
Clinical and Neurological Peculiarities of Trigeminal Neuralgia

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ABSTRACT

Trigeminal neuralgia (TN) is characterized by sudden, severe, brief, and stabbing recurrent episodes of facial pain in one or more branches of the trigeminal nerve. The right side of the face (60%) is affected more than the left side. Bilateral simultaneous pain in TN is rare (1.7%–5%) and more often these patients experience side-alternating unilateral pain paroxysms. The pain of TN most frequently affects the distribution of the maxillary (V2) and mandibular (V3) divisions of the trigeminal nerve, though approximately a quarter of the cases have ophthalmic (V1) division involvement. The results of the study are presented and the frequency of damage to the branches of the trigeminal nerve, the most common etiological factors in the development of TN in the examined patients, the frequency of damage to the branches of the trigeminal nerve depending on the duration of the disease, the clinical semiology of the trigeminal nerve depending on the duration of the disease, the score of pain in TN in depending on the duration of the disease, clinical and vegetative indicators depending on the duration of TN.

KEYWORDS: Trigeminal Neuralgia, Clinical Presentation of TN, Anamnestic Data, Duration of The Disease, Pain with TN

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INTRODUCTION

Trigeminal neuralgia (TN) is a very common pathology and is 3-5 cases per 10,000, the incidence reaches 4 cases per 10,000 per year. WHO estimates that TN affects 1 million people worldwide [9].

It is more prevalent in women than in men (F:M ratio 3:2) [5, 7]. The incidence increases with age, with a mean age of onset of 53–57 years and range of 24–93 years in adult series [7, 12]. The first unreasonable attack of TN is recorded in 34%, associated with dental treatment - in 27%, with stress and negative emotions - in 17%, other cases of TN attack are associated with facial hypothermia, respiratory infections or injuries of the facial area [13].

The right side of the face (60%) is affected more than the left side [8]. Bilateral simultaneous pain in TN is rare (1.7%–5%) and more often these patients experience side-alternating unilateral pain paroxysms. In view of its rarity, bilateral simultaneous or side-alternating trigeminal paroxysmal pains should raise concern about an underlying neurological disorder or a non-neurological disorder affecting the cranium.

The pain of TN most frequently affects the distribution of the maxillary (V2) and mandibular (V3) divisions of the trigeminal nerve, though approximately a quarter of the cases have ophthalmic (V1) division involvement [6, 7].

TN is characterized by recurrent unilateral short-lasting pain attacks distributed in one or more branches of the trigeminal nerve. Pain is described as sharp, lancinating, shock-like or electric-like, severe, sudden and superficial and the pain attacks may be accompanied by tic-like cramps (i.e., involuntary contraction or spasm) of the facial muscles, hence, the early description of TN is "tic douloureux".

TN usually affects the maxillary (V2) and mandibular (V3) trigeminal branches. The ophthalmic branch (V1) is afflicted less commonly, occurring in 1-5% of patients. The frequency of involvement of the V2 and V3 divisions varies in different studies, with some reporting higher incidence for the V2 and others for the V3 division [1, 2, 3, 7]. The involvement of V1+V2 and V2+V3 divisions also accounts for approximately 10 and 20%, respectively, of TN cases [1], and the involvement of all three nerve branches have been reported [7, 11]. It has been

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suggested that the high incidence of V2 and V3 involvement might be due to the somatotopic distribution of the sensory fibers in the trigeminal root, as vascular compression was more frequently found in a superior-lateral or inferior position in relation to the circumference of the nerve root [4, 10].

PURPOSE OF THE STUDY

The purpose of this study was to study the clinical and neurological features of the course of the clinical picture of TN.

MATERIALS AND RESEARCH METHODS

Clinical studies were carried out in 105 patients (40% of men and 60% of women) aged 23 to 80 years. The data on the distribution of patients by gender and age are presented in Table 1.

Table 1. Characteristics of patients depending on age and gender

Age	Men		Women		Total	
	Abs.	%	Abs.	%	Abs.	%
20-29 years	5	13,5	8	11,8	13	12,4
30-39 years	2	5,4	7	10,3	9	8,6
40-49 years	4	10,8	9	13,2	13	12,4
50-59 years	12	32,4	16	23,5	28	26,7
60-69 years	10	27,0	18	26,5	28	26,7
over 70 years old	4	10,8	10	14,7	14	13,3
Total	37	35,2	68	64,8	105	100

As can be seen from the presented table 1, men accounted for 35,2%, and women - 64,8%, which is 1,5 times more than men.

Most of the patients 70 (66,7%) were middle-aged and elderly, the average age of men - $50,8 \pm 19,05$ years, women - $55,5 \pm 13,03$ years.

Clinical and neurological examination was carried out according to the generally accepted scheme using traditional methods, assessment of the functions of the cranial nerves, motor and sensory spheres, assessment of cerebellar functions and functions of the pelvic organs. In addition to studying complaints, anamnesis and research of neurological status, a clinical assessment of the state of

various levels of the autonomic nervous system, a quantitative assessment of pain syndrome using scales and questionnaires was carried out.

RESULTS AND DISCUSSION

On examination, it was found that localization of pain on the right was observed in 53% of patients, on the left in 47%.

According to the frequency of lesions of the branches of the trigeminal nerve, the patients were distributed as follows. In the studied patients, the second + third branches (42,5%), the second (32,5%) and the third branch (20%) were more often affected and, as noted above, in most cases, right-sided neuropathy was noted (Fig. 1).

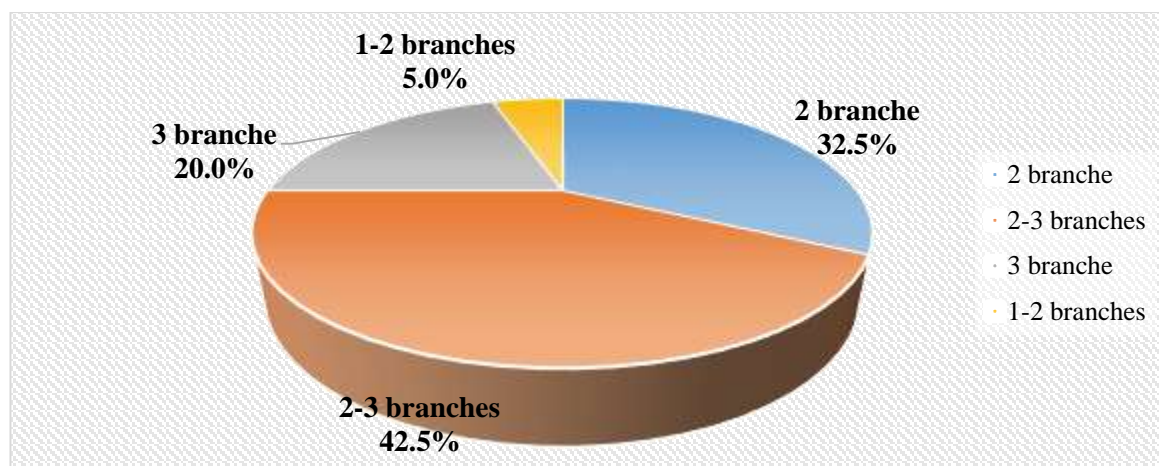


Figure 1. Frequency of lesions of the branches of the trigeminal nerve

Based on the anamnestic data and after the complete exclusion of the factors of symptomatic TN (brain tumors, vascular diseases, demyelinating diseases of the trunk, etc.),

the following supposed etiological factors of the development of the disease were established (Fig. 2).

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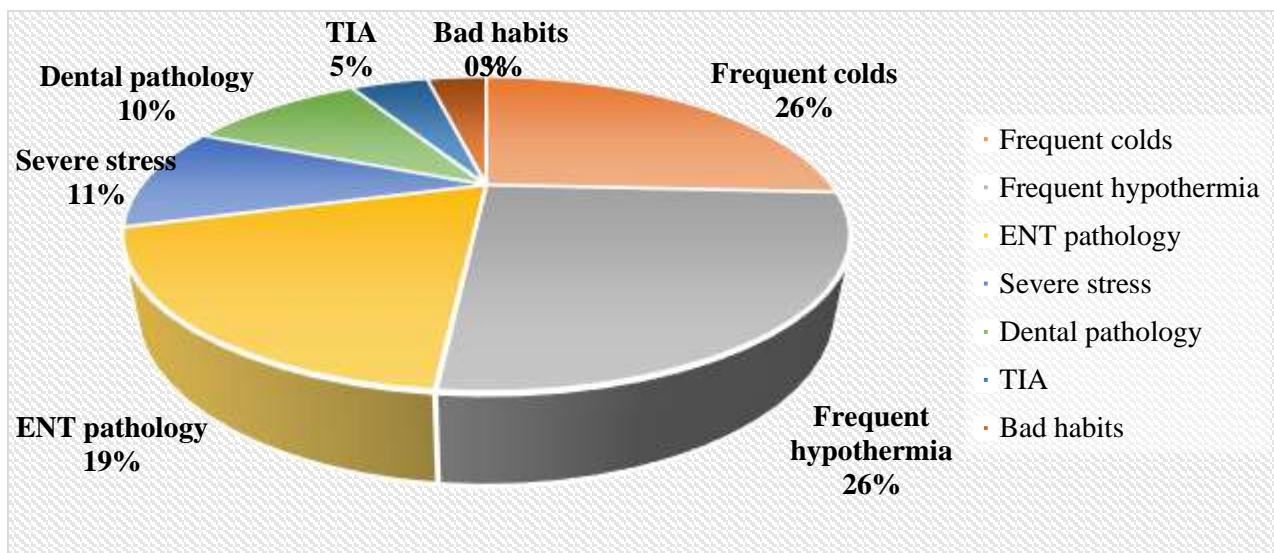


Figure 2. The most common etiological factors in the development of TN in the examined patients (n = 105)

Thus, 72% of patients indicated frequent colds, frequent hypothermia - 72%, ENT pathology - 53%, severe stress - 30%, dental pathologies - 29%, TIA - 13%, bad habits - 10%.

Most of the patients had concomitant pathology: diseases of the cardiovascular system: ischemic heart disease - 13,3%; hypertension - 29,5%; obesity - 21,9%; atherosclerosis - 23,8%; diabetes mellitus - 1,8%; diseases of the gastrointestinal tract - 3,8%; diseases of the thyroid gland - 0,9% (Fig. 3).

The group of patients in the initial stage of the disease with a history of the disease up to 1 year made 19 observations, the largest number was with the clinical picture of the disease of the 2nd and 3rd branches, and in second place were patients with the defeat of the first branches. With a longer course of the disease (from 1 to 3 years), in 35 patients, as well as in patients in the initial stage of the disease, the 2nd and 3rd branches of TN are affected in most cases, and in patients with a disease duration of more than 3 years, in most cases the clinic of lesions of the 3rd branch of TN prevailed.

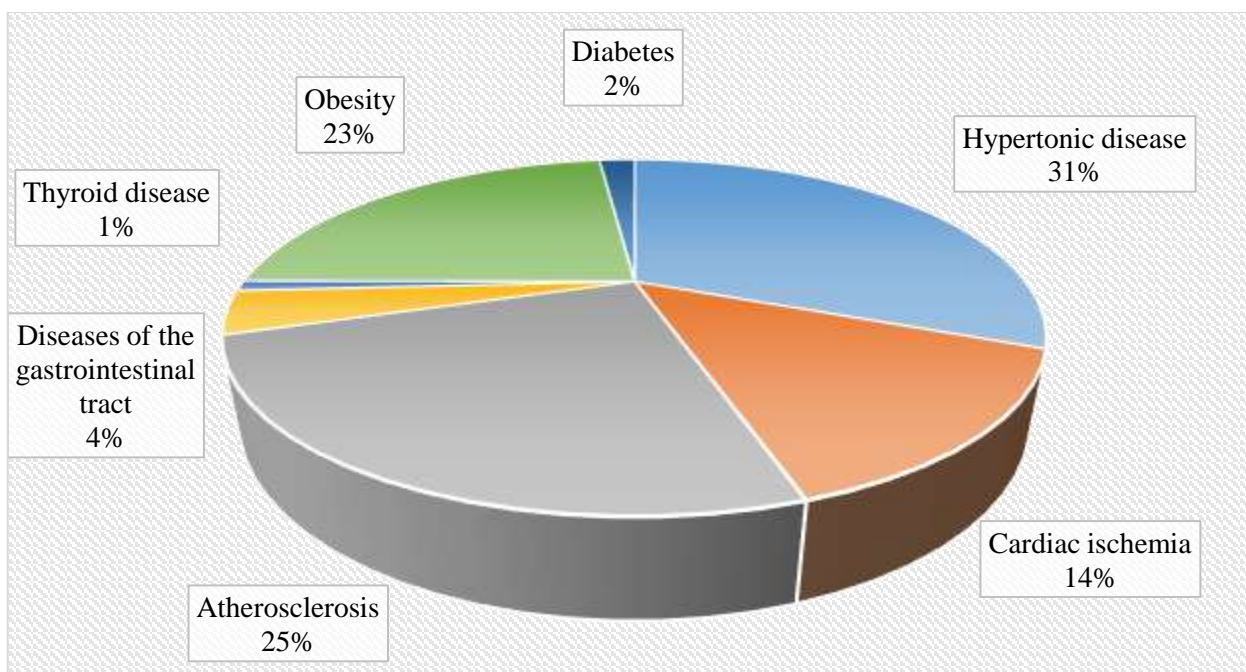


Figure 3. Concomitant diseases in patients with TN

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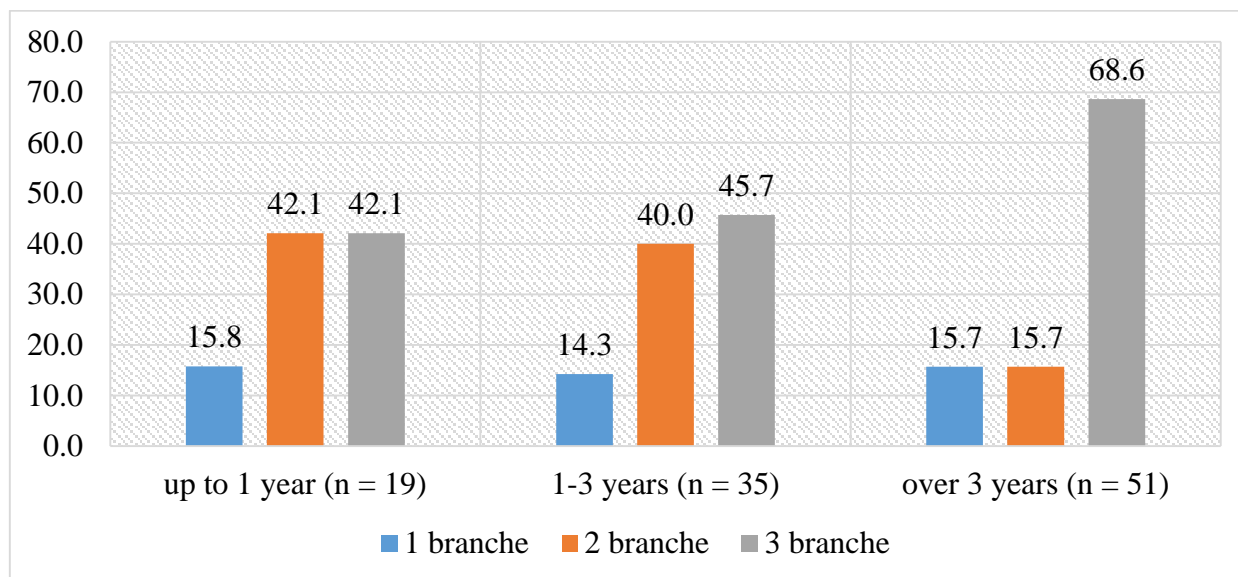


Figure 4. The frequency of damage to the branches of the trigeminal nerve, depending on the duration of the disease

The clinical picture was dominated by acute shooting pains, Dull pain in this category of patients was not expressed. Burning sensation was noted only in patients with lesions of

the second or third branches of the trigeminal nerve. Tingling sensation occurred in all patients (Fig. 5).

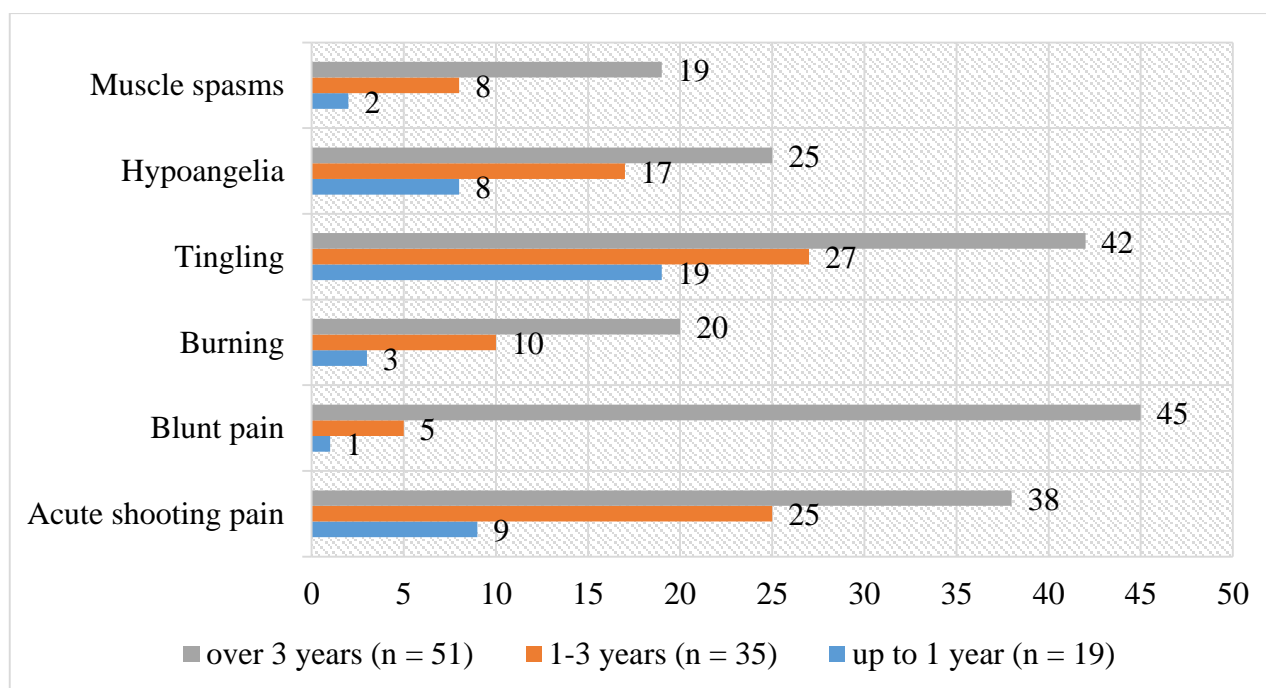


Figure 5. Clinical semiology of the trigeminal nerve depending on the duration of the disease

As can be seen from Fig. 6, in patients with TN, with an increase in the duration of the disease, the severity of paroxysms of pain manifestations is noted. We also found

that with the duration of the disease, the score on the Beck Depression Scale increases.

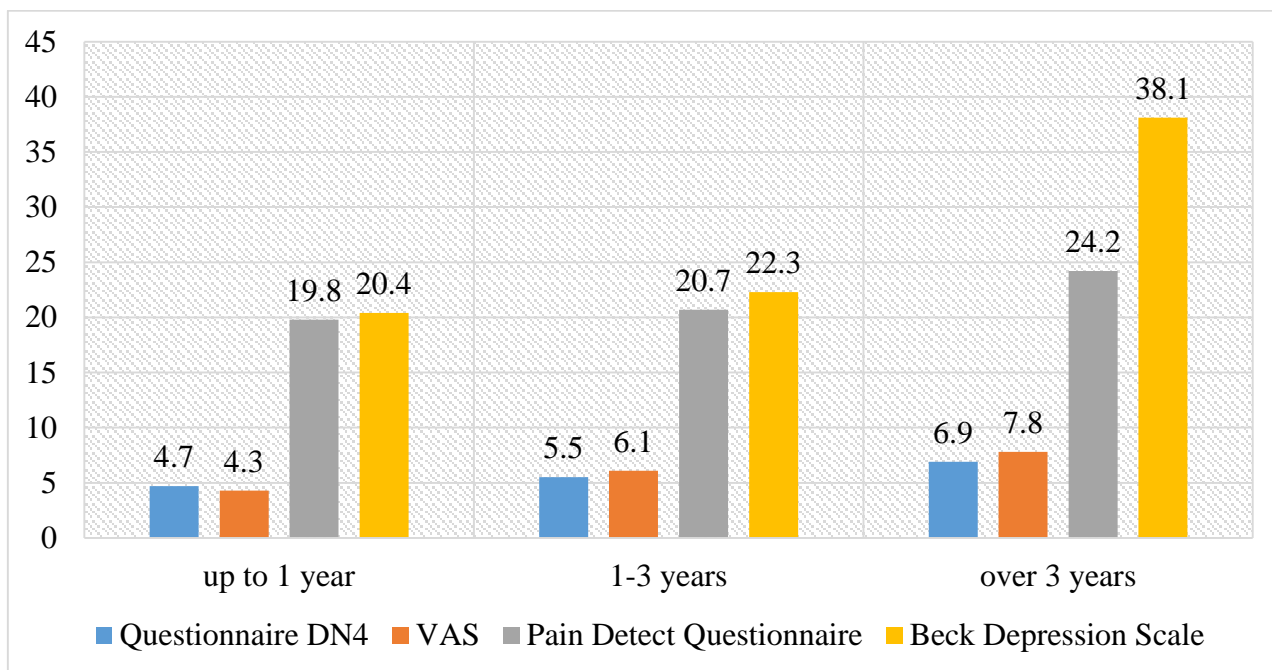


Figure 6. Score for pain in TN, depending on the duration of the disease

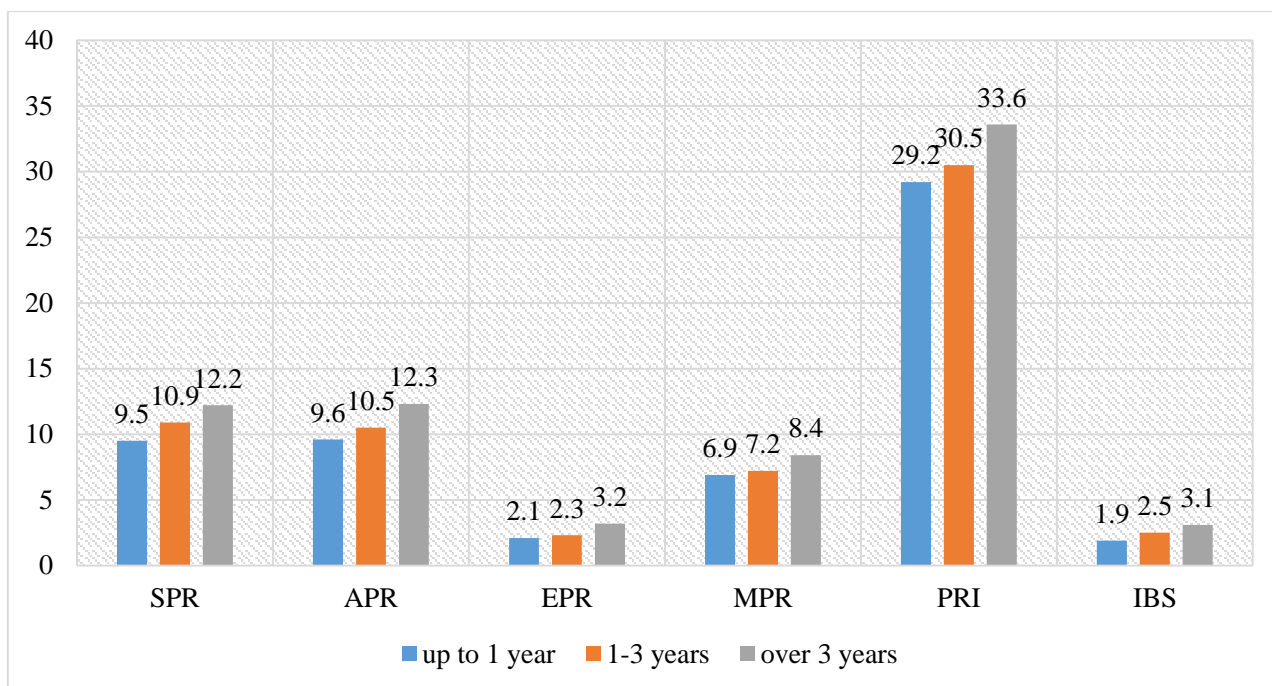


Figure 7. Clinical and vegetative indicators depending on the duration of TN

As can be seen from Figure 7, with an increase in the duration of the disease, the average scores for the sensory component, for the emotional component, the average for the mixed component, and the rank index of pain increase. Especially high scores were obtained in patients with a disease duration of more than 3 years.

CONCLUSIONS

1. Patients of middle and elderly age suffer more often TN, which is 66,7% of observations. Among the patients, women predominate - 64,8%.
2. The clinical picture of TN is determined by the symptom complex of branch lesions and the most specific

symptoms are the presence of trigger zones for the development of pain. The second (32,5%) and at the same time the second + third branches (42,5%) with right-sided localization of the process (53%) are most often affected.

3. Patients of different ages react in different directions to pain syndrome. We have proved on the basis of the data obtained that the intensity of the pain syndrome can be judged by the Beck Depression Scale and VAS. The Beck Depression Scale and VAS used in our study do not reflect an objective picture of acute pain syndrome, especially in the comparison group.

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