Infection of all three branches was observed in 31.9% and one branch in 17.2%. The most frequent pain syndrome was on the right in 78.4%, on the left in 19.8%, and on both sides in 1.8% of cases. The obtained data of the results of the study of patients are consistent with the literature data of world authors. Positive results among the 171 patients studied were noted in 163 (95.0%), without changes in 8 (5.0%). The best indicators were in group 3, all patients in this group received positive results.

This proves the effectiveness of the surgical intervention method in a differentiated approach to treating trigeminal nerve neuralgia, taking into account the patient's somatic status (Table 7).

**Table 7**

**Recent results of treatment of patients with trigeminal nerve neuralgia n=171T**

| Surgical method | | Treatment results | | | |
|---|---|---|---|---|---|
| | Groups | Groups Significant | Improvement | improvement without changes | Total: |
| Blockades peripheral branches of the trigeminal nerve | 1 | 5 (9,2%) | 46 (83,3%) | 4 (7,4%) | 55 (92,7) |
| Gasserian node exceresis, blockade of trigeminal nerve | 2 | 15 (25,6%) | 38 (66,7%) | 4 (7,7%) | 57 (92,9) |

| | | | | | |
|---|---|---|---|---|---|
| Microvascular decompression trigeminal nerve | 3 | 51 (87%) | 8 (13%) | 0 | 59 (100) |

Analysis of the obtained data showed that 87% of patients in the third group showed significant improvement, 13% showed improvement, without changes, in the second group 25.5% showed significant improvement, 66.7% showed improvement, in the first group only 9.2% showed significant improvement, 83.3% showed improvement, in the first and second groups without changes in almost equal proportions more than 7% of cases.

In our studies, a more effective method of surgical intervention was the microvascular decompression of the trigeminal nerve root at the brainstem, as patients with significant improvements in this group accounted for 87% of the total number of treated patients. In our studies, questionnaires from the Republican Specialized Scientific and Practical Medical Center of Neurosurgery were used to assess the quality of life and pain syndrome in patients with trigeminal nerve neuralgia.

The use of the "Life Quality Assessment for Trigeminal Neuralgia" questionnaire showed that the quality of life in all studied groups was similar: that is, before surgery, the quality of life indicators in all groups were low (Table 8).

**Table 8**

**Application of the questionnaire "Life Quality Assessment in Trigeminal Neuralgia" before and after treatment n=171.**

| Groups | Number of patients in the group, abs. | Total points | |
|---|---|---|---|
| | | Before treatment | After treatment |
| 1 | 55 | 13,95±0,32 | 10,7±0,22 |
| 2 | 57 | 25,22±0,3 | 17,90±0,21 |
| 3 | 59 | 27,22±0,2 | 15,22±0,19 |
| Total: | 171 | 22,23±0,22 | 14,6±0,20 |
| Note: differences in indicators are statistically significant (P<0.001) | | | |

After the treatment, the quality of life indicators of patients with trigeminal nerve neuralgia immediately began to improve, especially noticeably in the third group, as well as positive treatment results in patients of the second and first groups. The use of the questionnaire "Assessment of pain syndrome in trigeminal nerve neuralgia" in the third period showed that the parameters of pain syndrome in the preoperative period in the examined patients in all groups differed between themselves with a difference in points. High indicators were recorded in the first group before surgery, which corresponded to the severity of the pain syndrome intensity, and after treatment in all groups, its decrease to an average degree was observed in both the first and second groups, which was noted by the data obtained as a result of the use of questionnaires, which clearly looks as follows (table. 9).

**Table 9**

**Application of the questionnaire "Assessment of pain syndrome in trigeminal nerve neuralgia" before and after treatment n=171.**

| Groups | Number of patients in the group, abs | Total points | |
|---|---|---|---|
| | | Before treatment | After treatment |
| 1 | 55 | 27,31±0,33 | 15,22±0,03 |
| 2 | 57 | 23,31±0,2 | 13,19±0,29 |
| 3 | 59 | 21,22±0,2 | 11,22±0,19 |
| Итого: | 171 | 22,23±0,22 | 17,94±0,20 |
| Note: differences in indicators are statistically significant (P<0.001) | | | |

Analyzing the anamnesis data of these patients, we want to draw attention to the following points indicating the complexity of disease diagnosis and, accordingly, improper treatment of patients. Thus, out of 5 patients with first-line neuralgia, 3 were previously diagnosed with migraine and received appropriate therapy. However, the most difficult and causing certain harm to health are neuralgias of the 3rd or third branch. Almost all patients of the second group (57) sought dental care for toothache. Almost all patients underwent treatment with dentists, including tooth extraction. Further progression of pain made it possible to correctly diagnose and subsequently carry out therapy for the underlying disease. Summarizing the above, we would like to note that the development of clinical manifestations from the onset of the disease is barogradient. According to the questionnaire "Assessment of pain syndrome in trigeminal nerve neuralgia": up to 10 points - mild severity of trigeminal nerve neuralgia, 11-21 points - moderate severity of trigeminal nerve neuralgia, 22-32 points - severe severity of trigeminal nerve neuralgia. Assessment of pain syndrome in trigeminal nerve neuralgia according to the questionnaire made it possible to determine in 171 patients a mild degree of pain syndrome in 41 (24.4%), a moderate degree - in 121 (71.3%), a severe degree - in 9 (5.2%), and in the postoperative period - complete absence of pain was noted in 166 (97.3%) and in 5 (2.9%) - a mild degree of pain syndrome. According to the questionnaire "Assessment of Quality of Life in Trigeminal Neuralgia": a sum of up to 10 points - insignificant deterioration of quality of life, 11-21 points - moderate deterioration of quality of life, 22-33 points - significant deterioration of quality of life. Assessment of the quality of life according to the questionnaire in 171 patients with trigeminal nerve neuralgia showed a significant deterioration in the preoperative period in 130 (76.5%) patients, and a deterioration in the quality of life in 41 (24.4%). And in the postoperative period, patients with a significant improvement in quality of life were 18 (10.4%) and 146 (85.4%), with a slight improvement in quality of life was noted in 7 (4.3%) patients.

**CONCLUSIONS**

1. Trigger zones were identified in 171 patients in 33 observations (19.3%), among 33: nasolabial triangle in 16 (48.5%), mental region in 8 (24.3%), frontal-mastoid region in 3 (9.1%), and the remaining zones as oral cavity, cheek, parotid region, Valle's points, and neck in the area of the spinous processes of the III-IV cervical vertebrae in 3% to 6% of cases.

2. In our study, out of 171 patients, 92 (54%) had sensory disturbances in the area of the trigeminal nerve branches in 52.2% of cases of hypesthesia, 40.2% of cases of paresthesia, 6.5% of cases of hyperesthesia, and 1 observation of anesthesia as a result of previous surgical interventions.

3. Vegetative disorders in our patients were observed in 18 (10.5%) cases, of which hyperemia was most common in 50.1%, tearing in 33.3%, and salivation in 16.6% of cases.

4. Positive results after treatment in 171 patients were noted in 163 (95.0%), without changes in 8 (5.0%),

which proves that all treatment methods for neuralgia are sufficiently effective when applied differentially.

5. Assessment of pain syndrome in trigeminal nerve neuralgia using a questionnaire revealed that 171 patients had mild pain syndrome in 41 (24.4%), moderate pain in 121 (71.3%), severe pain in 9 (5.2%), and in the postoperative period, complete absence of pain was noted in 166 (97.3%) and 5 (2.9%) patients with mild pain syndrome.

6. Assessment of the quality of life according to the questionnaire in 171 patients with trigeminal nerve neuralgia showed a significant deterioration of the quality of life in 130 (76.5%) patients in the preoperative period, and a deterioration of the quality of life in 41 (24.4%). And in the postoperative period, patients with a significant improvement in quality of life were 18 (10.4%) and with an improvement - 146 (85.4%), a slight improvement in quality of life was noted in 7 (4.3%) patients

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